



VOLUME II, ISSUE 4 SPECIAL ISSUE - INITIATE 21, BRISBANE -
© 2006, JOURNAL OF ASIA ENTREPRENEURSHIP AND SUSTAINABILITY
NO REPRODUCTION OR STORAGE, IN PART OR IN FULL, PERMITTED
WITHOUT PRIOR PERMISSION.

EDITORS@ASIAENTREPRENEURSHIPJOURNAL.COM

Educating GenerationE in Australasia: US Lessons, New Zealand Experience

Howard Frederick, Professor of Innovation & Entrepreneurship,
Unitec New Zealand

Centre for Innovation & Entrepreneurship, Post Office Box 92025, Mt
Albert, Auckland, New Zealand hfrederick@unitec.ac.nz

ABSTRACT

Australasian countries have huge numbers of young entrepreneurs. Yet the state of entrepreneurship education in this region has yet to come to grips with their needs. Elsewhere in the world, the growth and development in the curricula and programs devoted to raising the level of enterprise and new venture creation has been remarkable. The researcher undertook field study in North America and Europe to examine interdisciplinary initiatives that take the study of entrepreneurship and personal enterprise out of the Business School, integrate it across the campus and make it available to the widest range of students. The paper first describes GenerationE in Australasian countries and in New Zealand. It then classifies and categorises best-practice models of enterprise education, focussing especially on non-business entrepreneurship and university-wide enterprise requirements. The paper summarises these data and formulates “models of enterprise education” outside the business

school environment. It offers generalisations that may prove helpful to educationalists and government policy planners about how to accelerate the development of personal enterprise within individuals and thereby to increase the supply of young people who launch their own businesses and social enterprises. The goal of this paper is to help universities in our region and elsewhere move toward infusing entrepreneurship throughout the curriculum.

Entrepreneurship needs no justification to study it on the grounds of its importance to humanity. It is a wellspring of economic growth, social renewal and personal development. Such an important subject is worthy of deep research, significant reflection and sustained dialogue. When a subject – any subject – has the depth of importance which entrepreneurship possesses, I believe it is capable of being the foundation for great education. (Hindle 2004)

ENTREPRENEURSHIP EDUCATION IN ANCIENT TIMES

Imagine being a young person and trying to become an entrepreneur in ancient times. Where would you go to learn the skills? In Roman times, business enterprise by a noble man led to loss of prestige. Wealth creation was highly valued as long as it did not involve industry or commerce. Landholding and usury were the usual routes. What was a young Roman to do? Fortunately, this situation left the way open for entrepreneurial freedmen, former slaves who were “set up” by their masters to run the businesses.

In Medieval China, the educational system did nothing to help entrepreneurs. Scholarship and officialdom were the routes to success and value was tied up in land, not enterprise. In Europe during the Early Middle Ages around King Arthur’s Court, boys learned warfare and that was the sole accepted means for accumulating wealth. Mark Twain’s *A Connecticut Yankee in King Arthur’s Court* hilariously skewers the Roundtable when a Yankee entrepreneur is transported back to the past and sets up an enterprise academy! (Twain 1889). But by the Late Middle Ages, the revival of towns saw tax-free zones and freed serfs leading to the growth of an entrepreneurial spirit (Baumol 1990).

YOUNG ENTREPRENEURS IN AUSTRALASIA

In the new millennium, the entrepreneurial spirit has more alive than ever. Today’s current younger generation is sometimes referred to as Generation X because they feel “X-ed” out of traditional opportunities. Yet throughout the world, young entrepreneurs have become known as GenerationE because they are creating new and growing business in unprecedented numbers with stunning impact on national economies.

GenerationE has created entirely new industries, achieved self-made wealth, seen the dawn in equity creation and stock market growth. This has not been limited to the upper classes but has been diffused throughout the entire economy.

There are millions of young people around the world who are currently starting businesses. Table 1 shows the statistics for selected countries. New Zealand has the developed world's highest rate of youth entrepreneurship, 43% of its entrepreneurs being between 18-34 years old compared to 38% in the United States. In Singapore, Australia and New Zealand combined, there are more than 1.2 million young people starting businesses.

Table 1 Youth entrepreneurs in selected countries

COUNTRY	PERCENT OF ENTREPRENEURS WHO ARE 18-34 YEARS OLD	TOTAL NUMBER OF ENTREPRENEURS	ENTREPRENEURS BETWEEN 18-34 YEARS OLD
NZ	43%	585,897	252,588
AU	38%	2,665,297	1,009,676
SG	38%	247,835	93,582
US	38%	33,188,909	12,450,928
JP	36%	1,881,869	679,487
UK	36%	3,765,711	1,346,781
CA	35%	2,876,620	1,018,730
HK	34%	203,805	69,956
FI	33%	229,083	75,954

Entrepreneurship not just a first-world phenomenon. The poor in the developing countries can and do get richer through enterprise. UN Secretary General Kofi Annan has said “entrepreneurs have the power to create the greatest change for their own countries” (Annan, 2003). With their peers around the world, these young people are now one of the most entrepreneurial generations since the Industrial Revolution (Tulgan 1999).

NEW ZEALAND'S YOUTH ENTREPRENEURS

The Global Entrepreneurship Monitor shows that New Zealand ranks highest in entrepreneurial activity amongst developed countries (Acs et al., 2005; Reynolds et al., 2004). New Zealand beats Australia, the USA, Canada, and Iceland in both the 2004 and the aggregate 2001-2004 Total Entrepreneurial Activity index for the top five developed countries (Table 2). Using this proportion, we can calculate that in 2004 there are 366,000 New Zealanders currently trying to start a business (entrepreneurs).

Table 2 Total entrepreneurial activity by country, % adult population

TOTAL ENTREPRENEURIAL ACTIVITY BY COUNTRY

	2004		2001-2004
New Zealand	14.67	New Zealand	15.1
Iceland	13.57	Australia	12.9
Australia	13.38	United States	12.4
United States	11.33	Iceland	12.0
Canada	8.85	Canada	9.8

Of special interest is the growing cohort of young entrepreneurs, people in their twenties and early thirties, who contribute to the national goal of returning New Zealand to the top half of the OECD in terms of growth and standard of living. GEM divides young male and female New Zealanders into two age groups 18-24 and 25-34 years of age. Their percentage amongst all entrepreneurs and their calculated count is shown in Table 3. There are 13,176 young New Zealand entrepreneurs between the ages of 18 and 24 and 46,116 between the ages of 25 and 34.

Table 3 Young entrepreneurs in New Zealand, % of adult population and count

YOUNG ENTREPRENEURS IN NEW ZEALAND				
	AGE GROUP	MALE	FEMALE	TOTAL
PERCENT	18-24 YRS	2.50%	1.10%	3.60%
COUNT		9150	4026	13176
PERCENT	25-34 YRS	7.40%	5.20%	12.60%
COUNT		27084	19032	46116

In addition to these “current entrepreneurs,” many more have the intention to become self-employed. In a recent survey, 79% of young New Zealanders aged 15-21 years claimed they would like to start up or own their own business (compared to 38% in the general population). This was spread across all demographic groups. The only exception was that young Māori expressed an even greater degree of interest (92%) than other groups (BRC 2004).

ENTREPRENEURSHIP EDUCATION IN NEW ZEALAND

Those are large numbers for New Zealand, yet it is surprising how little the educational system focuses on the needs of young entrepreneurs. The word “entrepreneurship” does not appear on the entire Ministry of Education website:

Google: “Your search - entrepreneur or entrepreneurship site:.moe.govt.nz - did not match any documents.”

Were it not for the Enterprise New Zealand Trust, pre-university students would simply have no exposure to enterprise themes. New Zealand may have a higher rate of entrepreneurship than the USA, but it is falling behind in entrepreneurship education.

Meanwhile, the growth and development in American curricula and programs devoted to raising the level of enterprise and new venture creation has been remarkable. At the high school level, the National Foundation for Teaching Entrepreneurship (NFTE) has reached over

100,000 young people and trained more than 3,200 Certified Entrepreneurship Teachers (NFTE 2004a). At the university level in the USA there are more than 1,600 such programs teaching 2,200 courses. Research (Rasheed 2001; NFTE 2004b; University of Arizona 2004) shows that students--be they in art or architecture, sport or health--who have had just one course in entrepreneurship or personal enterprise are more likely be self employed, to start successful businesses and to launch social enterprises. Evidence suggests that many of the best ideas in business plan competitions come from non-business majors. Many of the strongest contributors are non-business students, and some of the most innovative entrepreneurial initiatives do not involve business schools. The trend to proprietorship and self-employment is impressive. While we do not have comparable figures for the Australasian countries, in the United States, accurate figures of self-employment amongst the various job categories have been kept (Bureau of Labour Statistics 2004-2005). Table 3 shows the percentage of self-employment of many favoured new-millennium professions.

Table 4 USA Professions, percentage of self-employed

Artists	50%
Photographers	50%
Construction managers	50%
Property, real estate, and community association managers	46%
Writers and authors	33%
Musicians, singers, and related workers	33%
Designers	33%
Carpenters	30%
Management analysts	30%

Automotive technicians	service	16%
Economists		11%
Accountants		10%
Travel agents		10%
Electricians		10%

Veterinarians	28%
Athletes, coaches, umpires,	27%
Actors, producers, and directors	25%
Architects	20%
Dancers and choreographers	20%
Television, video, and motion picture camera operators and editors	20%

Graduates from the performing arts are remarkably high in self-employment rates. As many as half of all artists and photographers, a third of writers and authors, musicians and singers, and a quarter of actors and directors become self-employed. From management analysts to architects, many of today's professions are increasing self-employed.

WHAT DO WE MEAN BY ENTERPRISE AND ENTREPRENEURSHIP?

As the Star Trek TV series etched in our minds: "The mission of the Starship Enterprise is to boldly go where no [one] has gone before".

The word "enterprise" has had an interesting evolution. It often appears in the business context as a synonym for corporation or venture. But it also has a broader sense embodied in the Star Trek series as an "attitude to life, an attitude of exploring, of developing, of leading and of taking initiatives" (Bridge et al. 1998: 21).

Enterprise—as in an enterprising individual—is the process of identifying, developing and bringing a vision to life, be it an innovative idea or simply a better way of doing something. Enterprise applies not only to business ventures, but also to political decisions and social decisions.

The English language is fortunate in having two contrasting words. Enterprising means "marked by imagination, initiative, and readiness to undertake new projects." Entrepreneurial means "willing to take risks in order to create value."

Rheingold (2000) helps us to understand that certain concepts may not be translatable into other languages. While I don't speak all of the following languages, I translated them in various online dictionaries (see Table 5). I can verify that neither French nor Spanish can distinguish between the two concepts. The German word "unternehmungslustig" means someone who loves to undertake new projects while the word "unternehmerisch" has the connotation of the business world, as it undertaking new businesses. Perhaps colleagues can help with other translations.

This paper uses the word "enterprise" in its broadest sense of "enterprising human beings" and not only in the business sense. Whether in art or architecture, sport or health, we can educate students to be enterprising or to have an enterprising attitude. Our goal should be to instil that sense of personal enterprise best embodied by the motto: "I am the sole proprietor of the rest of my life."

Let's see if we can model these divergent yet complimentary perspectives. There are many types of enterprising behaviour of which entrepreneurship is but one. (See Figure 1). For the present we leave aside other enterprising

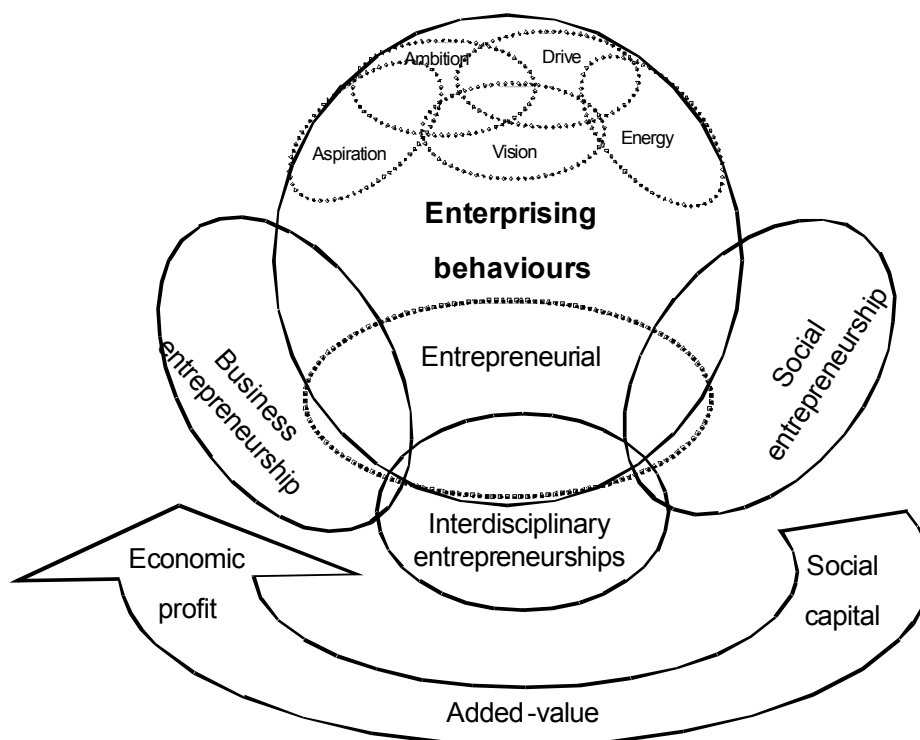
traits such as ambition, aspiration and drive, which are also part of the enterprising individual. We only look at entrepreneur behaviour in this model.

Table 5 "Enterprising" and "entrepreneurial" in 13 languages

English	“enterprising”	“entrepreneurial”
Czech	podnikavý	podnikatelský
Dutch	ondernemend	bedrijfsgericht
French	entreprenant	entreprenant
German	unternehmungslustig	unternehmerisch
Greek	τολμηρός	επιχειρηματικός
Italian	na	imprenditoriale
Japanese	企業的	企業家
Polish	przedsiębiorczy	przedsiębiorca
Portuguese	emprededor	na
Russian	предприимчиво	na
Spanish	emprededor	emprededor
Swedish	företagsam	egen företagare
Source: Interglot.com, babelfish.altavista.com, smx.cz, portalwiedzy.onet.pl		

Figure 1 Enterprising behaviour as superset

In general, an enterprising individual is an opportunity spotter, niche filler,



idea initiator, responsibility taker, influencer, planner and organiser. An enterprising individual is active, confident, purposeful--not passive, uncertain and dependent. Enterprising people have ideas and do something about them even when life is difficult and uncertain. In the business world, we may call this business entrepreneurship, but there are also social entrepreneurs as well as cross-disciplinary entrepreneurs such as arts entrepreneurs, sports entrepreneurs, design entrepreneurs and so forth. That is why we place enterprise as the superset. Enterprising behaviour has many aspects, including ambition, aspiration, drive and so forth.

As a broad concept, Ball (1996) defines enterprise this way:

Enterprise is the capacity and willingness to initiate and manage creative action in response to opportunities or changes, wherever they appear, in an attempt to achieve outcomes of value. These outcomes can be personal, social, cultural and of course economic. Typically, enterprise involves facing degrees of difficulty or uncertainty.

This means bringing a vision to life. Enterprising behaviour is thus the superset under which narrower concepts dwell. These include business entrepreneurship, social entrepreneurship, and interdisciplinary entrepreneurships.

Business entrepreneurship

Perhaps the best known form of enterprising behaviour is business entrepreneurship. Perhaps its most common definition is the process of creating or seizing an opportunity and pursuing it regardless of the resources currently controlled. The American Heritage Dictionary defines an entrepreneur to be "a person who organizes, operates, and assumes the risk for business ventures." Entrepreneurship also refers to the set of skills a person needs in order to successfully start and run a small business. These skills include the ability to identify a need in the marketplace and to take risks.

There is an important distinction to make here. Not everyone who runs a business is an entrepreneur. Small business owners are not necessarily entrepreneurs. Small businesses never achieve anything new nor do they create any wealth; they merely optimise supply and demand in established markets and add nothing of value. They manage the business by expecting stable sales, profits, and growth. Entrepreneurial ventures, on the other hand, are those for which the entrepreneur's principal objectives are profitability and sustained growth. The business is characterized by innovative strategic practices and continued growth. Small business owners

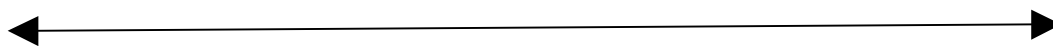
would rather exploit existing equilibrium opportunities and optimise supply and demand in established markets rather than exploit innovative venture opportunities and create new markets at home and abroad. Entrepreneurs do start up small businesses that grow into large and profitable ventures. Small business owners may have started as entrepreneurs but they have lost their zeal to grow, have become lifestyles, are not growth-focused, have low horizons and are not export oriented. An entrepreneur is not just a baby business manager.

Social entrepreneurship

Another category of enterprise is social entrepreneurship. Social entrepreneurs have many of the same personality traits as business entrepreneurs. Social entrepreneurs tackle a wide range of social and environmental issues and operate in all parts of the economy. Where they differ is in the motive of individual self-maximisation. A social enterprise “is a business with primarily social objectives whose surpluses are principally reinvested for that purpose in the business or in the community, rather than being driven by the need to maximise profit for shareholders and owners (UK Department of Trade and Industry, 2002: 8). Alter (2002) considers the value “continuum” created by both profit-making and non-profit organisations (see Figure 2). This ranges from the predominantly social value of the traditional non-profit to the predominantly economic value of the traditional corporation. There are also interesting gradations in the middle, such as the socially responsible business. Social enterprises can be found at any place along this continuum except the extremes. Where the value generated by an enterprise can be seen as a blend of social and economic values, then it can be called a social enterprise.

Figure 2 Alter's value continuum

Traditional Non-profit	Non-profit with some earned income	Non-profit Enterprise	Socially Responsible Business	Corporate Social Responsibility	Traditional Corporation
------------------------	------------------------------------	-----------------------	-------------------------------	---------------------------------	-------------------------



Social Value Economic Value

We can summarise this by saying that like a business entrepreneur, the social entrepreneur identifies opportunities and designs business models. But the

social entrepreneur emphasizes social improvement all the while balancing that with profitability and growth. The success of their activities is measured first and foremost by their social impact (Nicholls 2004).

Interdisciplinary “entrepreneurships”

Beyond this there are crossovers that connect entrepreneurship and enterprise to the most diverse of disciplines that go beyond business.

Evidence suggests that:

- Many of the best venture ideas in business plan competitions come from non-business majors
- Many of the strongest contributors to entrepreneurship courses are non-business students
- Some of the most innovative entrepreneurial initiatives do not involve business schools
- Many of the most successful alumni entrepreneurs did not graduate from the business school.

This category includes arts entrepreneurship, music entrepreneurship, biomedical entrepreneurship, personal enterprise, sports entrepreneurship, nursing entrepreneurship, and so forth.

THE GROWTH OF ENTREPRENEURSHIP EDUCATION

Numerous studies (Finkle and Deeds 2001; Kolvereid and Moen 1997; Lüthje and Franke 2002; Vesper and Gartner 1997) have examined the rise of entrepreneurship education. The phenomenon has reached many countries. For example, Germany is particularly active in new forms of entrepreneurship education with the creation of more than 30 chairs in entrepreneurship between 1997-2004 (Volkman 2004; Klandt 2004; Koch 2003). Solomon et al. (2002) noted the acceleration in the field in two decades. These developments are not limited to the developed world: Latin American universities are seeing a growing commitment to developing entrepreneurial abilities among students and graduates (Kantis et al., nd). Streeter et al. (2002) found that the trend toward university-wide entrepreneurship education was already strong and gaining momentum.

Kuratko (2003) believes that entrepreneurship is the future of business schools and that it is beginning to move into a leadership role. There’s an interesting dialectic in the business education field between control and creativity. Meyer (2001) characterises these conflicting approaches as divergent thought-systems. There is an “ideological chasm” between the control-oriented management disciplines such as finance and accounting and the entrepreneurship teachers who value the creation process.

Hindle (2004) believes that entrepreneurship education is fundamentally at odds with the orientation of the typical university-based business school both in terms of the way material is taught and evaluated. He recalls McMullan and Long (1987: 262) saying that the new field would need to extend beyond the boundaries of schools of management or engineering, perhaps even beyond universities. Legendary entrepreneurship educator David Birch believes that “business schools teach you exactly the opposite of entrepreneurship. . . . Basically, business schools teach you to work for somebody.” (Aronsson 2004: 290). Hindle (2004) questions whether entrepreneurship should even be taught in the business school. He says that entrepreneurship belongs “wherever you want to put it so long as the key condition of imaginative transcendence of the immediately vocational is met. You teach it wherever the right mindset prevails.”

However we look at it has entrepreneurship education “truly arrived”? We can measure this by looking at the usual milestones of a discipline.

According to Kuratko (2004), entrepreneurship education is one of the fastest growing academic disciplines of all time. Vesper & Gartner’s (2001) inventory of entrepreneurship education programs has ballooned. It is now estimated that number of schools teaching a new venture creation or similar courses has grown from about 20 only two decades ago to more than 1,600. Katz (2003) reports that there are more than 150 Entrepreneurship Centres. Hisrich (2004) estimates that there are some 564 professorships in the field of entrepreneurship, 72% of them in the USA (Table 4). Every week another endowed position comes online. Furthermore, he estimates that in the USA alone as many as 100 entry-level positions and 50 endowed professorships remain unfilled as the supply of qualified faculty is falling behind the demand.

Table 6 Number of entrepreneurship professorships, USA and rest of the world

Year	USA	Rest of the world	Total
1991	97	4	101
1999	237	34	371
2003	406	158	564
Source: Robert Hisrich, Case Western University, Ohio USA			

The academic literature in the fields of enterprise and entrepreneurship is vast and deep with at least 45 dedicated refereed academic journals (Hisrich 2004). Assuming 4 issues per year of eight articles, that means that there are

about 1,400 new articles coming out annually. This does not include the mainstream management journals that are devoting more issues (some special issues) to entrepreneurship. Nor does it count the thousands of conference papers presented each year. The literature has long reached the point where it would be impossible for any individual to read all refereed journal articles.

There are now respected conferences on how to teach entrepreneurship (Syracuse University 2004). We even now have our own historian of entrepreneurship education (Katz 2003). In 1970 there was one textbook, now there are dozens.

The movement is growing so fast that it is now expanding outside the Business School. Hundreds of campuses are launching new kinds of “e’ships”: engineering entrepreneurship, nursing entrepreneurship, music entrepreneurship, nutrition entrepreneurship, even statistics entrepreneurship.

There are several drivers. Evidence from around the world shows that there is huge student demand. Indeed, entrepreneurship faculties are a bit of cash cows. But there are other drivers. One is philanthropy. The Kauffman Foundation of Kansas City aims is to transform campus life so that entrepreneurship is as integral and natural a part of the college experience as dorms, cramming for exams and parties. In 2003, Kauffman awarded \$25 Million (2:1 matching grants) to transform culture of eight renowned universities that pledged to make entrepreneurship education available across campus, transform the way entrepreneurship is viewed, taught and experienced, indeed to inject entrepreneurship training and experiences into the fabric of the university. Another is wealthy alums. Throughout the USA successful entrepreneurs are giving back to their almae mater. Hundreds of millions of dollars has been donated for building, professorship, scholarships, dormitories, speakers series, venture funds and the like.

MY RESEARCH OBJECTIVES

With these thoughts in mind, the author undertook field research to examine the increasing number of initiatives that aim to satisfy GenerationE’s needs. The particular aim was to examine inter-disciplinary initiatives that aim to break the study of entrepreneurship and personal enterprise out of the business school and to integrate it across the campus. The researcher visited sixteen campuses in Europe and North America to conduct in-depth interviews, attended important meetings where the leaders of this “movement” congregate, spoke to hundreds of people, and carried out Web

research. The aim was to classify and categorise best-practice models of enterprise education, focussing especially on cross-disciplinary non-business entrepreneurship and university-wide enterprise general education requirements.

The paper summarises and reviews the literature and practice in the field and then categorises the observed cases into “models of enterprise education.” It looks at the state of entrepreneurship education today in the leading universities around the world. It examines evidence about the impact of entrepreneurship education and attempts to classify entrepreneurship within a superset of values known as enterprise. The paper’s ultimate aim is to accelerate the development of personal enterprise within individuals and to increase the supply of young New Zealand entrepreneurs who launch their own businesses and social enterprises.

Results

The main purpose of this field research was to examine models that take entrepreneurship education beyond the business school. Through visits to 16 campuses and in-depth interviews with 24 others, the aim is to classify and categorise best-practice models of enterprise education, focussing especially on cross-disciplinary non-business entrepreneurship and university-wide enterprise general education requirements.¹ Illustrative entrepreneurship education models that go beyond the business school would include university-wide initiatives, interdisciplinary “entrepreneurships”, technical or science entrepreneurship, social and community entrepreneurship, faculty/staff education, and centres, incubators and other initiatives.

University-wide initiatives

These are large interdisciplinary programs that infuse entrepreneurship across the school or even university-wide.

- For Babson College, entrepreneurship is at the core of the entire undergraduate, graduate and executive programs. The undergraduate

¹ Campus visited: Babson College, London Business School, Monterrey Institute of Technology, Syracuse University, Cornell University, Université Paris-Dauphine, Temple University, University of Portland, University of Applied Sciences in Jena, Wuppertal University, University of Hohenheim, Florida International University, Florida Gulf Coast University, Pennsylvania State University, University of Southern California, and University of Hawaii. Other meetings and consultations were held at “The Experiential Classroom” (training seminar for entrepreneurship professors; the National Consortium of Entrepreneurs Centres; Get-Up Forum on University-Based Start-ups, Jena; the Forum Gründungsforchung Interdisziplinäre Jahreskonferenz zur deutschsprachigen Entrepreneurshipforschung 4-5 November 2004, Stuttgart; and (with the kind assistance of Associate Professor Peter Mellalieu) the Stanford Roundtable on Entrepreneurship Education. Field notes on all 40 programs are available from the researcher.

curriculum incorporates a cross-disciplinary integration of management and the liberal arts. The Olin College of Engineering uses technology entrepreneurship as a unifying principle of the backbone.

- At Cornell University, the Entrepreneurship and Personal Enterprise (EPE) Program is centred in the College of Agriculture and Life Sciences but comprises twenty-five staff from nine Colleges and Schools, whose Deans serve as the EPE Governing Board. More than fifty courses are listed at EPE affiliated schools and colleges. The Entrepreneurship program at Cornell is so enormous that there are even three Entrepreneurship centres.

- At Florida International University The Global Entrepreneurship Center facilitates all entrepreneurial activities at FIU. The Center provides campus-wide awareness of entrepreneurship as an approach to life that enhances and transcends traditional academic experiences of one of the nation's largest ethnically diverse academic institutions. In addition to its academic course offerings, the Center utilizes five operational units, operating in synergy to implement its program. They are the Entrepreneurial Academy, Institute for Family Business, Institute for Technology Innovation, Entrepreneurship Research Institute, and Institute for Community Innovation.

- One of the largest and oldest Entrepreneurship programs in the world, Monterrey Institute of Technology (ITESM) has been teaching "Development of Entrepreneurs" as university-wide course for more than 20 years. It currently has 120 tutors teaching this course on 35 campuses to all undergraduates. More than 40 other universities around Latin America have adopted (franchised) this course. This is likely the largest entrepreneurship course in the world and arose originally in the Centre for the Development of Entrepreneurs within the School of Management. It has now been elevated to the Rector's office to serve the entire university community.

- Syracuse University's Program in Entrepreneurship and Emerging Enterprises (EEE) approaches entrepreneurship as a philosophy of life. The program infuses entrepreneurship into the schools, divisions and units throughout the campus through an integrated, campus-wide curriculum. The University is in the midst of launching the Syracuse Comprehensive Entrepreneurship Initiative (SCEI) to get all students on campus to start businesses.

Interdisciplinary "entrepreneurships"

- At Belmont University, the Center for Entrepreneurship collaborates with the Mike Curb College of Entertainment & Music Business. Students can take extended coursework in entrepreneurship within the music business

program or they can integrate music business courses into a major in entrepreneurship.

- California State University, Chico is uniquely moving into the humanities entrepreneurship space. It is developing courses in Performing Arts and Commerce; History of Entrepreneurship; Literature and Entrepreneurship; Philosophy and Business; and Culture and commerce.

- At Pennsylvania State University entrepreneurship extends the Business school to Agriculture, Communications, Engineering, Hotel, Restaurant and Institutional Management, and Science. One example is the Communications Department's COMM 493 Entrepreneurship in the Information Age, which covers trends and opportunities in the media and information sectors, high tech start-up and employment issues, financing options and market research, and starting and managing a small media firm.

- Temple University has the Innovation and Entrepreneurship Institute (IEI) providing students with extra-curricular opportunities to foster entrepreneurship and innovation. The goal of the program is to facilitate entrepreneurship in the arts, entertainment, leisure and other disciplines by offering an integrated curriculum supplemented by extra-curricular activities. Across campus at the Annenberg School of Communication is another project entitled "C.R.E.A.T.E. Commerce, Recreation, Entertainment, Arts and Technology Entrepreneurship", a collaborative cross-disciplinary approach to entrepreneurship education highlighting arts, entertaining, and leisure. The School of Communications offers courses in entrepreneurship including an online course entitled "Creating a New Media Business." The School of Tourism and Hospitality Management also offers a course in entrepreneurship as it relates to leisure.

- University of Colorado Leeds School of Business allows graduate students to combine Entrepreneurship with Law, Computer Science, Environmental Studies, Engineering, Fine Arts, Anthropology, and even Germanic Languages. For example, Entrepreneurship in Computing examines opportunity identification, feasibility study, fundraising, organization, team creation, and exit strategies through case studies, oral and written presentations, and outside speakers. The Entrepreneurship Center for Music has a unique program of academic courses in music entrepreneurship.

Technical or science entrepreneurship

After the convention business major, the second most frequent entrepreneurship programs are for engineers and technologists. Numerous examples abound.

- At Case Western Reserve the Entrepreneurship Division works at all levels of education (undergraduate, graduate and Ph.D.) as well as through unique programs such as the Master of Science in Entrepreneurship (with departments in the College of Arts and Science), Master of Technology and Master of Bioscience Entrepreneurship (with the School of Engineering) and its own Bioscience concentration in the MBA program.
 - University of Arizona's Associates in Technology Transfer Program allows students from local technical colleges to select a one-year entrepreneurship program. It pairs technology students with business students for the development of a technology-based business plan. New ideas and inventions developed in the colleges of Science, Engineering, Agriculture, and Medicine become the basis of business plans to profitably transfer UA developed technology.
 - Pennsylvania State University's Business school offers undergraduate Engineering Entrepreneurship Minor together with College of Engineering. Business and engineering students recruited into courses, with teams composed of students with diverse backgrounds and problem-solving approaches.
- Social and community entrepreneurship
- Brigham Young University offers the typical range of entrepreneurship classes are taught in management, engineering and computer science. BYU also focuses as well on developing entrepreneurs in developing countries and sponsors summer entrepreneurship internships in less-developed countries such as Honduras.
 - At Case Western, Entrepreneurs for Sustainability is a unique, diverse group of entrepreneurs, inventors, business leaders, bankers, architects, developers, restaurant owners, manufacturers, educators, high school and college students, designers, engineers, researchers, writers, farmers, consumers, government planners, environmentalists and capitalists. They assist new businesses in emerging sustainable industries (energy, local/organic food systems, transportation, materials, green building) and opportunities to improve the sustainability of new and existing business by implementing sustainability principles in product and process design.
 - Fordham University's Center for Entrepreneurship (FCE) looks at family businesses and social entrepreneurship. Unique amongst the American universities, Fordham University host a Conference for Promotion of Entrepreneurship and Human Rights to analyse factors that promote entrepreneurship and respect for human rights.

- The University of Arizona's Rodel Social Entrepreneurship Initiative to create and enhance socially responsibility business planning initiatives in Southern Arizona. It holds a competition for socially relevant business plans.
- University of Hawaii's Pacific Asian Center for Entrepreneurship & E-Business (PACE) is the home for an integrated set of leading edge entrepreneurship programs at the University of Hawaii. Based in the College of Business Administration, PACE is dedicated to fostering the entrepreneurial spirit among all members of our community. Programs are organized into three areas: an innovative graduate and undergraduate curriculum reflecting an Asian Pacific theme; research projects that facilitate entrepreneurial practice and the advancement of our understanding of entrepreneurship in the Pacific Rim; and an active agenda of community outreach and involvement with Pacific Asian entrepreneurs and entrepreneurial ventures.
- University of Portland's Center for Entrepreneurship offers a variety of resources for the community, from business consulting to a "Mini-M.B.A." program for high school students. Among the centre's programs are the Entrepreneur Scholars (E-Scholars) program, which helps undergraduates manage their own business ventures; the \$16K Challenge, which provides start-up funds for new businesses; Executive Pastoral Management Training, a program that helps clergy members develop business skills; and corporate entrepreneurship ventures. As a Jesuit institution, it has a special focus on environmental, sustainable and social entrepreneurship.

Faculty/staff education

- Cornell University each year offers the J. Thomas Clark Professorship. Clark Professors have created new courses integrating entrepreneurship basics into the areas of science, engineering and design. The professorships provide funding for faculty members from throughout the university to develop new courses or engage in research in the areas of new business creation, innovation and development. Courses that have been developed include: Entrepreneurship within Economically Depressed Areas, Entrepreneurship in Chemical Enterprise, Entrepreneurship for Designers, Engineering Entrepreneurship, Management and Ethics in Social Entrepreneurship, Hotel Sales for Entrepreneurs, Entrepreneurship in Hospitality, Entrepreneurship and Enterprise.
- One of Syracuse's most important initiatives is the "Experiential Classroom," clinics that address the growing need for high quality teachers within the field. These clinics are primarily intended for: staff from any

discipline who are re-tooling so that they can teach entrepreneurship; entrepreneurs planning to return to the classroom to teach entrepreneurship courses; adjunct staff teaching entrepreneurship on a part-time basis; new staff teaching entrepreneurship for the first time. These workshops offered best classroom practices from around the world.

- The Kauffman Entrepreneurial Faculty Scholars Program provides funds to faculty members from Missouri colleges and universities for specialized training and professional development in entrepreneurship. These scholars study approaches to enterprise thinking and craft an individually-tailored learning plan.

Centres, incubators, and other initiatives

Connected with the academic programs are initiatives that include entrepreneurship centres, business incubators and many other activities.

- The National Consortium of Entrepreneurship Centers comprises more than half of the estimated 250 centres in the US. It is the vehicle by which the top and the emerging centres can work together to share information; develop special projects, and assist each other in advancing and improving their impact.

- The centrepiece of Oregon State University's Austin Entrepreneurship Program is the residential college at Weatherford Hall, where business, engineering, and other OSU students with entrepreneurial interests, live, dine, learn, work, and dream together in an incubator community.

- At Syracuse University, the CIE Learning community entrepreneurship residence hall has 72 students, 60% of whom are non-business. The residence hall director is a clinical professor of entrepreneurship. Students must take a 1-unit required course. The weekly schedule is: Monday mentoring; Tuesday the class; Thursday speaker or a movie; Saturday is entrepreneur "jam session."

- Simmons College School of Management is focused on women who want to strike out and build innovative and successful organizations for themselves and their communities. For example, MGMT 237 The Woman Entrepreneur: Starting, Marketing, and Managing a Small Business addresses the opportunities and risks involved in starting and operating a new business and teaches effective managerial and marketing skills necessary for success. It focuses on developing, planning, managing, and growing an entrepreneurial firm.

- Temple University's League for Entrepreneurial Women hosts an annual Women's Entrepreneurship Conference, which brings together

businesswomen from around the country to network and advise students. The school also sponsors an annual Ideas Competition, which awards cash prizes to students and helps them receive assistance in developing their ideas for the market.

- Florida International's Institute for Family Business fosters the survival, growth, and economic sustainability of family-owned and managed companies. The Institute's specialized programs deal with issues such as financing privately-held companies, firm and family governance, succession planning, and crisis and conflict management. The Institute offers a Certificate Program for Family Business Professionals for those who either manage or service family-owned businesses and a Directors' Training Program for those serving on boards of privately held firms.
- The Institute offers regular outreach activities and lectures for local family-owned firms, including a Hispanic Family Business Forum that will help Hispanic-owned companies network and learn from each other. It also sponsors the FIU Family Business Awards.

Discussion and conclusions

This field research uncovered the widest range of educational interventions. More and more universities are offering entrepreneurship available to any undergraduate student. To address the paucity of qualified staff, training courses are now offered to faculty who want to reorient their teaching toward enterprise. Jesuit Universities and others are specialising in social enterprise and sustainable entrepreneurship. Brigham Young and others are now sending entrepreneurship educators into the Third World. One can now double-major in music business and entrepreneurship in Nashville at Belmont University. Nursing schools help nurses understand that their careers need not be within corporate hospital environments. Nutrition entrepreneurship, sport entrepreneurship, entrepreneurship and human rights:

The list is limited only to the imagination. There are Humanities courses in "Literature of Entrepreneurship," "History of Entrepreneurship," and "Arts and Enterprise Culture." There are now entire dormitories for student entrepreneurs, and alumni-driven fund-raising for entrepreneurship education. Business plan competitions and access to capital, student and staff incubators, commercialisation initiatives, "clinical professorships" of real-life entrepreneurs: Evangelical colleges are even offering religious entrepreneurship. All of these modalities are attempting to keep in step with the needs of enterprising students.

Politically within the Business Academy, an interesting development is taking place. Entrepreneurship faculty are taking over leadership roles from their management and accounting colleagues, indeed they are moving up into the ranks of senior leadership. Notable entrepreneurship educators are moving up to more prestigious universities. Small rural campuses such as Ball State University in Indiana can distinguish themselves in the ranking as leading programs. The field is so hot that Cornell University has three competing Entrepreneurship Centres. Monterrey Institute of Technology since 1982 has required “Development of Entrepreneurs” of all undergraduates. One of the largest universities in the USA, Pennsylvania State University with 82,000 students, is working on a plan to offer a General Education Elective in entrepreneurship to all students.

Here we examined entrepreneurship programs attempting to ingrain themselves within the broadest range of academic programs. These universities and colleges may well have enterprising cultures but the trick is infusing their academic programs with an enterprising structure. They use a variety of models to spark a university-wide focus on creating enterprising human beings within academic programs. All aim develop sustainable programs that transcend the traditional boundaries of entrepreneurship education within the business school by being truly interdisciplinary and involving other academic elements of the University. They all operate within the general definition of “enterprise”:

An enterprising individual has a positive, flexible and adaptable disposition toward change, seeing it as normal and as an opportunity rather than a problem. To see change in this way, an enterprising individual has a security born of self-confidence, and is at ease when dealing with insecurity, risks and the unknown. (Ball 1989)

Whether in art or architecture, sport or health, they encourage people who have the capacity to initiate creative ideas and formulate them into actionable visions. A person who steps forward and is anxious to take responsibility, is an effective communicator, negotiator, influencer, planner and organiser, is the kind of person who can teach entrepreneurship, whether in the business or social setting.

I can only conclude by citing my good colleague Kevin Hindle (2004), who says:

The aim in any entrepreneurship faculty should be for a well-balanced, well-mixed program team of committed, good teachers —not a search for universal perfection in every single teacher. This may mean a higher proportion of team-teaching and multiple presenters within the one subject. Students could greatly benefit from a sprinkling of well-chosen adjunct and sessional teachers whose presentations were based on commitment to balanced education not mortgaged to an ego-centric perspective of unanalysed personal experience.

Bottom line is that the teacher should be an enterprising individual.

REFERENCES

- Acs, Z, Arenius, P, Hay, M, & Minniti, M. (2005). *Global Entrepreneurship Monitor: 2004 Executive Report* (London: London Business School, 2005). Available from www.gemconsortium.org
- Alter, S (2002). *Case Studies in Social Enterprise*. Washington, DC: Counterpart International, Inc. <http://www.virtueventures.com/files/cicases.pdf> (23 July 2004)
- Annan, Kofi (2003). Secretary-General Launches Commission on Private Sector and Development at Headquarters Press Briefing, July 27, 2003. Retrieved on January 24, 2004 from <http://www.un.org/News/briefings/docs/2003/UNDPbrf.doc.htm>
- Aronsson, M (2004). "Education Matters – But Does Entrepreneurship Education? An Interview With David Birch." *Academy of Management Learning & Education* 3 (3), 289-292.
- Ball, Colin (1989), *Towards an Enterprising Culture: A Challenge for Education and Training*. Paris: OECD/CERI. <http://www.curriculum.edu.au/enterprise/eenwsltr/eenws3.htm>
- Baumol, WJ (1990). "Entrepreneurship: Productive, Unproductive, and Destructive," *Journal of Political Economy* 98 (5), 893-921.
- BRC Marketing & Social Research (2004). "Developing a culture of entrepreneurship among young people in New Zealand. Stage Two: Quantitative Benchmark Survey." *New Zealand Trade & Enterprise* (July) <http://www.nzte.govt.nz/section/13673/11637.aspx>
- Bridge, S; O'Neill, K & Cromie, S (1998). *Understanding Enterprise, Entrepreneurship & Small Business*. Macmillan, 1998.
- Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2004-05* <http://www.bls.gov/oco/ocoiab.htm> (visited November 14, 2004)

- Finkle, T. & Deeds, D (2001). "Trends in the Market for Entrepreneurship Faculty, 1989-1998." *Journal of Business Venturing*, 16: 613-630.
- Hindle, H (2004). "Teaching entrepreneurship at university: from the wrong building to the right philosophy." Paper delivered as keynote speech to the 21st Annual Conference of the Canadian Council for Small Business & Entrepreneurship, University of Regina, Regina, Saskatchewan, Canada November 12.
- Hisrich, R (2004). "Entrepreneurship Research and Education in the World: Past, Present, and Future." Keynote Address. Eighth Annual Interdisciplinary Entrepreneurship Research Conference of the German Speaking Countries. Stuttgart. 4-5 November
- Kantis, H., Postigo, S., Federico, J. & Tamborini, MF (nd) "The emergence of university graduate entrepreneurs: what makes the difference? Empirical evidences from a research in Argentina." *Laboratorio de Investigación sobre Tecnología, Trabajo, Empresa y Competitividad* [www.littec.ungs.edu.ar/pdfingles/Paper%20RENTXVI%20\(English\).pdf](http://www.littec.ungs.edu.ar/pdfingles/Paper%20RENTXVI%20(English).pdf)
- Katz, J.A. 2003. "The chronology and intellectual trajectory of American entrepreneurship education 1876-1999." *Journal of Business Venturing* 18: 283-300.
- Klandt, H (2004). "Entrepreneurship Education and research in German-speaking Europe. *Academy of Management Learning & Education.*" *Entrepreneurship Education* 3 (3): 293-301.
- Kolvereid, L & Moen, O (1997). "Entrepreneurship among business graduates: does a major in entrepreneurship make a difference?" *Journal of European Industrial Training* 21 (4): 154-160.
- Kuratko, D (2004). "Top Ten Traps for Entrepreneurship Education." Presented at the "Experiential Classroom: Lifelong Learning for Entrepreneurship Education Professionals" (September 18)
- Kuratko, DF (2003). "Entrepreneurship Education: Emerging Trends And Challenges For The 21st Century." 2003 Coleman Foundation White Paper Series for the U.S. Association of Small Business & Entrepreneurship.
- Lüthje, C. & Franke, N (2002). "Fostering entrepreneurship through university education and training: Lessons form Massachusetts Institute of Technology." Presented at the 2nd annual conference of the European Academy of Management, Sweden.
- McMullan, WE & Long, WA (1987). "Entrepreneurship education in the nineties." *Journal of Business Venturing* 2: 261-275.

Meyer, GD (2001). "Major Unresolved Issues and Opportunities in Entrepreneurship Education". Presented at the 2001 USASBE/SBIDA Joint National Conference. www.usasbe.org/pdf/CWP-2001-meyer.pdf

NFTE National Federation for Teaching Entrepreneurship (2004a). "Study links entrepreneurship education programs to increased interest in academic achievement." <http://www.nfte.com/news/pressreleases/>

NFTE National Federation for Teaching Entrepreneurship (2004b). "Our impact." <http://www.nfte.com/impact/>

Nicholls, A (2004). "Education and Research in Social Entrepreneurship." Presentation to Skoll World Forum on Social Enterprise, Oxford University http://www.sbs.ox.ac.uk/html/faculty_skoll_main.asp.

Rasheed, H (2001) "Executive Summary: The Effects of Entrepreneurship Training and Venture Creation on Youth Entrepreneurial Attitudes and Academic Performance." University of South Florida. http://www.coba.usf.edu/departments/management/faculty/rasheed/youth_entrepreneurship.htm

Reynolds, P., Bygrave, B., Autio, E., Arenius P., Fitzsimons, P, Minniti, M., Murray, S., O’Gorman, S., & Roche, F (2004). Global Entrepreneurship Monitor 2003: Global Report. Babson College and London Business School. Retrieved from www.gemconsortium.org

Rheingold, Howard (2000). They Have a Word for It (Sarabande Books)

Solomon, GT, Duffy, S & Tarabishy, A (2002). "The state of entrepreneurship education in the United States: A nationwide survey and analysis". International Journal of Entrepreneurship Education 1(1): 1-2.

Streeter, DH, Jaquette, JP & Hovis, K (2002). University-wide Entrepreneurship Education: Alternative Models and Current Trends. Working Paper 2002-02, March 2002. Department of Applied Economics and Management, Cornell University. epe.cornell.edu/downloads/WP_2002_final.PDF

Syracuse University 2004. "Experiential Classroom: Lifelong Learning for Entrepreneurship Education Professionals" <http://sominfo.syr.edu/eee/falcone/classroom/about.asp>

Tulgan, Bruce (1999) "Generation X: The Future Is Now". Entrepreneur of the Year Magazine (Fall 1999): 42.

Twain, Mark (Samuel L. Clemens) (1889) A Connecticut Yankee in King Arthur’s Court (New York: Harper & Row, 1973)

United Kingdom Department of Trade and Industry (2002). "Social Enterprise: A Strategy for Success," at

<http://www.dti.gov.uk/socialenterprise/> (2 Sep 04). DTI/Pub 6802/4k/10/03.
URN 02/1054

University of Arizona, Karl Eller Center and the McGuire Entrepreneurship Program (2004) “Entrepreneurship Education Impact Study”
http://www.eller.arizona.edu/programs/mcguire/publications/impact_measuring.html

Vesper, K. & Gartner, W (2001). “University Entrepreneurship Programs.”
Los Angeles: Lloyd Greif Center for Entrepreneurial Studies, Marshall School of Business. www.marshall.usc.edu/entrepreneur/

Volkman, C (2004). “Entrepreneurial studies in higher education.” *Higher Education in Europe* 29 (2): 177 – 185