QAA Scotland

Creating Entrepreneurial Campuses

A report for Scotland

February 2014

Contents

Foreword

This insightful paper clearly sets out the nature of the challenge of enterprise and entrepreneurship education to Higher Education (HE) institutions. It usefully takes a developmental perspective demonstrating importantly the nature of the progress that has been made in this field nationally and internationally, and many of the issues that have now been resolved and others that remain outstanding. It is forward looking in addressing how existing experience can be, and is being (with case examples), built upon. As such it will provide a valuable stimulus to further experience exchange and development.

 A broad approach is taken to exploring the nature of key challenges in: developing embedded enterprise and entrepreneurship education models across the whole university; widening the pedagogical approaches and associated staff development needed; creating partnerships within and outside the university to widen the student and staff experience; linking the curriculum and pedagogy to the future different 'life-worlds' of the students in different departments; clearly differentiating the different knowledge and skills sets needed; and separating them from corporate business models, interestingly putting the business plan in its place!

Perhaps its most important contribution, however, as the paper title suggests, is its emphasis upon engaging the whole organisation and campus in the entrepreneurial learning process. The importance of addressing this issue is clearly established at the beginning of the paper in terms of the demands now being made upon the university sector, which are moving the almost traditional entrepreneurship focus well beyond technology transfer and technical innovation processes.

Therefore, an extremely useful framework is provided for all those in the HE sector, and its stakeholders, who are taking up to the challenge of implementing the QAA guidelines.

Allan Gibb

Professor Emeritus University of Durham

Summary

This report makes the case that current and future graduates need to be capable of enterprising and entrepreneurial behaviour to cope with increased uncertainty and complexity arising from fundamental changes in the labour market, as well as from the changing aspirations of the millennial generation. This requires universities to create entrepreneurial campuses - campuses which stimulates the entrepreneurial aspirations of students and provides them with the opportunity to develop relevant skills, knowledge and experience, and offers relevant support and resources to enable them to start their own business.

The 2012 Quality Assurance Agency for Higher Education (QAA) report *Enterprise and entrepreneurship education: Guidance for UK higher education providers*[1] emphasised that entrepreneurial learning is achieved through both curriculum and extra-curricular activities. With respect to the curriculum, the idea that entrepreneurship can be taught is now accepted. Rather more significant questions concern what is taught, how it is taught, who is taught and who teaches? There is a growing consensus that experiential methods of learning are required. Focusing entrepreneurship teaching in a business school is criticised; more effective is a distributed model in which entrepreneurship education is embedded in each academic department, faculty or school.

An entrepreneurial campus will not only teach entrepreneurship across the campus but will also create an environment that supports entrepreneurship in ways that raise entrepreneurial awareness and provide opportunities for students to develop entrepreneurial capabilities, skills and know-how. This will include activities such as entrepreneurship clubs, boot camps, business plan competitions, entrepreneurs-in-residence and start-up support (for example, incubator space, funding, mentoring).

---

[1] QAA (2012) *Enterprise and Entrepreneurship Education: Guidance for UK higher education providers,* available at: www.qaa.ac.uk/Publications/InformationAndGuidance/Pages/enterprise-entrepreneurship-guidance.aspx

Introduction

For at least the past 30 years the rhetoric from successive governments is that UK universities need to make a greater contribution to economic growth. This has now become formalised as 'third-mission' activities that sit alongside the universities' traditional teaching and research activities, and which involve engagement with social and economic development. Meanwhile, reduced spending in relative terms has meant that universities have had to seek additional income streams. A further pressure, arising from a combination of increased student numbers and the ending of 'free' university education, has been calls for student employability to assume greater importance. All of this has been reduced to the argument that universities need to be more entrepreneurial. However, what this actually means in practice is contested.

The concept of an entrepreneurial university has been around for at least 25 years. However, it has evolved quite significantly since the term was originally introduced by Burton Clark.[2] At least three different iterations of the concept can be identified.

Clark applied the concept to the organisational practices and decision-making structures of universities. For him, an entrepreneurial university was one that was managed in such a way that it was capable of responding flexibly, strategically and coherently to opportunities. It had an entrepreneurial culture that was willing to search for and exploit opportunities for innovation and development. As such, the concept had narrow applicability to university management. Subsequently, the notion of an entrepreneurial university became associated with technology transfer activities through which universities sought to commercialise their research. Offices were established to patent the scientific discoveries of university academics and license them to large companies and spin-off companies. In many cases these efforts extended to the establishment of science parks and incubators to facilitate the transfer of knowledge from universities to businesses. This, in turn, meant that universities were seen to have a key role to play in regional innovation systems. Etzkowitz's Triple Helix concept[3] sees universities working in partnership with industry and government in an interactive, rather than linear model of innovation. A further morphing of the concept of the entrepreneurial university, developed by Allan Gibb,[4] emphases the university's role in stimulating entrepreneurial behaviour by students to enable them to cope with uncertainty and complexity. Typically this is reflected in activities to provide students with the knowledge and skills required to start their own businesses. He argues that this role is consistent with Cardinal Newman's view of the university as being at the centre of the imaginative use of knowledge.

The concept of the entrepreneurial campus is a further broadening of this focus on producing entrepreneurial graduates. There are two alternative perspectives. The Kauffman Foundation of the USA, which has funded several universities to develop

---

[2] Clark B R (1998) *Creating Entrepreneurial Universities*; B R Clark (2004) *Sustaining Change in Universities: continuities and case studies and concepts*.
[3] Ekzkowitz H (2008) *The Triple Helix: University-Industry-Government Innovation in Action*.
[4] Gibb A A (1993) Enterprise culture and education: understanding enterprise education and its links with small business, *International Small Business Journal*, 11 (3), pp 11-34; Gibb A and Hannon P (2006) *Towards the Entrepreneurial University,* available at: https://webspace.utexas.edu/cherwitz/www/articles/gibb_hannon.pdf.

entrepreneurial campuses, argues that for universities to advocate entrepreneurship as a means to commercialise its scientific knowledge but not teach that activity to their students represents a huge disconnect between its mission and, as such, is educationally incoherent.[5] It therefore sees the need for entrepreneurship to be embedded within universities. However, the broader definition is simply a campus which stimulates the entrepreneurial aspirations of students and provides them with the opportunity to develop relevant skills, knowledge and experience, and offers relevant support and resources to enable them to start their own business.

As such, and in contrast to earlier activities under the entrepreneurial university label (but consistent with Gibb's view) in which activity was confined to specific parts of the institution, typically the technology transfer office and the business school, an entrepreneurial campus should be owned by a wide variety of stakeholders from across the university.

The report is in three parts. First, it considers in more detail the case for entrepreneurial campuses. Second, drawing upon a recent QAA report[6] a template is offered of the entrepreneurial campus which emphasises both curricular and extra-curricular activities. Third, we consider how these curricular and extra-curricular activities might be delivered. Case studies of some initiatives by Scottish universities are provided on the Enhancement Themes website.[7]

---

[5] Kauffman Foundation (2008) *Entrepreneurship in American Higher Education*.
[6] QAA (2012) *op. cit.*
[7] Case studies are available at: www.enhancementthemes.ac.uk.

Why do we need to create entrepreneurial campuses?

Before proceeding further we need to consider the arguments for creating entrepreneurial campuses. The first is pressure from government. The current Government recognises that entrepreneurship is a key driver of economic growth and has a core objective to make the UK the best place in the world to start and grow a business. An independent Scottish government can be assumed to place an equally high priority on the promotion of entrepreneurship. Entrepreneurship is seen as a key source of on-going innovation and hence a major driver of economic development and job creation. Both the previous Labour government and the present Coalition have therefore called for universities to produce more enterprising graduates. Government also expects universities to engage through its research, teaching and 'third-mission' activities in supporting economic development. Arguably the contribution of universities in the north to local and regional economic development is even more important because of the need to rebalance the geography of the UK economy.[8]

Meanwhile, under pressure from students and their parents, as well as employers, government is insisting that universities give much greater emphasis to graduate employability. Employability rates are being used by prospective students as important performance indicators in their choice of which university to study. This reflects several factors: the increase in the number of students and the high cost of a degree, the negative comments from employers on the employability of graduates, and the need for more than just academic knowledge to succeed in the business environment. All of this puts an obligation on universities to support their students in developing the additional skills necessary for a successful career. Universities have responded by giving increasing emphasis to the employment skills of its graduates. However, with employers looking for graduates who can exhibit enterprising behaviour, universities need to broaden their thinking on employability to include enterprise and entrepreneurship, arguably moving these issues to the core of its employability agenda. A narrow definition of entrepreneurship education is that it is about how to start a business. However, a broader definition emphasises the development of entrepreneurial capabilities and mindsets, the capability for high-order thinking and the ability to cope and thrive under conditions of change. Jones[9] makes a clear connection between this approach and graduate employability.

A further consideration is changes in the labour market. This has a number of dimensions. First, the supply of graduate-level jobs has not kept pace with the expanding number of graduates. Second, life-long employment with a single employer is no longer the norm; the current generation of graduates must expect frequent career changes, both voluntary and enforced. A personal example illustrates the challenges that graduates will increasingly encounter: my cousin, a graduate in Business and Language from a Scottish University, has been made redundant on two occasions from blue chip financial services companies undergoing restructuring exercises within five years of graduating. Her experience will not be unusual. Third, the rapidly changing

---

[8] Schmiecker K and Cook W (2012) *Beyond Bricks and Mortar Boards: Universities and the Future of Regional Economic Development*.
[9] Jones C (2011) *Teaching Entrepreneurship to Undergraduates*.

business environment is putting pressure on companies to be entrepreneurial; companies are therefore looking to recruit entrepreneurial graduates. In short, 'an economic environment where traditional jobs decreasingly are secure and stable, learning to cope with risk, spot opportunities and innovate has become an essential life skill, one which more and more students want.'[10]

Furthermore, work is being restructured, with project work, freelancing and outsourcing replacing permanent jobs. As William Bridges[11] presciently observed some twenty years ago 'you'll be running your own career as a business regardless of whether you are an employee for your present employer...or an independent worker.' Graduates therefore have to develop a mindset, an approach to their work and a way of managing their careers that is more like that of an external vendor who has been hired to accomplish a specific task, than that of a traditional employee. In many workplaces now graduates are expected to be 'intrapreneurial' in the sense of using their initiative, identify opportunities for the business and generally be part of making things happen. In certain sectors where graduate employment is increasing, notably the creative industries, many of the opportunities for work take the form of freelance work. For example, the vast majority of graduates from the University of Strathclyde's Applied Music Degree have portfolio careers. Most have been able to derive a significant proportion of their income from music. However, much of this income is from teaching which, for most graduates, is a significant and stable source of income. Income generated by the creation or performance of music, for example, gigs and albums, accounts for only a minority of their income. Most are self-employed, working on a freelance basis, hence they have a situation of irregular income and a lack of financial stability. Making a living in this work environment is challenging.[12] This example is not unusual. The reality is that graduates in many disciplines increasingly have to become self-employed or develop a portfolio career in which self-employment comprises a significant component. The music graduates indicate that personal drive is essential to be successful in such an environment; networking skills are needed to get work; marketing and self-promotion is necessary to get noticed, with social media vital. Yet many respondents do not see themselves as 'in business' or needing to act in an entrepreneurial way. It also demands artistic compromises in terms of the type of musical work accepted, which not all respondents were willing to make. Clearly, those graduates who were given the opportunity at university to develop some enterprise and entrepreneurship skills would be expected to fare better in such an environment. All of this highlights the need for today's graduates to be self-reliant and comfortable with the idea of working for themselves.

Fourthly, the present generation of students - the Millennials, or Generation Y - have a more positive attitude to entrepreneurship than previous generations. They are reported to want their work to offer freedom and flexibility, which could be seen as a freelance mindset, and many will consider entrepreneurship. A recent study by the RSA, drawing upon survey evidence from the British Household Panel Survey (BHPS), and Global Entrepreneurship Monitor (GEM) found that 'the desire to start your own

---

[10] Kauffman Foundation (2013) *Entrepreneurship Education Comes of Age on Campus*.
[11] Bridges W (1995) *Job Shift*.
[12] Mason C, Sheridan M and McFarlane J (2012) Making a living in the music industry: the experience of recent music graduates, paper to the ISBE conference, Dublin.

business has risen considerably amongst all age groups over the past decade. However, the 20-29 age group in both 1998 and 2010 was the keenest to start a business. But it is the Millennial Generation who are taking entrepreneurship to new heights with close to one-third now wanting to launch their own business.'[13] Moreover, they are not considering entrepreneurship out of necessity but because they want to take advantage of a commercial opportunity. The increasing youthfulness of entrepreneurs is confirmed in a study of Massachusetts Institute of Technology (MIT) alumni, which found that more entrepreneurs emerge in each successive MIT graduating class and they are starting their first business sooner and at earlier ages.[14] These entrepreneurial ambitions are increasingly being embedded in the schools in both the curriculum (for example, Determined to Succeed, Curriculum for Excellence) and extra-curricular activities (for example, Young Enterprise, Micro Tyco).

Meanwhile, the digital revolution has created a whole new way of doing business, unleashing a new wave of entrepreneurial opportunities for the younger tech-savvy generation which has been the first to grow up with computers. Examples include trading platforms, such as those of eBay and Amazon, social media for marketing, digital distribution, big data for marketing, open innovation and crowd funding. As a result of these innovations 'the opportunity to be an entrepreneur is expanding very greatly and just at the same time as we have a younger generation that is more inclined to be entrepreneurial than previous generations.'[15] Moreover, these innovations, along with lean start-up techniques,[16] have resulted in a rapid fall in the costs of starting a business.[17]

The implication of all of these developments is that enterprise skills are at a premium. Accordingly, the world of education has to embrace enterprise and entrepreneurship, helping students to determine if entrepreneurship is a viable career choice and emphasising its importance in employability.

Universities can expect to derive various benefits from the successful creation of an entrepreneurial campus. First, the formation and growth of new businesses by graduates will contribute to local and regional economic development. It might be expected that the support mechanisms in the entrepreneurship campus will embed these new businesses locally. A by-product of graduate business start up is therefore that it enhances graduate recruitment and retains students attracted from other regions and countries, an important consideration for regions in the north of Britain. Brad Feld argues in his influential book *Startup Communities*[18] that the steady stream of new young entrepreneurs is the most important contribution of a university to the creation of a start-up community. This point

---

[13] Lent A (2012) *Generation Enterprise: The Hope for a Brighter Economic Future*; Lent A (2012) A time for heroes? *RSA Journal*, Autumn, pp 16-17.
[14] Roberts E and Eesley C (2009) *Entrepreneurial Impact: The Role of MIT*; Roberts E and Eesley C (2011) *Entrepreneurial Impact: The Role of MIT - an Updated Report*, Foundations and Trends in Entrepreneurship, 7 (1-2), pp 1-149.
[15] Lent A (2012) *op. cit.,* p 31.
[16] Blank S (2005) *The Four Steps to the Epiphany*; Riess E (2011) *The Lean Start Up*.
[17] The founders of Last.fm, which was sold to CBS in 2007 for $280 million, are starting a new business. They note that the cost of development for this business has been considerably lower than when they launched Last.fm, in September 2001. 'Back then we were renting a server cabinet and it cost a lot of money. Today we can do it on a credit card.' *Financial Times*, 11 July 2013.
[18] Feld B (2012) *Startup Communities: Building an entrepreneurial ecosystem in your city*.

needs reiteration. The greatest economic impact of universities comes from the businesses founded by their graduates, not from spin-offs based on university research and knowledge. The best documented example is MIT: some 9,950 companies were founded by MIT alumni in the 1990s (with 5,900 still active) and a further 5,800 were founded between 2000 and 2006. These are primarily knowledge-based businesses in software, biotech, manufacturing and consultancy/professional services. They are typically larger than the average small business and create skilled jobs. The number of multiple companies founded per MIT graduate is also increasing. This is likely to be linked to the reduction in the age of MIT entrepreneurs noted earlier.[19] The same phenomenon is also found in less prestigious universities. For example, a recent survey of graduates from three universities in Michigan (Michigan State, University of Michigan and Wayne State) found that 19 per cent had started a business, in some cases more than one business. These businesses were located throughout the US and abroad, with just under half in Michigan. Given that the combined alumni population of these three universities is 1.2 million, this represents a considerable local economic impact. Moreover, most started their businesses outside of their major area of study.[20]

The RSA goes further, arguing that the entrepreneurial activities of the present generation are central to shaping the future competitive position of western economies.

> It will be their insight and entrepreneurial spirit that will finally lift us out of the dire, seemingly unending economic crisis that we find ourselves in. It will be today's twenty somethings who will create in their 30s, 40s and 50s the new products and services that will generate a threefold leap in value that we have seen five times before: more and cheaper products, better products and more diverse specialised products…It may take some time to develop fully, but the chances are high that, as in the past, living standards and quality of life will improve for many millions across the world as a result.[21]

With half of the Millennium Generation going through higher education, the clear implication for universities is that they have a responsibility to encourage and support the flowering of this entrepreneurial spirit.

Individual universities will also derive benefits from the creation of entrepreneurial campuses. For those institutions which do it well, it will become a source of differentiation and distinctiveness in an increasingly competitive market place, creating positive branding and image. It will attract students who value both a college education and creating businesses, and as suggested earlier, this type of student is likely to be increasing in number. The advice of one successful US entrepreneur to prospective students is that 'if your professional goal is to start your own business after college, your educational goal should be to find a university with a strong entrepreneurship program.'[22]

---

[19] Roberts E and Eesley C (2009; 2011) *op. cit.*

[20] See University Research Corridor Michigan, available at: www.urcmich.org; Anderson Economic Group (2013) *The URC's Growing Support for Entrepreneurs in Michigan and Throughout the World*.

[21] Lent A (2012) *op. cit.*, pp 32-33.

[22] Keywell B: 'Entrepreneurship at universities - 311 years late' *The Accelerator*, 26 April 2013.

Finally, entrepreneurial alumni are a vital resource for universities. First, successful entrepreneurs are the main source of donations to universities and are more likely to be inclined to donate if they believe that their time at university had a material influence on their subsequent entrepreneurial success. As Timmons[23] has observed, albeit referring to the US where entrepreneurial philanthropy is more embedded, 'one cannot find a new building, classroom, athletics facility or endowed professorship at any university in the nation without discovering it had been funded, the vast majority of the time, by a harvested company founder who wants to give back. The largest gifts and the greatest proportion of donors amongst any groups giving to university capital campaigns are successful entrepreneurs.' Second, entrepreneurial alumni can be invited back on to the campus to give talks, interact with students and provide mentoring, and by enhancing the quality of entrepreneurship support in these ways a virtuous circle is created.

---

[23] Timmons J (1999) *New Venture Creation*, p 11.

The entrepreneurial campus - a framework

QAA[24] has published a framework of enterprise and entrepreneurship education which provides a useful template for this report. Recognising that by no means every graduate will go on to start their own business, the report makes a distinction between enterprise and entrepreneurship.

Enterprise is defined in the QAA report as the application of creative ideas and innovations to practical situations. As such, it is a generic concept that can be applied across all areas of education. It combines creativity, idea development and problem-solving with expression, communication and practical action.
Enterprise education aims to produce graduates with the mindset and skills to come up with original ideas in response to identified needs and gaps, and the ability to act on them. Enterprising skills include the taking of initiative, intuitive decision-making, making things happen, networking, identifying opportunities, creative problem solving, strategic thinking and personal effectiveness. It therefore extends well beyond knowledge acquisition to include a wide range of emotional, intellectual, social and practical skills. It follows that all subjects can be taught in a way that enables students to acquire enterprising skills.

Entrepreneurship is defined in the QAA report as the application of enterprise skills specifically to the creation of organisations to exploit opportunities that have been identified. Entrepreneurship education focuses on the development and application of an enterprising mindset and the skills required to set up a new venture, developing and growing an existing business or designing a new entrepreneurial organisation.
The objective of entrepreneurship education is therefore to produce graduates who are capable of identifying opportunities and developing ventures through setting up new businesses or developing and growing existing ventures. This covers a variety of contexts: both new business creation and the creation of new ventures within existing businesses (intrapreneurship) and both the for-profit sector and also social enterprises, charities and other not-for-profit organisations, and the public sector.

The combination of enterprise and entrepreneurship learning produces graduates with behaviours, attributes and skills which taken together contributes towards an entrepreneurial mindset and entrepreneurial effectiveness.

It is recognised that entrepreneurship may turn off some students who identify the term with business, or with role models that they see as being unachievable (for example, Branson, Gates, Jobs). Alternatively, it may conflict with their vocational self-identity, for example, as a musician, nurse or engineer ('I'm an engineer, not an entrepreneur'). However, this has a negative outcome because they fail to see the importance of applying entrepreneurial principles to their own discipline. But equally, enterprise can be seen as being vague and simply describing the skills that would be expected of a good graduate. This tension has been noted by the Kauffman Foundation in its entrepreneurial campuses. One strategy that has been developed to cope with this tension over

---

[24] QAA (2012) *op. cit.*

terminology is to use the 'E-word' as an adjective instead of a noun - as in 'we want to produce more entrepreneurial engineers' or more 'entrepreneurial lawyers.'[25]

The QAA report goes on to propose a model of learning to develop graduates with high levels of entrepreneurial effectiveness (Figure 1). This involves the achievement of the following: entrepreneurial awareness, developing an entrepreneurial mindset, developing entrepreneurial capacity and developing entrepreneurial effectiveness. Learning is achieved through curricular or extra-curricular activities, or a combination of both. Although presented as a linear model, students are likely to pass through in an iterative fashion. A key feature of the model is that it encompasses both curricular and extra-curricular learning.

Learning in the curriculum - examples

| Formal education 'about' enterprise and employability or guided assignments that raise awareness | Education 'for' enterprise. Opportunity centred learning and creative problem solving that intergrates business and e-learning | Group and individual projects/venture planning/innovation and design-based tasks, work placements and experiential & reflective contextualised learning | Self directed negotiated learning such as dissertations, projects and consultancy - ideally with external input and influence |

Enterprise Awareness Understanding what enterprise means to me → **Developing an Entrepreneurial Mindset** Participating in enterprising learning & activities → **Developing Entrepreneurial Capability** Developing Capability & confidence through guided experience and practice → **Entrepreneurial Effectiveness** Independent self-direction/ Progressing individual goals and approaches

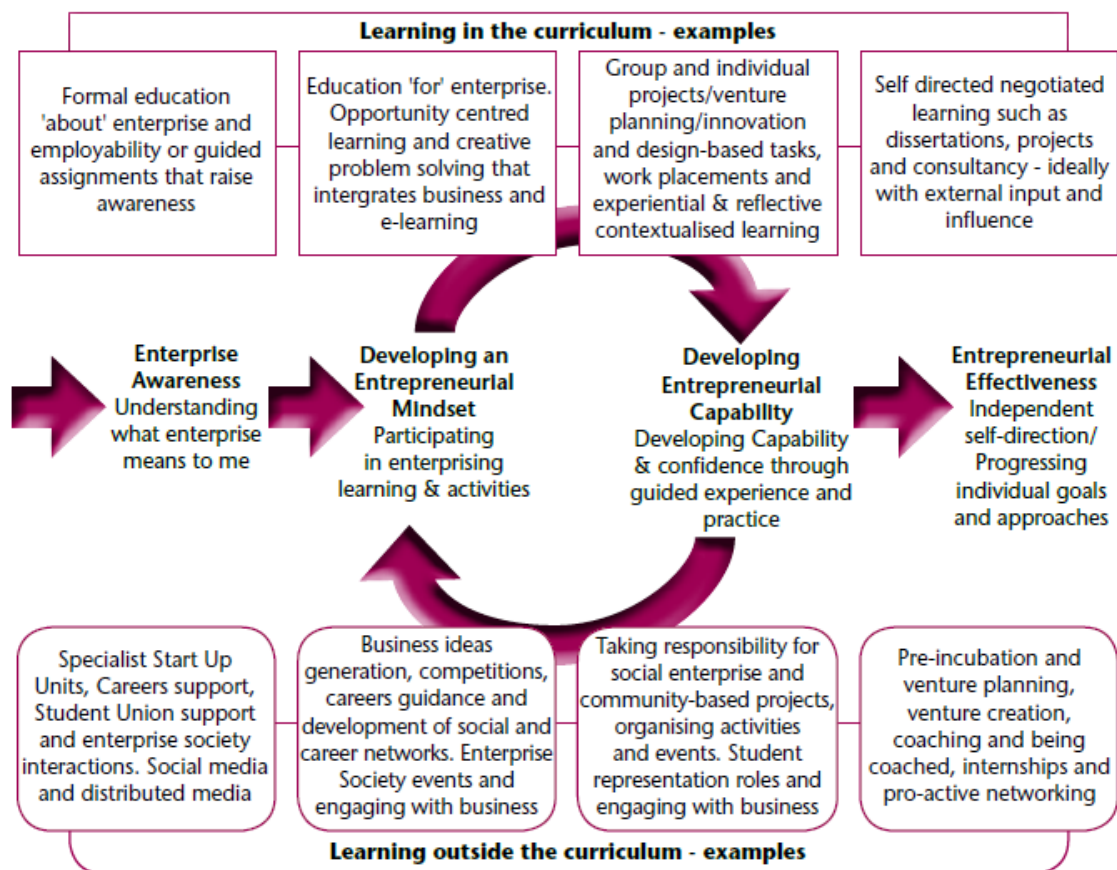| Specialist Start Up Units, Careers support, Student Union support and enterprise society interactions. Social media and distributed media | Business ideas generation, competitions, careers guidance and development of social and career networks. Enterprise Society events and engaging with business | Taking responsibility for social enterprise and community-based projects, organising activities and events. Student representation roles and engaging with business | Pre-incubation and venture planning, venture creation, coaching and being coached, internships and pro-active networking |

Learning outside the curriculum - examples

Figure 1. Developing Entrepreneurial Effectiveness (source: QAA)

This model provides a useful template for what an entrepreneurial campus might look like. In the remainder of this report we seek to add detail and examples. We start with a consideration of the curriculum and then consider how learning from extra-curricular activities can be accomplished.

---

[25] Kauffman (2013) *op. cit.*

The entrepreneurial campus - the curriculum strand

An entrepreneurial campus will offer academic programmes on entrepreneurship. This could take a variety of forms, including one or more elective classes or a programme in entrepreneurship offered either to undergraduates or postgraduates.

Can you teach entrepreneurship?

An immediate objection is that 'entrepreneurship cannot be taught'. The essence of this argument was that entrepreneurs are 'born', a view that had support from psychological studies which suggested that entrepreneurs have distinctive traits, such as a need for achievement, that they were either born with or acquired in early childhood. However, research has now discredited the claim that entrepreneurship is a personality characteristic. Indeed, as a result of research over the past 25 years there is now a body of knowledge and skills about entrepreneurship which underpins entrepreneurship education, and training that is now readily available to enhance the chances of entrepreneurial and personal success.[26] So, as the late Peter Drucker, one of the most influential management gurus of the 20th century, has stated, 'there is a recognition or at least an acceptance that entrepreneurship is a process that can be learned and is hence teachable.'[27] Jeffry Timmons, author of the most successful entrepreneurship education text, argued that some entrepreneurial attitudes, behaviours and know-how can be taught.[28] Nevertheless, there are limits to what entrepreneurship education can achieve. Professor Howard Stevenson of Harvard and INSEAD Business Schools has commented that 'you cannot teach someone to become Bill Gates, just as you cannot teach someone to compose like Beethoven. But you can teach someone the notes and scales, give them the tools they need to become a composer. And you can teach the tools people need to be entrepreneurs.'[29] William Bygrave and Jeffry Timmons, leading entrepreneurship educators from Babson College, which regularly tops the list of the best business schools for entrepreneurship, have made a similar point; 'we cannot guarantee to produce a great entrepreneur from our entrepreneurship courses any more than a music professor can promise to produce a Mozart or a physical professor an Einstein. But give us a student with … determination, dedication and inspiration and we are confident we will produce a better entrepreneur.' In short, it is possible to teach a body of knowledge that focuses on the practical problems that entrepreneurs will face. So, as Professor John Mullins of London Business School states, 'if the question is can we better equip those who choose to follow an entrepreneurial path - and avoid at least some of the bumps, bruises and scars that are sure to come - then there's considerable evidence that the answer is emphatically 'yes!' In this light, we can, indeed, teach entrepreneurship.'[30]

The parallels between entrepreneurship and creative subjects, such as music and writing, are instructive. As with entrepreneurship it was assumed that musicians were

---

[26] Bygrave W and Zacharakis A (2008) *Entrepreneurship.*
[27] Drucker P F (1985) *Innovation and Entrepreneurship.*
[28] Timmons J (1999) *op. cit.*
[29] Financial Times, 19 August 1996.
[30] Mullins J Can we teach entrepreneurship, London Business School, available at: http://bsr.london.edu/lbs-article/270/index.html.

born with a gift for music and that writing ability was innate. Now it is recognised that they can be taught at a high level. The Kauffman report makes the following comparison between music and entrepreneurship teaching.

> Departments of music composition cannot make students creative. But studying how great music is made can ignite whatever creativity students possess and bring it to expression. The aim of studying composition is to unpack works of genius and excellence and thereby lead students beyond imitation to originality. Students are more likely to practice innovation of their education values it and it is a basic part of their learning. So it is with entrepreneurship. Making innovation intelligible may help students to imagine and engage in entrepreneurial activities they otherwise might not have considered.[31]

It is also now largely accepted that entrepreneurship education has a positive impact on entrepreneurial intent and future entrepreneurial activity. A recent review of the literature undertaken by ICF GHK on behalf of the Department for Business, Innovation and Skills[32] found evidence of both 'soft' outcomes, for example, in the form of positive impacts on self-confidence, creativity and attitudes, and 'hard' outcomes in the form of business start-up and success in securing employment. They concluded that 'the evidence suggests that enterprise and entrepreneurship education generally has positive benefits that should be expected to lead to some students starting new businesses or making contributions to the growth of existing businesses.' However, they added a caveat that there may be a self-selection bias, with courses more likely to be taken by students with entrepreneurial intentions. Nevertheless, they go on to say that 'the findings support greater availability of enterprise and entrepreneurship education to students, especially those on vocational courses.'

So, as Kuratko[33] argues, 'the question whether entrepreneurship can be taught is obsolete.' Indeed, entrepreneurship is now accepted as a field in its own right. Its over-arching goal is to develop an individual's intention to act entrepreneurially.[34] The more significant questions for the development of an entrepreneurial campus are the following: 'what is taught, how it is taught, and who is teaching it?'[35] To this list of questions we can also add 'who is being taught?' These issues are considered in turn in the following sections.

---

[31] Kauffman (2008) *op. cit.* p 12.
[32] ICF-GHK (2013) *Enterprise Education Impact in Higher Education and Further Education. Final Report*, Department for Business, Innovation and Skills.
[33] Kuratko D F (2005) The emergence of entrepreneurship education: developments, trends and challenges, *Entrepreneurship Theory and Practice*, 29 (5), p 580.
[34] Fretschner M and Weber S (2013) Measuring and understanding the effects of entrepreneurial awareness education, *Journal of Small Business Management*, 51 (3), 410-428.
[35] 'Can entrepreneurship be taught? A Babson College study says 'yes'', *Boston Inno*, 20 June 2011.

Entrepreneurship education - what is taught?

A lot of the teaching that is labelled entrepreneurship education is in fact about entrepreneurship.[36] Here the focus is on the scholarly consideration of such topics as who is an entrepreneur, opportunity identification, the start-up process, and the economic impact of entrepreneurship. These courses are not designed to address issues of entrepreneurial intent and capability, and are unlikely to influence graduate entrepreneurial activity. Indeed, the emphasis in such courses on the traits and characteristics of entrepreneurs may actually discourage students from becoming entrepreneurs because they think that they lack the 'right stuff'.[37]

The predominant type of entrepreneurship education on an entrepreneurial campus would be 'for' entrepreneurship, where the programme can be in a subject area and where the specific objective is to stimulate entrepreneurship among students. Such courses typically include three components:[38]

- know what, which covers functional management skills such as finance, accounting and marketing
- know why, which addresses motivational issues, developing favourable attitudes towards entrepreneurship[39]
- know how, which addresses soft skills such as creativity, networking, negotiation and selling.

The aim of such courses is to produce graduates with mindsets, skills and the capability to identify and shape opportunities and develop business ventures.[40]

However, many courses that are 'for' entrepreneurship are criticised for their ineffectiveness in achieving such outcomes because they are, in Gibb's terminology, 'non-enterprising'[41] in both content and delivery. First, they have a classroom-based focus and 'lecture teaching methodology, basically a stand-and-deliver approach'[42] which misses 'the vital stimulation of the "knowing how"'[43] and discourages right-brain (creative) thinking. Pittaway and Cope[44] argue that 'it is not possible to convey the challenge and complexities surrounding new venture creation using only conventional pedagogies such as lectures and seminars'. Second, there is a reliance on theories, content and pedagogical approaches borrowed from business management. As Haase and Lautenschläger observe, 'many programmes still understand entrepreneurship education as an adapted management education covering all related

[36] Botham R and Mason C (2006) *Good Practice in Entrepreneurship Education within Higher Education*.
[37] Neck H and Greene P (2011) Entrepreneurship education: known worlds and new frontiers, *Journal of Small Business Development*, 49 (1) pp 55-70.
[38] Haase H and Lautenschläger A (2011) The 'teachability dilemma' of entrepreneurship, *International Entrepreneurship and Management Journal*, 7, pp 145-162.
[39] Gibb A (1993) *op. cit.*
[40] QAA (2012) *op. cit.*
[41] Gibb A (1993) *op. cit.*
[42] Neck H and Greene P (2011) *op. cit.* p 58.
[43] Gibb A (1993) *op. cit.*
[44] Pittaway L and Cope J (2007) Simulating entrepreneurial learning: integrating experiential and collaborative approaches to learning, *Management Learning*, 38 (2) p 229.

functional areas in a quick run.'[45] The emphasis in such courses is on the technical aspects of entrepreneurship with financial management, marketing and business plan writing all featuring prominently. However, there is a consensus that the core of entrepreneurship is focused on the discovery, evaluation and exploitation of opportunities to provide goods and services.[46] So this type of approach also fails to deliver the knowledge and learning that is relevant to entrepreneurship.

A third criticism of many entrepreneurship courses is their focus on the new venture business plan which students write and then present 'Dragon's Den' style to a panel of entrepreneurs. This emphasis on the business plan appears to have arisen because it is a requirement for fundraising and so demanded by banks, business angels and venture capitalists alike. In fact, the reality is rather more complex. Liñán et al[47] argue that 'the business plan which is most often offered as entrepreneurship education is not enough. It may be useful to increase feasibility perceptions, but will not affect desirability.' It also does little to provide the knowledge, skills and aptitude needed to launch and operate a new business venture.[48] Jones[49] criticises the business plan for its disconnect from the reality of the market place and for being based on assumptions that are mostly untested. He argues 'why are we assessing proposals for possible success when we cannot actually know if the ideas contained within the plan would succeed?' A particular weakness, according to Jones, is that it does not enable students to learn how to evaluate ideas. Gibb and Hannon[50] criticise business planning courses for 'being weak in developing pedagogies and practices that stimulate entrepreneurial attributes and values, provide real world insights into the entrepreneurial life-world, allow for practice of entrepreneurial behaviours, develop emotional intelligence and promote the value of acquiring tacit (experiential) knowledge under pressure.'

Indeed, the effectiveness of business plan courses in influencing both entrepreneurial intent and action is questioned. Honig[51] finds little evidence that the development of a business plan leads to the creation of successful new ventures and may even inhibit new venture creation. Many of the ideas are linked to student markets (for example, take-way food delivery service). Meanwhile, students are unlikely to have the motivation to turn their ideas into a business once the assignment has been submitted. In a study on Babson College graduates who went on to start businesses, Lange et al[52] report that whether or not graduate entrepreneurs wrote business plans prior to starting did not have any effect on the subsequent performance of these businesses.

---

[45] Haase H and Lautenschläger A (2011*) op. cit.*
[46] Shane S and Venkataranan S (2000) The promise of entrepreneurship as a field of excellence, *Academy of Management Review*, 25 (1), pp 217-226.
[47] Liñán F, Rodriguez-Cohard J C and Rueda-Cantuche J M (2011) Factors affecting entrepreneurial intention levels: a role for education, *International Entrepreneurship and Management Journal*, 7:, p 210.
[48] Dutta D K, Li J and Merenda M (2011) Fostering entrepreneurship: impact of specialisation and diversity in education, *International Entrepreneurship and Management Journal*, 7, pp 163-179.
[49] Jones C (2011) *op. cit.*
[50] Gibb A and Hannon P (2006) *op. cit.*
[51] Honig B (2004). Entrepreneurship Education: Toward a Model of Contingency-Based Business Planning. *Academy of Management Learning and Education*, 3 (3), pp 258–273.
[52] Lange et al (2007) Lange J E, Mollov A, Pearlmutter M, Singh S and Bygrave W D (2007) Pre-start-up formal business plans and post-start-up performance: a study of 116 new ventures, *Venture Capital: an international journal of entrepreneurial finance*, 9 (4), pp 237-256.

In a series of papers Allan Gibb has proposed that entrepreneurship education for enterprise should seek to promote enterprising behaviours. This requires the development of entrepreneurial attitudes and entrepreneurial skills (Figure 2).

Entrepreneurial Behaviours	Entrepreneurial Attributes	Entrepreneurial Skills
- opportunity seeking and grasping - taking initiatives to make things happen - solving problems creatively - managing autonomously - taking responsibility for, and ownership of, things - seeing things through - networking effectively to manage interdependence - putting things together creatively - using judgment to take calculated risks.	- achievement orientation and ambition - self-confidence and self-belief - perseverance - high internal locus of control (autonomy) - action orientation - preference for learning by doing - hardworking - determination - creativity.	- creative problem solving - persuading - negotiating - selling - proposing - holistically managing business/projects/ situations - strategic thinking - intuitive decision making under uncertainty - networking.

Figure 2. Desired outcomes of enterprise learning (after Gibb)

Entrepreneurship education - how is it taught?

This model of enterprise learning requires a distinctive approach because reliance on 'the traditional lecture-based didactic methods of teaching and learning alone are insufficient.'[53] A theoretical framework is essential so that students can learn 'how to think', which is consistent with the university's age-old mission.[54] However, it is increasingly recognised that effective entrepreneurial learning also has to be active and experiential.[55] Active forms of learning enable students to actively engage in tasks that simulate the type of learning that entrepreneurs experience. Learning cannot be decoupled from context, so there is a need to create learning environments which 'mirrors the ambiguous, multi-faceted and multi-directional nature of the realities and challenges encountered by the entrepreneur.'[56] Neck and Greene[57] argue that

---

[53] Haase H and Lautenschläger A (2011) *op. cit.*, p 157.
[54] Gibb A and Hannon P (2006) *op. cit.*
[55] Rae D and Carswell M (2000) Using a life story approach in researching entrepreneurial learning: the development of a conceptual model and its implications in the design of learning experiences, *Education + Training*, 42 (5), pp 220-228; Minnitti M and Bygrave W (2001) A dynamic model of entrepreneurship learning, *Entrepreneurship Theory and Practice*, 25 (3), pp 5-16; Lange J, Marram E and Bygrave W (2012) Human assets and entrepreneurial performance: a study of companies started by business school graduates. Paper to the 2012 Babson Entrepreneurship Research Conference, Dallas.
[56] Drakopoulou Dodd S, Hynes B, Costin Y and Lichrou M (2012) From the zoo to the jungle - narratives, pedagogies and enterprise education, Paper to the 2012 ISBE conference, Dublin.
[57] Neck H and Greene P (2011) *op. cit.,* p 61.

'teaching entrepreneurship…requires going beyond understanding, knowing and talking: it requires using, applying and acting. Entrepreneurship requires practice.'

Haase and Lautenschläger[58] note that 'learning by doing and experiential learning constitute appropriate modes for instilling the entrepreneurial "know how".' The National Council for Graduate Enterprise (NCGE)[59] argue that 'experience is crucial for understanding and embedding entrepreneurial concepts.' Wong et al[60] go further, arguing that 'action learning potentially enables learners to achieve learning outcomes that extend beyond knowledge and skills.' Depending on how the learning is designed, action learning can also enable failure to occur - an important source of entrepreneurial learning[61] - but avoiding the financial and emotional costs of failing that would be encountered in the real world. Gibb[62] offers a view of the characteristics of the teaching environment for enterprise learning (Figure 3).

- Provide ownership
- Allow control
- Give responsibility
- Provide holistic experience
- Allow students to see things through
- Introduce uncertainty elements
- Keep informal
- Allow mistake making
- Provide flexible learning situations
- Give freedom

Figure 3. The enterprise environment for education (Gibb, 1993)

Jones[63] emphasises that there needs to be a particular emphasis on selling, which he regards as a fundamental business skill that cuts across every level of business 'from gaining peoples' confidence to being trusted starting a new venture, to communicating a vision, to understanding how to work with people, to understanding what consumer pain your efforts will heal.' Indeed, 'entrepreneurs who cannot sell are severely limited in the role they can play in the process of entrepreneurship.[64] A key feature must therefore be for students to get out to meet potential customers in order to be 'confronted with the true reality of [their] needs'. Since students cannot be taught how to sell in a classroom,

[58] Haase H and Lautenschläger A (2011) *op. cit.*, p 157.
[59] NCGE (2008) *Developing Entrepreneurial Graduates: Putting Entrepreneurship at the Heart of Higher Education*, National Council for Graduate Enterprise: Birmingham.
[60] Wong H C H and Man T W Y (2012) Impact of action learning on entrepreneurial traits and inclination: evidence from a comparative study, *Industry and Higher Education*, 26 (3), pp 229-240.
[61] Cope J (2011) Entrepreneurial learning from failure: an interpretative phenomenological analysis. *Journal of Business Venturing*, 26 (6), pp 604-623.
[62] Gibb A (1993) *op. cit.*
[63] Jones C (2011) *op. cit.*
[64] *Ibid.*

there is a need to adjust teaching and learning strategies to create environments in which students can learn for themselves how to develop selling skills.[65]

Gibb[66] goes on to note that the challenge in bringing entrepreneurship into the classroom is to enable students to experience and feel the concept, rather than just learn about it in the conventional sense. This leads to emphasis upon a pedagogy that encourages learning by doing; by exchange; by copying (and learning from the experience); by experimentation; by risk taking and 'positive' mistake making; by creative problem solving; by feedback through social interaction; by dramatisation and role playing; by close exposure to role models; and, in particular, interaction with the outside/adult world.

This method of learning therefore changes the approach to teaching from an active teacher and passive student model to a student-led model with the teacher as facilitator. The teacher's role therefore changes 'from a conveyor of knowledge to a promoter, facilitator and manager whose task lies in organising appropriate learning experiences for students.'[67] In particular, it requires a change from a supply-led approach to learning in which students are taught something, expected to store it away and pull it out when required (what management guru Charles Handy calls 'warehoused knowledge'[68]) to a demand-led approach to learning which support students in ways that are unplanned, emergent, short-term and non-sequential. This requires a 'pull' model of learning resources which enables students to access a range of learning sources when required.[69]

Effective experiential learning needs to 'be designed as close to reality as possible, emulating contexts similar to those in which entrepreneurs act.'[70] A key requirement is a context that is characterised by 'ambiguity and uncertainty … [to] simulate the uncertain, dynamic and highly contextual nature of new venture creation and involving the potential for discontinuities, critical events and crises.'[71] Critical for the effectiveness of such teaching is that students are willing to suspend their belief.

There are significant challenges for educators to support the development of this enterprising mindset within the learning environment both to design learning that closely mirrors reality and ensure adequate support and reflection to reinforce entrepreneurial learning for students. A number of educator development programmes have been developed to sharpen the focus on this. For example, participants on the recently launched Scottish Enterprise Educators Programme (SEE)[72] in 2012-13 found there had been significant change in an educator's mindset and confidence to develop more

---

[65] *Ibid.*
[66] Gibb A (1993*) op. cit.*
[67] Haase H and Lautenschläger (2011) *op. cit.*, p 157.
[68] Handy C (2003) In my opinion, *RSA Journal*, August, p 6.
[69] Rae D (2012) Action learning in new creative ventures, *International Journal of Entrepreneurial Behaviour and Research*, 18 (5), pp 603-623.
[70] Haase H and Lautenschläger A (2011) *op. cit.*, p 157.
[71] Pittaway L and Cope J (2007) *op. cit.*, p 226.
[72] Scottish Enterprise Educators Programme run by CREATE, the Highland Centre for Enterprise and Innovation at Inverness College, University of the Highlands and Islands, in association with the National Centre for Entrepreneurship in Education (NCEE) (www.createhighland.com) [QAA case study included].

entrepreneurial students, specifically through innovative approaches to teaching and learning and entrepreneurial based practice.

There are various examples of experiential learning that have been used in entrepreneurship education.

One of the most popular types of experiential learning is the consulting project in which student teams adopt the role of business consultants to provide the small business client with a range of practical, realistic and implementable recommendations within a specified timescale and budget. Students working in small groups would visit the firm on a frequent basis and present the client with a consultancy report, and make a verbal presentation.[73] An evaluation of one consulting course, based on student reflections, observed that students liked the pedagogical approach (hands-on, practical, learning by doing), thought it was a good preparation for the real world, the learning experience was seen as authentic and was also both enjoyable and created a sense of achievement. Student-reported learning outcomes included self-development, acumen and business skills and competence. In summary, this learning experience connected the knowing to the doing, giving meaning to previous learning and consolidated it in a more holistic applied manner.[74] A variant on this is the placement in which individual students will be employed in a company during the summer vacation to work on a business development project, for which they will derive course credits.[75]

A second approach is business simulations. As with all types of experiential learning, simulations require: adequate suspension of belief; unambiguous communication concerning rationale, learning objectives and relevance; and the game's rules and operation, in-play feedback, and technical reliability.[76] SIM Ventures is a well known UK example of a small business simulation. It allows students to run their own virtual company and learn about business and entrepreneurship in an authentic, engaging and sustainable manner. The student takes on the role of the business owner, managing time and money to develop the business and resolve the issues that arise over the course of a game. The student makes decisions and receives all feedback from the software in monthly cycles. Any number of decisions can be made each month in the four key business areas which include: organisation; sales and marketing; finance; and operations. Based on these decisions the simulation responds each month and shows the number of enquiries, orders and sales generated, which determines the flow of money into the business. The virtual company is managed on a month-by-month basis allowing the student to develop their business from start-up for a maximum of 36 months.

---

[73] The consulting project at the Hunter Centre for Entrepreneurship, University of Strathclyde is described in Cooper S, Bottomley C and Gordon J (2004) Stepping out of the classroom and up the ladder of learning, *Industry and Higher Education*, 18 (1), pp 11-22.
[74] Drakopoulou Dodd S et al (2012) *op. cit.*
[75] Cooper S Y, Bottomley C, and Gordon J (2009) An experiential learning approach to entrepreneurship education: a British initiative; Manimala M (ed.), Mitra M (ed.) and Singh V. (ed.) (2009) *Enterprise Support Systems: An International Perspective.*
[76] Hindle K (2002) A grounded theory for teaching entrepreneurship using simulated games, *Simulation and Gaming,* 13 (2), pp 236-241.

Despite its extensive usage there appears to have been only one evaluation of SIM Ventures based on a study of quantitative and qualitative responses of students at Leeds Metropolitan University.[77] These indicated that the use of the simulation with this module has vastly increased the interest of the students in this topic area and made the teaching and learning more appealing, and more fun. Students indicated they have learned, developed and are able to apply enterprise related skills, behaviours and characteristics. Furthermore, the quality of the business reports demonstrated that students developed a greater level of understanding than was anticipated. There was evident understanding of the different aspects within a business and they understood the chronological order of the processes, such as the benefits of researching the market and competitors before starting to try and sell in order to decide which segment to target and so forth. Based on the results of the evaluation the authors concluded that the investment in the simulation has been justified.

A third approach is to require students to start a business. This has been the focus of the Babson College first-year undergraduate class since 1996. Its purpose is to allow students to practice entrepreneurship and thereby bring the theory content alive. Other universities around the globe have similar assignments, but typically in later years of the degree. However, Neck and Greene[78] argue that this type of learning should come at the start of the degree because undergraduate students have little business experience and 'to truly develop empathy for the entrepreneur [students] must experience new venture creation before he or she can study management or other disciplinary areas.' Since 2010 this approach, titled The Value Challenge, has been incorporated into the first-year course offered by the University of Strathclyde's Hunter Centre for Entrepreneurship. Based on an analysis of student learning reflections an evaluation has identified positive learning outcomes. It confirmed the Babson experience, with students reporting that the Value Challenge reinforced classroom learning, for example, by being confronted with the liability of newness, accessing resources through bootstrapping, and applying pricing strategies. It provided experience of the real world of the start-up entrepreneur and insights into the entrepreneurial process, for example, regulation, the importance of passion, time-management. It developed hard-to-teach entrepreneurial skills, such as selling and negotiation. There was learning from disappointment and failure. Finally, students reported personal development benefits, for example, self-confidence, communication, and organisation.[79] There was also evidence of a positive impact on entrepreneurial intent and motivations, with several students reporting that the experience had given them the belief and self-confidence that they could start their own business.

There are also examples of entrepreneurship related modules being developed to meet the needs of students within particular subject specialisms (outside the business curriculum) for example, the University of the Highlands and Islands, as part of the BSc (Hons) in Architectural Technology, recently validated a new module, Architectural Entrepreneurship, to develop the entrepreneurial mindset and capacities of

---

[77] Harte V and Stewart J (2010) *Evaluation of SIM Venture Business Analysis and Practice Module*, available at: http://simventure.co.uk/content/simventure-evaluation-report-leeds-metropolitan-university.
[78] Neck H and Greene P (2011) *op. cit.*
[79] Mason C and Arshed N (2013) Teaching entrepreneurship to university students: reflections on an experiential learning experiment, *Industry and Higher Education*, 27, in press.

students to creatively identify and prepare for professional and personal opportunities within this industry.

An approach that is less widely adopted is drama. By providing enacted experience, drama exercise can contribute to creating, reinforcing or complementing different forms of entrepreneurial experience. Its advocates claim that the results are encouraging. Drama sessions provide powerful experiences that might otherwise be out of reach of the participant.[80]

The majority of university assessment approaches do not easily accommodate such experiential approaches to teaching entrepreneurship. Pittaway and Cope[81] argue that the most effective way of assessing such learning is through student reflection because 'students must also reflect on their actions in order to learn.' Reflection is an important process by which knowledge is developed from expertise. Reflecting on what has happened and trying to understand or explain it often leads to insight and deep learning.[82]

Entrepreneurship education - who is teaching it and who is being taught?

Entrepreneurship centres can be found in business schools and also, but less frequently, in engineering and science faculties. Some universities have entrepreneurship centres in both locations. A further option is an interdisciplinary centre, independent of any single school or faculty but linked. In most universities entrepreneurship programmes are taught by business school staff. There may even be an entrepreneurship centre (perhaps endowed by a successful entrepreneur) which is responsible for both curriculum and extra-curricular entrepreneurship activities.

However, delivering entrepreneurship education from a business school base has a number of problems. First, entrepreneurship is non-discipline specific and so needs to be taught in an interdisciplinary way. It also needs to be taught in a holistic, rather than functionally differentiated, way. These conditions cannot be fulfilled within a traditional business school. While some knowledge of standard business is required entrepreneurship is sufficiently different from the corporate context to require a distinctive institutional location.[83] Moreover, business schools are not necessarily populated with academic staff who are committed to the practice of business, rather than the study, research and analysis of business. Second, given the 'silo' nature of universities it is often difficult, or even impossible, for students to take courses in different faculties. Often the barriers are financial; faculties suffer a loss of income if students take courses in other faculties. Timetabling may also be a problem. There may not be any capacity in the programme for students to take external courses. The consequence is that business students are very often the only students who have

---

[80] Hytti U and Nieminen L (2013) Enacted experiences: analysis in drama in entrepreneurship training, *International Journal of Entrepreneurship and Innovation*, 14 (2) pp 117-128.
[81] Pittaway L and Cope J (2007) *op. cit.,* p 214.
[82] Neck H and Greene P (2011) *op. cit.*
[83] Harrison R and Leitch C (1994) Entrepreneurship and leadership: the implications for education and development*, Entrepreneurship and Regional Development*, 6 (2), pp 111-125.

the opportunity to take entrepreneurship classes. This, in turn, prevents the peer learning that can occur as a result of placing students from different disciplines in the same groups. Third, if non-business students have a compulsory entrepreneurship element included in their course, particularly if it is taught by business school staff, they may not take the course seriously, may not see its relevance and may even resent having to take the course, all of which is likely to impact negatively on their learning.

Moreover, enabling, or requiring, students to take just one entrepreneurship class may not be effective. There is evidence that taking just one entrepreneurship class appears to have little or no impact on entrepreneurial intent. A Babson College study notes that taking two or three entrepreneurship courses has much more significant impact on the likelihood that students will go on to start their own business after graduation. This suggests that students need to be able to follow an entrepreneurship pathway to increase the likelihood that they will start their own business.

Placing enterprise education outside the business school is therefore argued to be more effective in influencing the entire university. Indeed, Brad Feld[84] says that locating entrepreneurship programmes in business schools is 'exactly the wrong place'. He argues that they need to be in places such as engineering, computer science, life sciences where students (and staff) are coming up with innovations. 'By putting the entrepreneurship centre in the business school a university creates a dynamic by which the business people wait for the innovation to come to them, while the innovators are head down in their labs, in front of computers and with their colleagues...' On the other hand, 'forward looking universities...put the entrepreneurship centre on the other side of the campus from the business school.'

Another possibility is to adopt a distributed model in which entrepreneurship education is embedded within each academic department, faculty or school. This requires 'enterprise champions' in each academic unit who can design and deliver enterprise teaching within that unit's teaching programme and in a way that is appropriate to the discipline. It is reported that, prompted by the diminishing demand for traditional classical musicians in traditional workplaces such as symphony orchestras, US universities are increasingly teaching entrepreneurship to music students. One teacher commented 'I'm not sure people felt that we had any obligation to do that in the past. We would teach them how to play, and shove a little theory and history into them, and then we'd pat them on the back and say 'Good Luck'. But those days are gone.' [85] The New England Conservatory has gone further, establishing a Department of Entrepreneurial Musicianship.[86] An example in another discipline is providing pharmacy students with skills in entrepreneurship and management.[87] A local example is the University of Edinburgh's School of Informatics, which offers Master's courses in entrepreneurship, has its own entrepreneur-in-residence (EIR), a resident entrepreneurship programme, networking sessions and showcase events.

---

[84] Feld B (2012) *op. cit.*, p 38.

[85] Classical economics in the age of the finished symphony, *Times Higher Education*, 4 July 2013.

[86] Information about the Department of Entrepreneurial Musicianship is available at: http://necmusic.edu/em.

[87] Information about The Kennedy Pharmacy Innovation Center available at: www.kennedycenter.sc.edu/about.aspx.

There are a variety of other ways in which students from other disciplines can practice their craft and at the same time gain exposure to the entrepreneurship culture, and engage with entrepreneurship but without defining themselves as entrepreneurs. For example, law students can engage with the entrepreneurial community through the establishment of an entrepreneurial clinic and advice centre to support student-run businesses.[88] Similarly, some US universities have created investment funds, financed by alumni, which are run by finance students. This enables students to learn 'about raising money for a start-up, what the options are, how to evaluate a deal'.[89]

A related issue concerns who is actually delivering the teaching. In US universities, where there is a sharp distinction between research-active staff and teaching staff (adjuncts), very often entrepreneurship courses are taught by teaching staff, typically former or current entrepreneurs. This is less common in the UK so entrepreneurship is likely to be taught by academic staff. It is therefore important that such staff are engaged with the entrepreneurial community and have an empathy with entrepreneurs. There is, of course, a half-way house which is to involve entrepreneurs in the course; typically they would be guest lecturers talking about their own experience. However, the danger is that this simply becomes 'war stories'. Babson College's William Bygrave has observed, having invited the same entrepreneur into the classroom on a regular basis, the entrepreneur's story changes over time as he or she engages in post-facto rationalisation.[90] They can also be used as advisors and mentors, possibly formalising this role as an EIR. As this role is likely to involve extra-curricular activities it is discussed in more detail in the next section. Finally, some universities have developed the concept of the pracademic (practitioner-academic)[91] who will co-develop and co-teach courses with an academic. In this way any experience bias of the pracademic can be balanced by the academic, while any theory bias of the academic can be balanced by the pracademic.

As can be seen, who teaches entrepreneurship is closely related to the question of who should be taught. In an entrepreneurial campus access to entrepreneurship programmes would be available to all students. This can take various forms: the entrepreneurship centre can offer courses to all students across the campus; can develop specialist courses for particular faculties, schools and departments; or individual academic units can build entrepreneurship teaching into their own programmes. However, as long as entrepreneurship courses remain optional there remains the risk that they will only attract students who are already interested in entrepreneurship. This problem of 'preaching to the converted' may be over-stated; it seems probable that such courses will attract the interested as well as the committed. It might enable the committed to start better businesses than would otherwise have been the case, or to enable them to start more quickly, and it might discourage students who are unsuitable to pursue an entrepreneurial career. The alternative is to make some form of exposure to entrepreneurship education compulsory for all students. This might increase intent among some students who had never considered entrepreneurship, perhaps because of

---

[88] Kauffman Foundation (2013) *op. cit.*
[89] VC101: Houston Fund gives students start-up investing experience, further information available at: www.xconomy.com/texas/2013/09/23/vc-101-houston-fund-gives-students-startup-investing-experience.
[90] Comment made at a conference.
[91] McMullen W E and Gillin L M (1998) Developing technological start-up entrepreneurs: a case study of a graduate entrepreneurship programme at Swinburne University, *Technovation*, 18 (4), pp 275-286.

the lack of role models. However, the evidence cited earlier that taking just one entrepreneurship class has little impact on graduate entrepreneurship activity suggests that it is unlikely to be effective. An entrepreneurial university might also offer courses to other participants in the local entrepreneurship eco-system: policy-makers, consultants (including coaches and mentors), and financiers (bankers, business angels, venture capitalists).

The entrepreneurial campus - the extra-curricular strand

By its nature, entrepreneurship cannot be limited to the classroom. Students will want the opportunity to do it. Again the parallel with music is instructive.

> Because it depends on an audience, music, unlike other academic subjects, thrives outside as well as inside the classroom. Most American colleges and universities regard musical performance as a natural part of campus life. They routinely sponsor multiple co-curricular musical groups…With a supportive campus environment, American undergraduates can increase their musical skills and fulfil their interests in music whether or not they study and perform it for credit.

Just as music spills out of the classroom to perform on campus and beyond, supported by clubs and the availability of venues, so it should be for entrepreneurship.[92]

An entrepreneurial campus will therefore not only teach entrepreneurship but will create an environment that supports entrepreneurship in ways that raise entrepreneurial awareness; provide opportunities for students to develop entrepreneurial capabilities, skills and know-how; and support start-up activity. This is for several reasons.

- Even in the most entrepreneurial universities it is unlikely that every student will have access to entrepreneurship courses. Extra-curricular activities ensure that these students can gain exposure to entrepreneurship.
- There will be students who are 'uncertain' about entrepreneurship and regard taking entrepreneurship courses as too high-risk. Extra-curricular activities offer a low-risk way in which such students can 'taste' entrepreneurship.
- Extra-curricular activities offer a range of learning opportunities that are likely to be beyond the scope of formal courses.
- Some extra-curricular activities can take the form of support for aspiring student entrepreneurs.

Extra-curricular entrepreneurial activities address the entire entrepreneurial process: awareness raising, developing an entrepreneurial mindset, developing entrepreneurial skills and capabilities and supporting business start-up (see Figure 1). Some will be enabled, delivered or provided by the university itself, others by students or student societies, such as Students' Unions and Entrepreneurship Clubs. Various external organisations, such as the Association of National College and University Entrepreneurs (NACUE) and Enactus (formerly Students for Free Enterprise, or SIFE) might also be involved. Extra-curricular activities are broadly of two types: first, events that bring entrepreneurs on to campus to give talks and interact with students; and second, activities that enable students to participate in entrepreneurial activities. This can include networking events on relevant topics (such as innovation, funding, pitching, negotiation) to help students gain an insight into how it feels to be entrepreneurial and develop their knowledge and connections, the organisation of boot-camps at which student teams can

---

[92] Kauffman Foundation (2008) *op. cit*.

work on their start-up ideas, and promoting national and international business plan competitions and supporting teams to enter these competitions.

Business plan competitions are a particularly popular approach for getting students to develop business ideas. Conventionally, entrants to the competition would write a complete business plan. However, in recent years more narrowly-focused competitions on specific aspects of the entrepreneurial process have emerged. Examples include ideation (idea modelling and opportunity modelling), business modelling, developing and implementing a crowd-funding campaign, developing customers and gaining traction, and pitching.[93]

Various benefits are claimed for business plan competitions. As well as providing a motivation for people to come forward with business ideas, business plan competitions offer a broad range of learning opportunities, build skills and networks. Mentoring may be available. Teams can refine the business proposal on the basis of feedback they get from the judges. Winning teams will be awarded resources, normally in the form of cash but may also include in-kind support for example from professional service firms. There is surprisingly little evaluation of the impact of business plan competitions on either the entrants or the winners. However, the available evidence indicates that although business plan competitions are created to primarily encourage the creation of new enterprises, the more important outcomes are those that the participants gain, such as knowledge of the entrepreneurial process and awareness of opportunities entrepreneurial skill development, increased self-confidence and risk-taking propensity, and access to mentors and networking opportunities. This real-world, practical education is not only important in successful business start-ups, it is also in high demand from employers.[94] The MIT $100,000 Business Plan Competition has had a much greater impact on start-ups, with the MIT alumni study identifying at least 120 companies that have been started by winners.[95] This may simply underline the point that business plan competitions are less effective when offered in isolation from other forms of entrepreneurship support. Critics have argued that business plan competitions, at least the high profile ones, are biased to technology ventures and favour ideas that require venture capital, leading one commentator to argue that they have become investment competitions rather than business plan competitions.[96] Moreover, as noted earlier, research has failed to establish a link between writing a business plan and the subsequent performance of the business, and there is no evidence what proportion of competition entrants, or even competition winners, actually start businesses.

Entrepreneurial societies and clubs can also enhance student learning. These typically organise on-campus speeches by entrepreneurs, networking events, competitions, seminars and, in the case of SIFE, community projects. However, their role has been

---

[93] 'USABE launch!' competitions organised by the United States Association of Small Business and Entrepreneurship.
[94] Russell R, Atchision M and Brooks R (2008) Business plan competitions in tertiary institutions: encouraging entrepreneurship education, *Journal of Higher Education Policy and Management*, 30 (2), pp 123-138; McGowan P and Cooper S (2008) Promoting technology-based enterprise in higher education: the role of business plan competitions, *Industry and Higher Education*, 22 (1), pp 29-36.
[95] Roberts E and Eesley C (2009) *op. cit.*
[96] Bell J (2010) Student business plan competitions: who really does have access? *Small Business Institute National Conference Proceedings*.

largely overlooked. Pittaway et al[97] note while students mention the opportunity to prepare for a business start-up, gaining practical experience and developing transferable skills, as motives for participating in entrepreneurial societies and clubs, by far the main motivation, ironically, is to enhance their CV and thus improve their prospects of employment. Their learning, which occurs in a collaborative and supportive environment, includes learning by doing and reflective practice, and there is evidence of increased self-efficacy and intentionality. However, the range of learning appears to be narrower than that serviced from formal courses.[98]

An entrepreneurial campus would also have at least one EIR.[99] This is typically someone with substantial entrepreneurial experience and, or, investment experience as a venture capitalist or business angel. With increasing focus on social entrepreneurship this model has now extended to include social EIR. In some institutions the EIR will be based in technology transfer office and their role will be to support new spin-out companies. However, it is more common for the EIR to be based in an entrepreneurship centre and have the remit of working with students through contributions to teaching, advice, coaching and networking to both encourage and accelerate the entrepreneurship process. The EIR might also take on specific role, such as managing business plan competitions or courses which involve student placements or consultancy projects with local companies. Depending on the model of entrepreneurship teaching and support it might be appropriate for universities to appoint an EIR in each faculty. Some universities have networks of EIRs who act as tutors to entrepreneurship students.

An entrepreneurial campus will also offer a range of business start-up support. This is likely to be provided by the universities themselves, either directly or via a third party. There will be hard support in the form of incubation space for nascent entrepreneurs and start-ups. This might include various types of space ranging from hot desks through hatcheries and formal incubator units. Some universities have created enterprise hubs to act as a physical focus for all entrepreneurship activities, for example, an entrepreneurship centre, start-up space, events space, commercial space for student-run campus businesses. External organisations with an enterprise function might also be located in the hub, or use it for their events. Soft support may take the form of enterprise scholarships and entrepreneurship funds, which invest in student or alumni businesses and student societies, such as the University of Edinburgh's LAUNCH.ed.[100] All of this activity will be coordinated by a Student Enterprise Manager.

---

[97] Pittaway L, Rodriguez-Falcon E, Aiyegbayo O and King A (2011) The role of entrepreneurship clubs and societies in entrepreneurial learning, *International Small Business Journal*, 29 (1), pp 37-57
[98] Ibid.
[99] See George M, Gordon I and Hamilton E (2010) What is the (the point of) an entrepreneur in residence? The Lancaster University Experience, with some worldwide comparisons. *Industry and Higher Education*, 26 (6), pp 495-503.
[100] Information about the University of Edinburgh's service for students available at: www.launch.ed.ac.uk.

Conclusion

Universities are experiencing a period of intense external scrutiny and changing expectations. No longer expected just to research and teach, universities are now also expected to make clear contributions to national, regional and local economic development through the commercialisation of their knowledge and production of employable graduates. Meanwhile, employability issues have emerged as a key concern for students in the context of changing graduate labour markets and rising student debt. Moreover, the current generation of students, the Millennials, have different aspirations to those of their predecessors. They are not necessarily interested in seeking the security of employment with large companies and are quite willing to pursue self-employment and entrepreneurship, including social entrepreneurship.

All of this has prompted a debate about how universities should respond. For many commentators, the answer is the creation of entrepreneurial campuses, an extension of the concept of the entrepreneurial university, which stimulates the entrepreneurial aspirations of students and provides them with the opportunity to develop relevant skills, knowledge and experience, and offers relevant support and resources to enable them to start their own business. This is achieved through both curricular and extra-curricular activities that create a supportive eco-system that raises entrepreneurial awareness, develops entrepreneurial skills and supports entrepreneurial endeavours.

The creation of entrepreneurial campuses needs institutional commitment at the highest level. Entrepreneurship needs to be part of the institution's vision and strategy, and with clear objectives and outcomes. But it needs to be widely owned across the university; the days are long gone when entrepreneurship education was seen as an activity that is confined to business schools.

It is not clear the extent to which Scottish universities meet the criteria of entrepreneurial universities. Certainly, there are many examples of innovative practice as the case studies demonstrate. An appropriate follow-up to this study might therefore be to undertake a stock-taking exercise, similar to the NCGE-sponsored study of Good Practice in Entrepreneurship Education,[101] to establish what curricular and extra-curricular activity is currently in place in Scottish universities and its scale, and to develop measures of activity that can be monitored over time against appropriate benchmarks. This would include both numerical indicators (for example, students on entrepreneurship courses, involvement in extra-curricular activities, graduate entrepreneurship and self-employment) and quality indicators (for example, cases of innovative teaching and learning, assessment procedures). Along with this there is an on-going need for the sharing of practice, both successful and unsuccessful, both among Scottish university staff and more widely, and the dissemination of this information.

---

[101] Mason C and Botham R (2006) *op. cit.*

Author Information and Editorial Board

Author

Colin Mason, Professor of Entrepreneurship at the Adam Smith Business School, University of Glasgow, University of Glasgow