



# The State of Education Provision for Enterprise and Entrepreneurship: A Mapping Study of England's HEIs

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**Abstract.** The aim of this paper is to provide a comprehensive overview of the state of provision for enterprise and entrepreneurship education within England's Higher Education Institutions (HEIs). The paper is based on the National Council for Graduate Entrepreneurship (NCGE) Mapping Study of enterprise education in England. Research commissioned by NCGE (ISBA 2004) has shown that there is a growing knowledge base about the nature of enterprise education but less so evidence concerning the provision for enhancing student enterprise and graduate entrepreneurship. Although studies have taken place in the US and Levie undertook a study of the UK published in 1999, there has been no recent study that has comprehensively mapped enterprise education activity in all higher education institutions across England. Institutional contacts in 94% of all the HEIs for this study entered data into an online institutional mapping template containing questions on modules/courses, non-accredited support and other institutional characteristics. The researchers maintained regular telephone contact and made personal visits to maximise data entry and to provide support where needed. This approach has led to the collection of a unique and robust data set that has been analysed using SPSS. The paper presents a national overview and highlights selected regional variations in enterprise education and non-accredited entrepreneurship support. This includes: current and planned course provision over time; student profiles and targets; primary learning outcomes; non-accredited provision and student engagement; primary funding sources; and the development of a range of institutional characteristics conducive to supporting student enterprise and graduate entrepreneurship. The findings from the mapping study illuminate the current HE landscape of support for enterprise and entrepreneurship thereby providing HEIs and educators with a valuable national resource. Additionally, this informs other key stakeholders – RDAs and central government – of the scope and scale of the contribution that HEIs offer to regional economic and social agendas. From such a unique evidence base more informed decisions can be taken when considering effective mechanisms for the future growth and development of HEI contributions. This paper offers the findings from a unique and current comprehensive dataset on the HE provision of enterprise and entrepreneurship education in England. With 94% of the HEIs in the study providing data online the

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1. The paper is based on a study commissioned by NCGE and directed by Paul D. Hannon. Data collection and analysis through SPSS was conducted by a team based at the Universities of Aston and Central England – Dr. Jonathan Scott; Srikanth Sursani and Cindy Millman – with support from NCGE staff.

study has created a national database that can be a platform for sharing knowledge and experience across the community. Furthermore conducting a repeat online study on an annual basis will provide valuable time series data. The study findings will help shape the future environment for student enterprise and graduate entrepreneurship across England.

**Keywords:** entrepreneurship education, student enterprise, graduate entrepreneurship, universities, education/entrepreneurship policy.

## 1. Introduction

There continues to be a growing interest in enterprise and entrepreneurship education within HEIs. This interest has emerged from educators, from students, from employers and from senior institutional management. Furthermore, there remains a strong policy interest from central UK government, particularly from the Treasury, the Small Business Service, the Dept. of Culture, Media and Sport, and the Dept. for Education and Skills; as well as, from England's Regional Development Agencies (RDAs), the Welsh Assembly Government and Scottish Executive.

The growth in activity within HEIs in exploiting such interest has been driven by both internal and external opportunities and pressures. For example:

- the increasingly competitive HE sector places pressure on institutions and faculties to maintain and grow revenue streams;
- the market positioning of institutions demands relevance to an emerging consumer market as student fees are introduced;
- changing government policy initiatives have created new funding streams into HEIs for enterprise and innovation related activities;
- the regionalisation of England is influencing the relationships between RDAs and their regional networks of HEIs.

The result over the past decade in England has been a significant increase in the supply of enterprise and entrepreneurship support for students and graduates. The growth in provision has been broad in scope and includes credit-bearing and non-credit-bearing activities and is accompanied by 'hard' and 'soft' infrastructural changes: the creation of physical centres and spaces for enterprise; the re-orientation of institutional policies and plans; and, the development of new faculty and administrative posts.

The scale of engagement by staff and students has also grown as opportunities across wide ranging activities are provided. Quantitatively this is evidenced in institutional reporting against specific actions and targets laid out in particular funding mechanisms such as in England, the Higher Education Innovation Funds

in 2001, 2004 and 2006/7<sup>2</sup> and the Science Enterprise Challenge Fund in 1999 and 2001.<sup>3</sup> These data are, however, provided purposefully for the recording of achievements against targets for drawing down and justifying funds provided. They do not necessarily illuminate the full scope of institutional provision.

From a national policy perspective it has proved difficult to present any meaningful and comprehensive overview of the overall patterns of growth in provision, the detail of its nature, or the nature of student engagement. There is inconsistency in the type of data collected at the institutional and regional levels that would provide the basis for any such meaningful overview. Furthermore, and in general, the data that are collected tend to focus on activities and outputs. These data are limiting from an educational perspective where for instance there is not always explicit clarity about the learning outcomes from such provision.

Overall, the current state of national data in England has been insufficiently consistent and comprehensive to provide a sound platform upon which specific questions can be considered. For example:

- What should be the nature of future curricula development in enterprise and entrepreneurship education at HEIs, based upon current experiences?
- How does existing course provision contribute to the development of entrepreneurial learning outcomes, and what might constitute good practice?
- What is the nature of the engagement by student types and by faculties/centres?
- What is the overall scale and scope of provision and engagement and how is this changing?

In beginning to address such questions the National Council for Graduate Entrepreneurship (NCGE), as a starting point in developing an understanding about enterprise and entrepreneurship support provision and engagement across England's HEIs, commissioned a study to map the scale and scope of current and planned activity.

The aim of this paper is to provide a comprehensive overview of the state of provision for enterprise and entrepreneurship education within England's Higher Education Institutions (HEIs) based upon this Mapping Study.

Due to insufficient space in this paper, the emphasis here is placed on presenting a national overview with selected highlights of regional variations in

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2. See <http://www.dti.gov.uk/science/knowledge-transfer/heif/page12054.html>

3. See [http://www.dti.gov.uk/science/knowledge-transfer/schemes/Science\\_Enterprise\\_Challenge/page12138.html](http://www.dti.gov.uk/science/knowledge-transfer/schemes/Science_Enterprise_Challenge/page12138.html)

enterprise education and non-accredited entrepreneurship support. This includes: current and planned course provision over time; student profiles and targets; primary learning outcomes; non-accredited provision and student engagement; primary funding sources; and the development of a range of institutional characteristics conducive to supporting student enterprise and graduate entrepreneurship. Further papers will illustrate regional analyses and other aspects emerging from the analyses of the mapping data. Summary regional reports can be downloaded at <http://www.ncge.org.uk/imreports/index.htm>.

This paper offers the findings from a unique and current comprehensive dataset on the HE provision of enterprise and entrepreneurship education in England. With 94% of the HEIs in the study providing data online the study has also created a national database that can be a platform for sharing knowledge and experience across the community. Furthermore conducting a repeat online study on an annual basis will provide valuable time series data. The study findings will help shape the future environment for student enterprise and graduate entrepreneurship across England.

This introductory section has provided the rationale for the paper. Section 2 is a review the literature in relation to the study, Section 3 outlines the methodology adopted, Section 4 provides full analysis of the reported data; Section 5 offers conclusions; and Section 6 presents a summary and next steps.

## **2. Literature Review**

Much has been written about entrepreneurship and a growing literature is emerging in entrepreneurship education and graduate entrepreneurship. Recent reviews include Hannon (2005a; 2005b) and Pittaway and Cope (2005). Past reviews include Gorman et al (1997), and a decade earlier Dainow (1986). Although the mapping of provision in enterprise and entrepreneurship education has been evident for some years within a US context (see below), however, there is an ongoing gap in the mapping of provision in England. The focus for this paper, therefore, is to build upon the existing understanding of the mapping of provision and engagement in student enterprise and graduate entrepreneurship. In this context there are few relevant studies that have comprehensively mapped entrepreneurship education and support in Higher Education.

The NCGE commissioned report (ISBA 2004) and subsequent publications (Hannon 2005a; 2005b) have emphasised the need for a more comprehensive national dataset. But why is this important? Such data provide: a robust evidence base from which to inform and influence policy and practice; and, regular and consistent data for time series analysis, the value of which has already been demonstrated. In the US, through the commitment of the Kauffman Foundation to supporting the George Washington University and the University of Illinois in developing and undertaking ongoing surveys, a series of ‘state of the nation’ type

reports of entrepreneurship education across the US have been published. See, for example, Solomon et al (2002) and earlier (1986; 1988; 1991); McMullan and Long (1987); or the tracking of entrepreneurship chairs by Katz (1994); or Plaschka and Welch's (1990) review of curricula designs; or Solomon et al's (1994) historical review of teaching pedagogies; and Vesper's early work in the mid 1980s (Vesper 1986, 1987; Vesper and McMullan 1988) and later in the 1990s (Vesper and Gartner 1997). The studies have all helped to illuminate the landscape for enterprise and entrepreneurship education.

In the US, the recent Solomon et al study (2002) highlights that:

- There has been a 'small but growing trend in the number of courses....' and that growth in entrepreneurship education 'has accelerated over the last two decades.'
- US Institutions are receiving 'major endowments for entrepreneurship education...'
- 'the dilemma is for the field to stay on the "cutting edge"', particularly regards the use of technology in entrepreneurship provision;
- 'pedagogies must reflect the changing times'.

Notable examples from the UK include Price et al (2004); Levie (1999). For example the Price et al. UK study (2004) utilised Gibb's Start-Up Model as the underpinning framework to the survey and hence aimed to identify activities that supported the four components of the model: Motivation; Abilities; Ideas; and Resources. From a sample survey the findings suggested:

- 'A strong base of activity in all areas required to develop graduate entrepreneurial capability. Resources appear to be increasing, and all UK HEIs have engaged with the enterprise agenda, though to a varying degree'.
- 'Work within 'Ideas' appears to be the most limited activity within the graduate arena. Whilst assumptions can be drawn that this is because it is the hardest element to promote, justify and evidence, it may also be, more seriously, due a core assumption within enterprise provision, that creative and sustainable business ideas are inherent within the graduate population'.
- 'The DTi SEC programme has made a major contribution to developing enterprise within HEIs. The UKSEC network has provided

strong linkages across its partnerships, between experienced and developing HEIs....’

- ‘Non UKSEC HEIs have been entrepreneurial in sourcing finance for their enterprise activities, and have a strong experience of working within the arts, humanities and social sciences which is yet to be drawn together beyond informal networks....’
- ‘Overall .... a high level of enterprise activity, funded and driven by a range of key providers. From illustrative examples, it is clear that solid activity is apparent on the ground and whilst general providers have few stated objectives to specifically support graduate entrepreneurs, tailored provision is increasingly emerging ....’
- ‘... many individuals working in this area are seeking additional support and secured funding ... Funding is inevitably an issue for most, as many projects are not core funded, but stem from year-on-year allowances, underspend and competitive funding stream.’

This survey is helpful in scoping current practice within the context of business start-up but does not identify how education practice supports or contributes to the delivery of a broader set of entrepreneurial outcomes, nor does it provide any notion of scale of penetration.

The earlier Levie report (1999) provided a comprehensive baseline study of England covering many similar aspects to the study reported in this paper. Although useful, however, this has been a one-off activity for England, unlike the online model reported here that aims to provide a robust platform for an ongoing annual survey. The main findings from the Levie report highlight that:

- ‘38%, or 50 HEIs, offered courses in entrepreneurship. Only 27 HEIs, about 20% of the total, had courses which were attended by non-business students .... Only 25% of all students taking entrepreneurship courses were non-business studies students .... even though non-business students comprise almost 90% of the student population’.
- ‘Gross attendance at entrepreneurship courses increased by 23% between 1997/98 and 1998/99. The gross number of entrepreneurship courses increased by 15% from 104 to 120. The average number of students per entrepreneurship course increased by 7%, from 61 to 65’.
- ‘Part of the apparent lack of academic legitimacy may be related to the people who teach the subject rather than the subject itself. Many of these are part-time lecturers and/or entrepreneurs themselves. Teachers

who are not career academics may feel, and be perceived, as academically less legitimate...’

- ‘Two main types of entrepreneurship course are evident: courses *for* entrepreneurship, and courses *about* entrepreneurship. These two courses are taught and assessed differently, and tend to have different types of teacher. Teachers of ‘for’ courses tended to be more connected with real entrepreneurial activity, and clearly wished their students to get ‘near entrepreneurial experience’.
- ‘There is a need for greater professionalism in entrepreneurship teaching. Relatively few teachers of entrepreneurship are full-time faculty with a teaching and research focus in entrepreneurship. There is no nation-wide forum for mutual learning among entrepreneurship teachers in England...’
- Government consider sponsoring ‘... regional seminars for academics and entrepreneurs who are considering moving into entrepreneurship teaching and research on a full-time or part-time basis’ and ‘... a seminar for HEI administrators, including faculty deans, on alternative ways of raising funding for entrepreneurship posts’.

In the UK, the NCGE was able to act upon the recommendations in the 2004 report and resource the piloting of a new approach to building a national dataset, following a request for such data from the nine Regional Development Agencies (RDAs) of England. This aimed to illuminate the HE landscape and be the catalyst for the creation of an online national database for raising awareness of the scale and scope of practice across the HE community in England. Section 3 now explores the approach in more detail.

### **3. Methodology and Approach**

The NCGE agreed with all English RDAs to compile regional maps of HE provision supporting student enterprise and graduate entrepreneurship. To achieve this aim, NCGE commissioned a team of researchers to gather and analyse the information for presentation to the RDAs.

NCGE’s initial design of the survey instrument was influenced by a workshop with experts held in Birmingham, UK, access to the Kauffman Foundation survey instruments, and a review of earlier UK reports and studies (Price et al., 2004; Levie, 1999). The instrument was subsequently piloted at 2 HEIs. The survey aimed to capture data in the academic year 2005-06. In addition to capturing basic data concerning the location and size of the institution, the general structure of the main survey instrument examined three key areas:

1. All credit bearing provision relating to enterprise and entrepreneurship education at all levels and modes of delivery. This section further included data collection on the first registration of the provision, numbers of participating students and their profiles, the primary learning outcomes, the leading faculty or centre, and the primary target participants. Further data were sought about the teaching resources engaged in the delivery of the identified provision. The same data fields were used to collect data regarding any planned credit bearing provision.
2. All non credit bearing provision relating to enterprise and entrepreneurship education and support. This section listed 24 categories of provision and collected data against each category for the year started, numbers of students participating, the frequency of the activity, the target participants, the leading faculty or centre, and the primary funding sources.
3. The third section collected data against 28 institutional characteristics that are indicative of support for enterprise and entrepreneurship. The instrument sought to clarify if, or not, each institution possessed any of the listed characteristics.

In supporting respondents through the data entry process a brief guide was produced and made available online. To enable clarity in identifying appropriate course and module entries it was decided early in the design phase that presenting a prescriptive definition would not be helpful as the research team were fully aware of the difficulties and challenges in the use of terminology and language where concepts are often applied interchangeably. Instead it was more important to understand the range of outcomes that the selected courses and modules sought to achieve however labelled. An entrepreneurial outcomes template was embedded within the template design to enable this.

NCGE made initial visits to many HEIs in the regions of England to brief key contacts on the mapping exercise and to ensure participation. In addition, a number of RDA meetings took place to ensure each region was knowledgeable about what was going on, when, and how. Most HEIs in regions, apart from London and the South East due to the number of institutions, were visited; those that were not visited received a telephone call from an NCGE Director to provide the same information.

Although in the early stage of the study a paper-based template was used, an online mapping template was soon developed and tested which enabled key contacts in HEIs to directly enter the data in the three areas identified above via web access. The initial briefing meeting or telephone call from NCGE was followed by an email providing details of the online template, a URL link and a



unique institutional password to ensure integrity of the data. A copy of the online template can be viewed at <http://www.ncge.org.uk/im/register.htm>.

The key contacts within HEIs managed the completion of their institutional template, collected data and entered the data on the online template. The NCGE and the research team maintained regular telephone contact to ensure completion and to provide support (including, for example, answering questions and resolving any issues that arose). In most cases, contacts were able to complete the online template. In some cases, however, visits were made by the researchers to interview the contacts where HEIs had limited resource. An online guide was also provided.

The benefit to the research team of the online mapping template was that it removed the normal need to enter data submitted by all respondents, thus reducing lead times in starting analysis of the information. As a result, it was possible to achieve returns from 123 of 131 English HEIs in the study (a 94% response rate). All survey data were exported from the online template into SPSS for analyses.

The data from which the findings are presented in this paper are all self-reported and voluntarily provided. Key contacts have utilised existing data where available, have sought additional supplementary data where needed from centralised units such as Academic Registries, and in larger institutions have worked with faculty colleagues to provide a full picture from across the campus. The research team continuously monitored template entries as well as reviewing HEIs' websites and following up with individual contacts if there were any potential anomalies. The dataset thereby represents the most recent and accurate data available.

#### **4. Results**

Table 1 provides an overview of the HE student population for the study. Of this population an overall 7% of all HE students in 2006 are reportedly engaged in some form of enterprise activity at an HEI in England. Of this, two-thirds are engaged in non-credit-bearing 'extra-curricula' provision.

Below, the presentation of the data is structured to match the layout of the online mapping template. There are four main areas: (1) data relating to current credit-bearing provision; (2) data relating to future planned credit-bearing provision; (3) data relating to non-credit-bearing provision; and (4) data relating to broader institutional characteristics.

*Table 1: Student Engagement in Enterprise*

	<b>England</b>	<b>%</b>
Number of Participating HEIs:	123/131	94
Students in HE	1,898,537	100
Students in Enterprise	131,923	7

As well as national average data, selected data relating to the 9 regions of England are presented. These regions are named: North East (NE); North West (NW); Yorkshire and Humberside (YH); East Midlands (EM); West Midlands (WM); East of England (EE); South East (SE); South West (SW); London (LDN).

The regions of England vary in the distribution of higher education institutions. Furthermore, each region varies in the size distribution of the higher education institutions. Table 2 below illustrates the national and regional variations by size (number and %) based upon student enrolment figures:

*Table 2: Size Distribution of HEIs by Region*

<b>SIZE</b>	<b>MICRO</b>	<b>%</b>	<b>SMALL</b>	<b>%</b>	<b>MEDIUM</b>	<b>%</b>	<b>LARGE</b>	<b>%</b>	<b>TOTAL in</b>
	<b>&lt; 1K</b>		<b>1K-5K</b>		<b>5K-20K</b>		<b>20K+</b>		<b>Study</b>
<b>REGION</b>									
LDN	11	31	9	26	7	20	8	23	35
SE			2	11	12	67	4	22	18
SW	1	8	3	25	5	42	3	25	12
NE					3	60	2	40	5
NW	2	14	1	7	5	36	6	43	14
WM			2	18	5	45	4	36	11
EM			1	11	4	44	4	44	9
YH			2	20	4	40	4	40	10
EE			2	22	4	44	3	33	9
ENGLAND	14	11	22	18	49	40	38	31	123

In taking account of the distribution of HEIs across the regions, a regional institutional average is a more comparable figure. Table 3 below provides the analysis:

Table 3 clearly illustrates wide regional variations in average provision. The East of England region data are affected by the inclusion of The Open University. Other variations are likely from individual institutional interpretations of what is included in their enterprise provision. Other influencing factors will be the large number of 'micro' institutions in the London region, accounting for over 30% of all HEIs in this region. Indeed nearly 60% of the London region's HEIs are micro

or small, i.e. enrolling fewer than 5,000 students. The South East has fewer than average large institutions, i.e. > 20,000 students, and the South West has fewer large and a higher number of small institutions than the national average. It is not possible to infer the effect of size on enterprise provision from these survey findings but size is likely to affect demand levels, availability of resources (staff and funding) and micro institutions may be highly focused upon specific niche activities.

Table 3: Regional Institutional Average Provision

<b>REGION</b>	<b>Regional Institutional Average (rounded)</b>
<b>EE</b>	16
<b>YH</b>	11
<b>NW</b>	11
<b>WM</b>	10
<b>NE</b>	9
<b>EM</b>	6
<b>SW</b>	6
<b>SE</b>	5
<b>LDN</b>	3
<b>England</b>	7

The data relating to this total current provision is now presented according to specific categories of data. Firstly, the level of provision as categorised by undergraduate and postgraduate levels; secondly, by the leading faculty or centre; thirdly, by the primary target participants; fourthly, by the primary learning outcomes; fifthly, by student engagement; sixthly, by student profile and finally by the growth of provision over time.

#### 4.1. Current Enterprise Provision

Respondent HEIs submitted data concerning all credit-bearing provision whether full programmes leading to a qualification or individual modules contributing credits towards a qualification. No distinction is made between modules of varying credit levels. Respondents provided data regarding any provision supporting student enterprise and entrepreneurship however defined by the institution. To ensure only relevant entries were made each programme or module was required to deliver one of a number of listed primary learning outcomes.

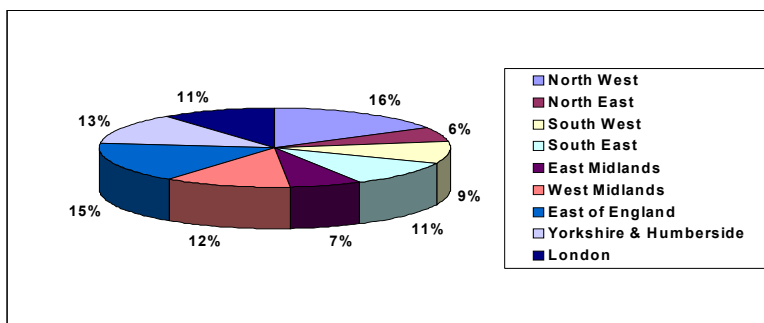
Here, regionalised data on all credit-bearing provision (programmes and modules) are presented. Respondent HEIs reported a total of 889 enterprise programmes/modules offered across the regions of England in 2005-06.

The reported distribution is presented in Table 4 below. This represents a national average of just less than 7 reported enterprise programmes/modules per institution. Figure 1 shows the % regional distribution of these programmes and modules.

*Table 4: Regional Distribution of Current Provision*

<b>REGION</b>	<b>NUMBER</b>	<b>%</b>
<b>NW</b>	154	17
<b>NE</b>	46	5
<b>SW</b>	75	8
<b>SE</b>	96	11
<b>EM</b>	57	6
<b>WM</b>	105	12
<b>EE</b>	146	16
<b>YH</b>	114	13
<b>LDN</b>	96	11
<b>TOTAL</b>	889	100

*Figure 1: Current programmes/modules in each region of England (%)*

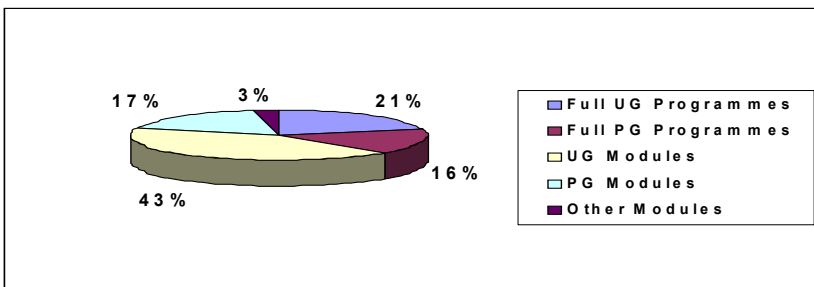


#### 4.1.1. Undergraduate (UG): Postgraduate (PG)

Figure 2 shows that 64% of all provision (programme and modules) is reported at the UG level. Among all 889 programmes/modules which are currently offered in

HEIs in England, almost two thirds of the enterprise education activities were modules, with 43% at UG level and 17% at PG level. Full programmes, as identified by respondent HEIs, were at a lower level in comparison to modules, with 21% at UG level, and 16% at PG level. In addition, about 3% were other vocational programmes/modules. Variations in each region between UG and PG were quite marked. For example, the West Midlands region has a low level of full PG programmes and there is a potential for the introduction of further PG enterprise programmes. Both London and the East of England regions have significant regional strength in PG enterprise provision.

Figure 2: Current programmes/modules by level and mode (%)



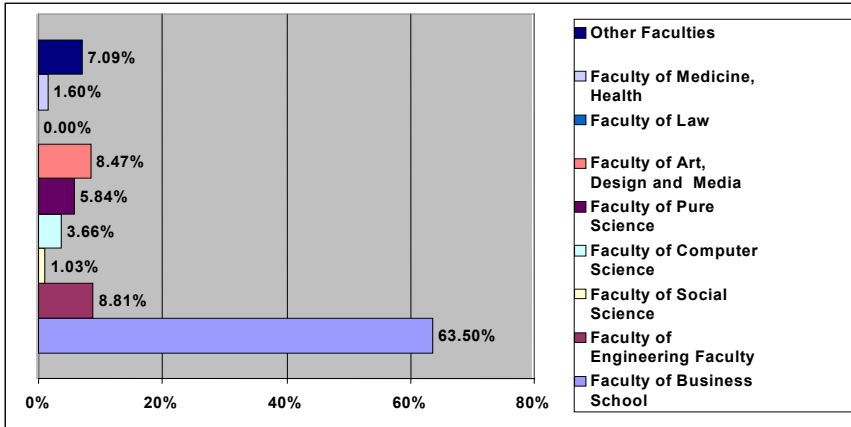
#### 4.1.2. Leading Faculties/Schools

Business Schools (64%) are the predominant leading schools or faculties of current enterprise and entrepreneurship provision in England (see Figure 3), followed by Faculties of Engineering (9%) and Art & Design (8%). There are no reported programmes/modules currently offered by Law Faculties.

Again the data reported significant variations regionally. Regions such as the South West, Yorkshire and Humberside, North West, North East and London are below the national averages in provision by Business Schools - while 90% of all current provision in the East of England is reported as being led by the region's Business Schools. Conversely, London is twice the national average in provision by Engineering faculties; there are strengths in Art and Design in the North West and South East; in the North East and Yorkshire and Humberside Computer Science is double the national average; East Midlands has strength in Faculties of Pure Sciences; London and South East both have higher than average provision by Medicine & Health Faculties.

The data suggest that many of the regions in England contain HEIs with specific strengths in enterprise and entrepreneurship provision although much of the provision in regions is general in nature and led by Business Schools. Such differences are likely to be as a consequence of the strengths of particular faculties and departments.

Figure 3: Leading faculties for current provision in the regions of England (%)

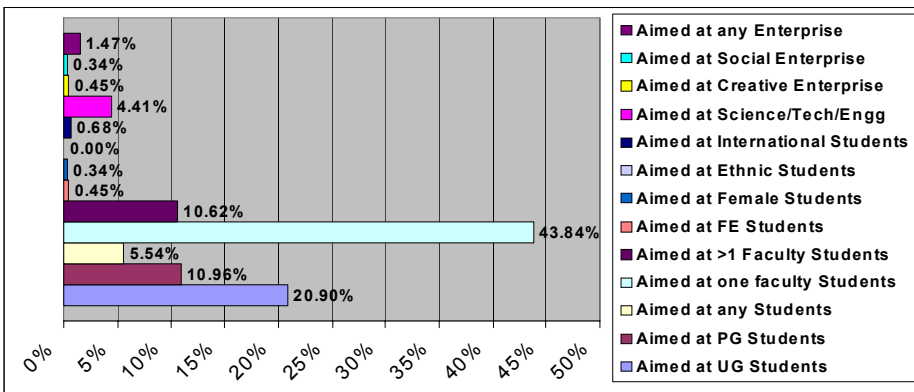


#### 4.1.3. Primary Target Participants

Figure 4 presents the data reported for target participants of current provision. Current provision targets students from one specific faculty (44%) and UG students (21%). Nationally, there is a very low level of provision targeted at areas such as Social Enterprise or Creative Enterprise or at female or international students. Current provision targeting UG students is at twice the level of those targeted at PG students. Targeting students at one faculty is a dominant response in most regions.

Again the data vary across regions. These data are not suggesting that there is a lack of diversity in student engagement in enterprise provision, nor that students interested in social or creative enterprises are not supported. The data illustrate that the dominant approach in HEIs is an open general provision.

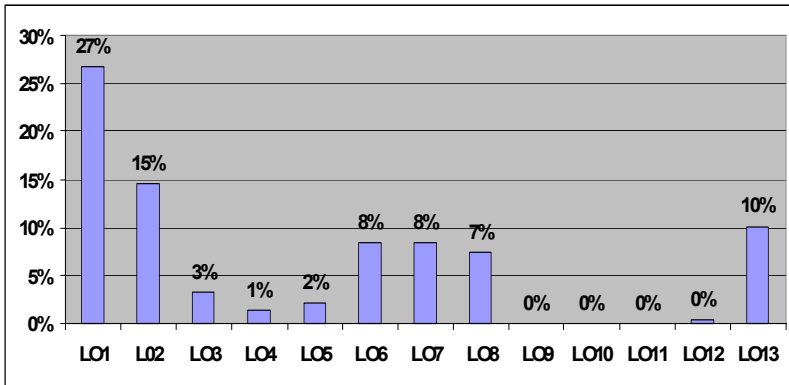
Figure 4: Targeted participants for current programmes (%)



#### 4.1.4. Primary Learning Outcomes

A list of 13 Learning Outcomes (see Annex) was defined by NCGE in the online institutional mapping template. HEI respondents selected appropriate primary learning outcomes for each programme/module entered in the template.

Figure 5: Learning outcomes of current provision in the regions of England (%)



In England, as shown in Figure 5, 27% of programmes/modules are reported as adopting Learning Outcome 1 *'to raise awareness, knowledge and understanding about enterprise/entrepreneurship concept and practice'*. Learning Outcome 2, *'to develop individual enterprising/entrepreneurial skills, behaviours and attitudes'*, and Learning Outcome 13, *'to exploit institutionally owned IP'*, are reported second (15%) and third (10%) respectively. The national averages however disguise considerable regional variation. For example, the East Midlands is at a much higher level (51%) than the national average for LO1 and although the North West is the lowest, 27% of programmes/modules in this region adopt Learning Outcome 6 *'to motivate and inspire students toward an enterprising or entrepreneurial career or life'* suggesting a different focus in the purpose of current provision. There was a lack of reported coverage for Learning Outcomes 9 *'to develop key business how-to's'*, 10 *'to develop personal relationship and networking skills'*, 11 *'to prepare for becoming a freelancer or self-employed'*, and 12 *'to start a new business'*. The study only seeks the primary learning outcome for each programme or module and therefore does not assume that other learning outcomes are not sought. The data provide an insight into the emphasis taken by HEIs.

#### 4.1.5. Student Engagement

Section 4.1.1. reported provision of credit-bearing programme and modules. This section reports student engagement in this provision. Table 5 shows that 45% of students are reported on UG modules, 26% on UG programmes, 16% on PG modules, 11% on PG programmes and 2% on other modules out of an enterprise student population of 44,054. Again we see significant regional variations (which closely match the types of students targeted). There are considerably higher levels at UG in the NW, YH, EM and SW regions. Conversely, PG levels are slightly higher than the national average in LDN and much higher in both SE and in EE.

*Table 5: Total number of students engaged in enterprise education*

<b>Programmes</b>	<b>No.</b>
No. of Students on Full-time UG programmes	11368
No. of Students on Modules UG level	19774
<b>Total UG Students</b>	<b>31142</b>
No. of Students on Full-time PG programmes	4986
No. of Students on Modules PG level	7219
<b>Total PG Students</b>	<b>12205</b>
No. of Students on Other modules	707
<b>Total Student Population</b>	<b>44054</b>

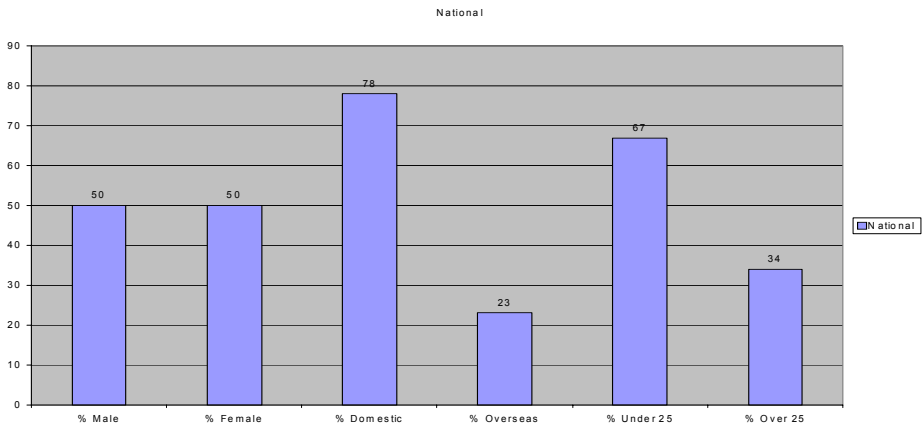
#### 4.1.6. Student Profiles

Limited data were reported for students concerning ethnicity profiles and these are not presented here. Figure 6 shows that concerning gender there is an equal balance of male:female participation. Higher levels of domestic student and over 25yr old student participation are reported.

The balanced gender participation reported in this study varies to that in other studies (see for example Pittaway and Cope, 2005 who reports a 2:1 male:female participation across the US). The higher male participation is also reflected in GEM study data for entrepreneurial activity. In a recently commissioned report from GEM by NCGE male total entrepreneurial activity is higher than for females. For social entrepreneurial activity, however, there is a lower gender gap (Harding, 2006). Clearly, the HEIs in England report a more balanced current engagement in enterprise provision which may reflect the primary targeting of all students and a lack of specific gender focused programmes.



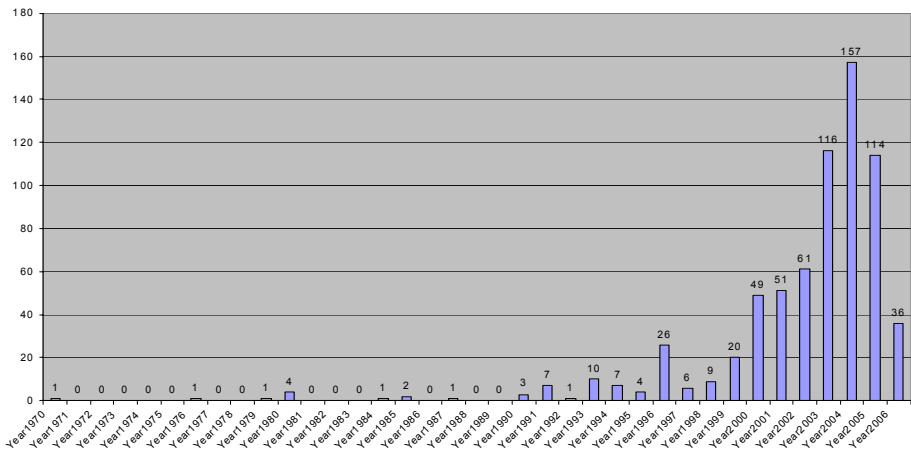
Figure 6: Student profile data for current provision: by gender, domesticity and age



#### 4.1.6. Longitudinal Growth of Current Provision

Figure 7 shows that provision of enterprise education programmes/modules is reported as starting in 1970 and reaching a peak in Year 2004. The lower numbers in Year 2006 shown here reflect reporting data for a partial year as the survey was conducted between March and June 2006. The data illustrate periods of doubling in the rate of growth of current enterprise provision around 1997, 2001 and 2004. These significant increases are mirrored in general increased interest and activity in the HEIs across England due to the implementation of the Science and Enterprise Challenge Fund and the introduction of the Higher Education Innovation Fund. Although not funding the participation in HEFCE funded courses, the funds did support initial curricula development and their associated costs.

Figure 7: Number of programmes/modules started per year (1970 – 2006)



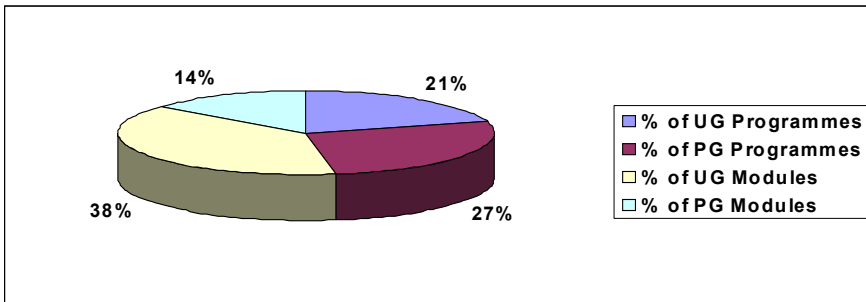
## 4.2. Planned Enterprise Provision

The presentation of the data for planned provision follows the same structure as that presented above for current provision. Here HEI respondents have reported their future plans for new programmes and modules, including level of study, from which faculty or school the new provision will be led, who the target participants will be, their planned learning outcomes, and the level of target student engagement. Clearly, the data in this section are predictive but are important as they are indicative of the future landscape for enterprise and entrepreneurship provision in HEIs across England.

### 4.2.1. UG:PG

There are 167 enterprise programmes/modules planned in HEIs in England, with 38% being UG modules and 27% being PG programmes (Figure 8). In total, planned programmes/modules at UG level (59%) is slightly higher than that at the PG level, but this percentage is at a more balanced level than the current provision.

*Figure 8: Planned programmes/modules in the regions of England (%)*

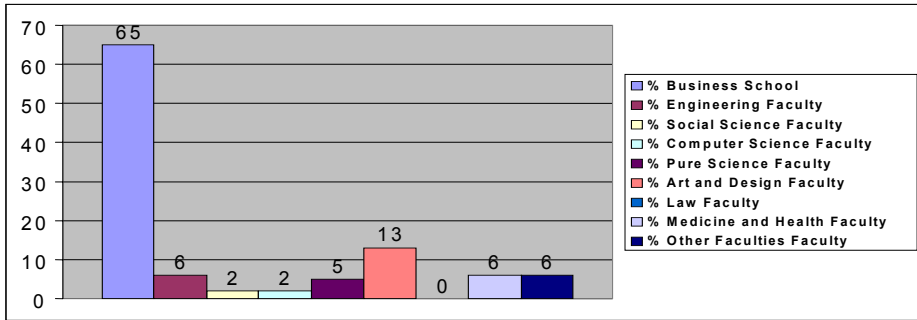


### 4.2.2. Leading Faculties/Schools

Section 4.1.2. reported data regarding the leading schools and faculties for current provision in HEIs. In this section data for future planned provision are provided. Figure 9 illustrates that Business Schools (65%) followed by Art and Design faculties (13%) are the leading centres in England's enterprise planned provision. There is no reported planned provision to be offered by faculties of Law. Faculties such as Engineering, Medicine and Health and other faculties e.g. Faculty of Education will be offering the same level of enterprise provision. Regional variations are significant with 94% of planned programmes/modules in East of

England reported as offered by Business Schools. Art & Design accounts for 13% nationally, but this pattern is much higher in London and East Midlands regions, with 40% and 30% respectively.

Figure 9: Leading centres of planned provision in the regions of England (%)

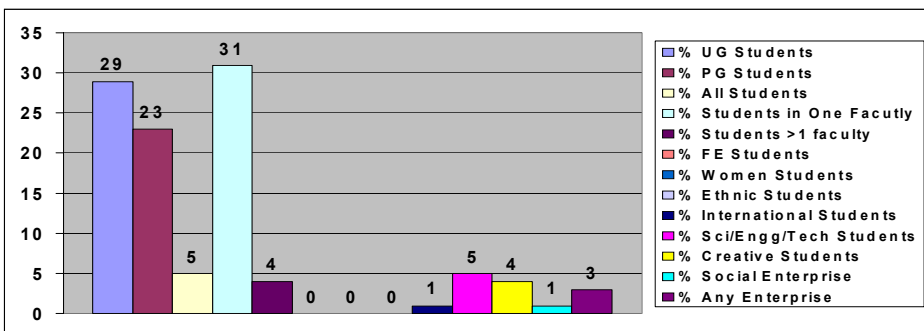


#### 4.2.3. Primary Target Participants

Figure 10 shows that 31% of all 167 planned enterprise programmes/modules are targeted at student groups in one faculty only and 29% at UG students only. There is no reported planned provision specifically targeting women students, further education students or ethnic students. 5% of planned enterprise provision is targeting science, engineering and technology (SET) students. Nationally 4% of planned provision will target creative students but in the North East, Yorkshire and Humberside, West Midlands, East Midlands and South West regions there is no planned provision targeting creative students.

The lack of targeting of specific groups may interest policy makers seeking to encourage greater participation by segments of the student population, or in specific types of enterprise. Unlike, the US, the HEIs across England report maintaining an open policy approach regarding student types, although this still appears to be within a single faculty.

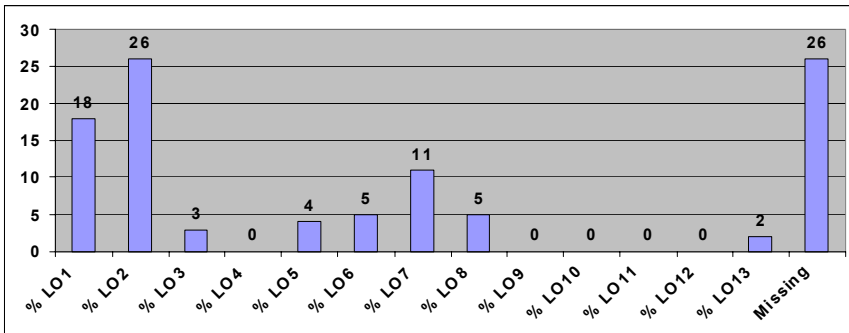
Figure 10: Target participants in planned programmes in the English regions (%)



#### 4.2.4. Primary Learning Outcomes

Not all HEIs were able to report Primary Learning Outcomes for all planned provision. Figure 11 shows 26% of planned enterprise provision is focused upon Learning Outcome 2, 'to develop individual enterprising/entrepreneurial skills, behaviours and attitudes'. Learning Outcomes 1 and 7 account for 18% and 11% respectively, i.e. 'to raise awareness, knowledge and understanding about enterprise/entrepreneurship concept and practice' (LO1) and 'to understand venture creation processes' (LO7). As with all future predictions, these data may not accurately reflect future activity. All planned courses, however, are validated by institutions and there are strong expectations that these courses will be delivered in accordance with what has been approved. These data reflect a national shift of emphasis in the design of planned enterprise provision with new additions having primary learning outcomes aimed at 'for' rather than 'about' enterprise and entrepreneurship.

Figure 11: Learning outcomes of planned provision in the regions of England (%)

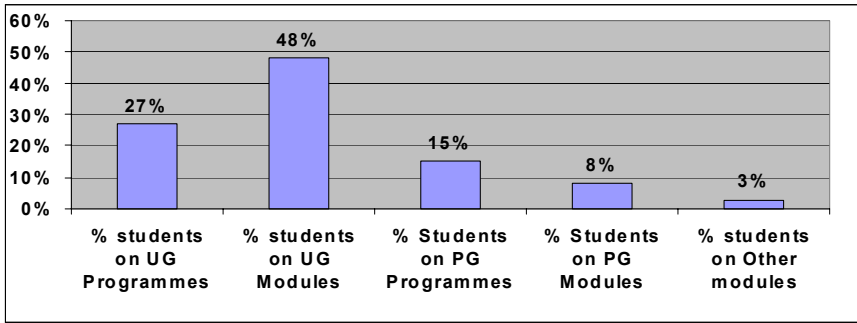


#### 4.2.5. Student Engagement

Figure 12 illustrates that 48% (3,748) of students on planned enterprise provision will be on UG modules, 27% (2,111) on UG programmes, 15% (1,170) on PG programmes, 8% (625) on PG modules and 3% (200) on other modules out of a total forecast of 7,854 additional students. Hence 75% of all planned programmes/modules will target students at UG level and 23% will target those at PG level.

In the North West, South East, South West and London planned UG modules are higher than the national average, with North West (75%) the highest level nationally. East of England, East Midlands, West Midlands, Yorkshire and Humberside and North East are lower than that at the average with Yorkshire and Humberside (9%) at the lowest level.

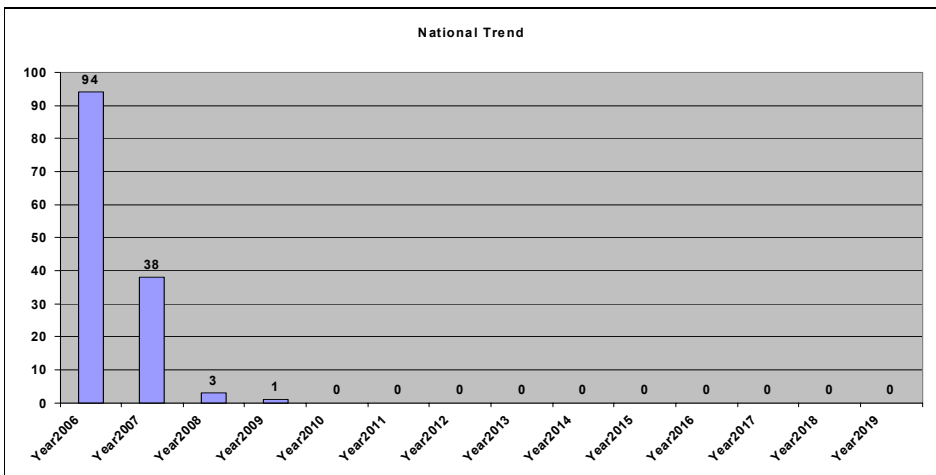
Figure 12: Breakdown of students' involvement on planned programmes/modules



#### 4.2.6. Longitudinal Growth

Figure 13 shows that there are 94 planned enterprise education programmes/modules in England in Year 2006 in addition to those already reported as current provision, thereby totalling 130 programmes/modules in Year 2006. This represents an increase over 2005 but is still lower than the peak of 2004 of 157 programmes and modules. The SEC funding initiative across England came to an end in 2006 with the possible effect of discouraging any significant developments in introducing additional new provision. Uncertainty over the outcome of competitive HEIF3 funding may also have affected the reported future growth rate. Future years will need to be monitored to assess if this is a temporary slow down or a declining trend in the rate of growth of new provision.

Figure 13: No. of enterprise programmes/modules planned over years (2006 +)



However, from the above chart, there is much less enterprise provision planned for 2007.

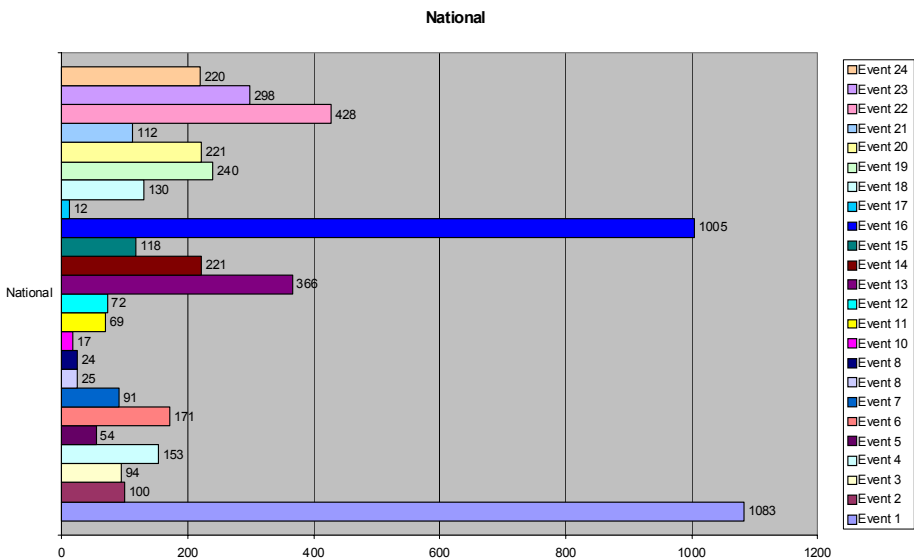
### 4.3. Non-Accredited Enterprise Activities

In mapping provision for student enterprise and graduate entrepreneurship within HEIs across England it is important to recognize that the majority of students engage in non-credit-bearing extra-curricula activities rather than in credit-bearing programmes and modules. Such approaches form a substantial part of the landscape. Additionally much of the recent government funding for the HE sector has resulted in significant growth in this type of provision. Furthermore, students often believe that this type of provision is more relevant.

This section of the paper presents non-accredited enterprise events in regional HEIs, the funding body that supports these events, numbers of students involved with specific events and target participants for these events. Whilst these are not accredited programmes, these events may serve a number of purposes such as encouraging students to start a business; or even just to promote enterprise as a subject that they may choose to study in an optional module.

A list of 24 non-accredited enterprise activities has been identified by NCGE for the national mapping study. A full list is presented in the Annex to this paper. Of all 5324 non-accredited enterprise activities reported by HEIs as being currently provided, the majority are Enterprise Workshops (20%) and personal coaching (18%).

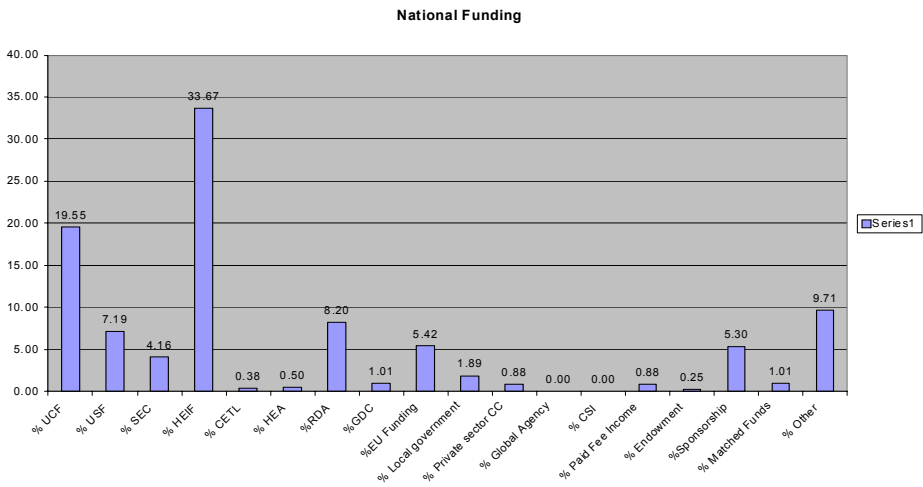
Figure 14: Breakdown of non-accredited enterprise events: national view (%)



### 4.3.1. Funding Sources

Extra-curricula activities are reported as being funded from numerous different sources. Nationally, the primary funding sources for the majority of activities are Higher Education Innovation Funds, a central government fund for higher education (34%), and University Core Funds (20%). In general, such activities are in the main funded from public sources either institutionally or through government policies. On average, Regional Development Agencies are reported as providing 8% of funds.

Figure 15: Source of Funding

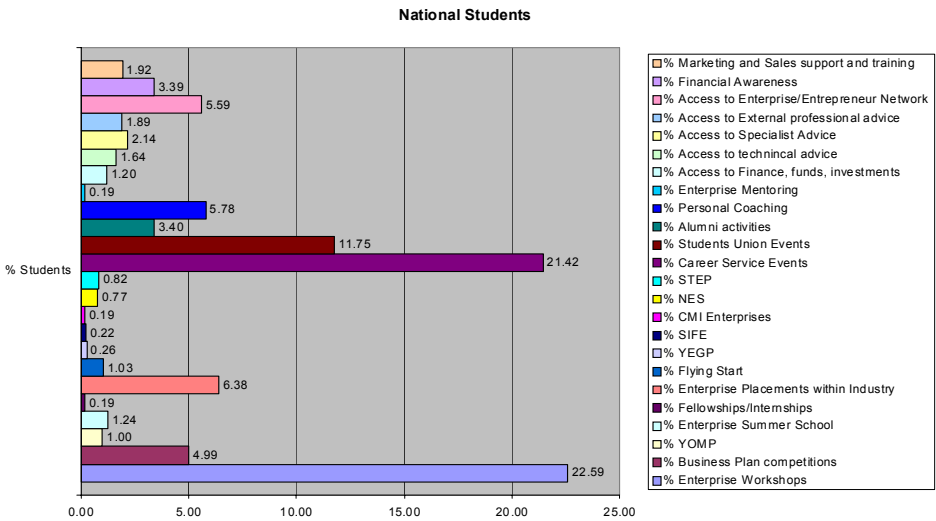


### 4.3.2. Total Number of Students Involved

There are 87,869 students in England reported as currently involved with non-accredited activities. Figure 16 shows that the numbers of students involved with the non-accredited events is highest for Enterprise Workshops (23%) and Careers Service Events (21%)<sup>4</sup>. Also popular with enterprise students are Students Union Events (12%).

4. ‘Career Service Events’ indicates a wide range of activities typical of those organised through University Careers Services and could include: awareness and information sessions; skills workshops; networking activities; and support for business planning.

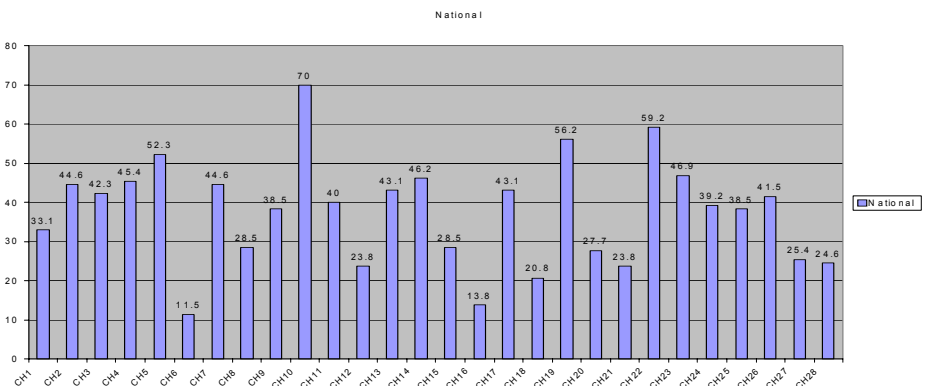
Figure 16: No. of students involved with non-accredited events: a national view (%)



#### 4.4 Other Institutional Characteristics

In this section, a ‘Yes’ or ‘No’ response was sought against a list of 28 institutional characteristics illustrative of factors affecting the institutional environment for enterprise and entrepreneurship – for the full list, see the Annex to this paper. Figure 17 shows the percentage of HEIs in England that have responded ‘Yes’. Characteristics 10, 22 and 19 are the highest – participation in regional events; integration with careers services events; and, integration with Business Links. The lowest responses nationally relate to: Student Enterprise Interns; Development Sabbaticals for Staff; and, Professors of Practice and Development.

Figure 17: Institutional Characteristics





## **5. Conclusions**

Direct comparisons with other UK studies, e.g. Price et al (2004) and Levie (1999), are not straightforward or indeed appropriate as the studies used different methods/approaches, underpinning frameworks and definitions. They are, however, indicative of the landscape in 1999 and 2004 and some useful observations can be made. The Levie study offers the greatest opportunity for any comparative analysis, although the author advises caution. What is observable, and indicative of change in the environment during the intervening 7 years, is growth in scale and scope of provision.

- Growth in the numbers of courses provided from around 120 to nearly 900
- Increased annual rates of the introduction of new provision – over 150 new programmes or modules introduced in a single academic year (2004)
- Most HEIs now provide a course or module in enterprise or entrepreneurs

It is during the gap between the two data sets that government interventions into HEIs in England took place through additional funding policies and mechanisms as mentioned in the introduction (Science Enterprise Challenge; Higher Education Innovation Fund). These often supported the development and resourcing of new provision, both in- and extra-curricula. Institutional targets for drawing down funds shaped activity and behaviour in this area. It is unclear if recent changes to these funding streams in 2006 will adversely affect further curricula innovation and growth.

From the earlier UK surveys it has been demonstrated that substantial growth in enterprise and entrepreneurship provision in UK HEIs has continued into the 21<sup>st</sup> Century. The self-reported data provided in this study of HEIs in England provides a comprehensive evidence base. The findings indicate that growth in the provision of, and engagement in, enterprise and entrepreneurship education and support across England's HEIs is growing. Nearly 900 credit-bearing programmes and modules are now recorded, representing a doubling of provision over the past decade.

The longitudinal growth data highlight that although there was a doubling of annual growth between 1994 and 1997 and a further doubling in provision to 2002, there has been a more consistent increase in the rate of growth during 2003 and 2004 when annual growth in provision more than doubled. These latter growth phases correlate with the introduction of additional funding streams as discussed above. The study reports course introductions and does not seek to identify course closures. Although not currently expected to be an influencing

factor as the growth phenomenon is recent, this may need to be monitored in future years.

When considering future planned growth, however, the rate drops dramatically and is nearly non-existent in 3 years time. This is not surprising as most HEIs will not be planning new course introductions this far in advance. The drop in 2007 would be a concern if this were a trend through the next few years as this would then signify a stagnant or very slow growth rate of new curricula development. This may be appropriate for well established disciplines and subjects but not in a new area such as enterprise and entrepreneurship. Of particular concern is the potential link between funding and activity such that reductions in access to funding may produce lower levels of activity. Clearly, this signifies the importance of developing sustainable models and approaches.

A significant finding from the reported data is the level at which Business Schools lead current course provision and dominate by a substantial margin – 7 to 8 times that of the next leading Faculties: Engineering, Art & Design. These data should not be interpreted to mean that students not in Business Schools are not engaging in enterprise and entrepreneurship. Evidently they are, and as part of joint courses and open modules. This finding does raise a question about the conception of enterprise or entrepreneurship underpinning Business School provision. Many conceptions of entrepreneurship education exist (Hannon, 2006) but not all may be relevant across other faculties and meet a broader set of entrepreneurial learning outcomes. It is not the aim of this survey to unpick this, however further exploration of the issue is explored within a recent NCGE report (Gibb, 2006). To try to understand the overall purpose of current credit-bearing provision in HEIs across England all respondents were requested to select the primary learning outcome for each of the programmes and modules that they listed in the online template. Nationally the average emphasis was towards “*raising awareness, knowledge and understanding about enterprise/ entrepreneurship concept and practice*”, which reflects a more traditional academic approach teaching ‘about’ entrepreneurship, rather than an emphasis on learning ‘for’ entrepreneurship. This was a classification approach adopted in the Levie (op. cit.) study, who noted that both types of courses ‘are evident’ with a propensity in provision toward ‘for’ entrepreneurship. The data from the current study may be indicative of a shift towards addressing the issue of academic legitimacy as raised in the Levie report in that recent growth has tended to focus on ‘about’ entrepreneurship.

This emphasis does shift nationally, however, when future planned provision is considered. For this section, the data provided emphasises that the primary learning outcome will be “*to develop individual enterprising/entrepreneurial skills, behaviours and attitudes*”. Although not reported in this paper, there are significant variations across the regions of England. Such a shift would mirror current (February 2006) European Commission Policy in implementing the

Lisbon Programme, which aims to '*foster entrepreneurial mindsets through education and learning*'.<sup>5</sup>

In considering the primary target participants for course provision the data suggest that there could be specific gaps as few courses target as their primary participant either female students or students from ethnic minorities. Similarly the data identify that few courses target those interested in social or creative enterprise. The data, however, strongly suggest that female and male participation rates in enterprise in general are almost equal. The survey also sought responses to ethnicity profiles of those students engaged in enterprise but as these were insufficiently robust they are not reported. This will be an important challenge to address as the UK government's education policy aims to widen participation in UK Universities from all members of society.

The data in this section are clearly illustrating that although female and ethnic minority students engage in enterprise activity and some of these students have an interest in creating social and creative enterprises HEIs in general do not design and offer credit-bearing courses specifically targeting such groups or interests. This may be symptomatic of the institutional model or approach to supporting entrepreneurship, or individual educators' interests, or simply that the approach to curricula development in HEIs in the UK does not require specific action. This may be an observation that is of interest to policy-makers wishing to encourage targeting of specific student groups or areas of enterprise interest.

Two-thirds of students are reported engaged in extra-curricula activity, twice the number engaged in credit-bearing provision. This is to be expected, perhaps, as non-credit-bearing activity is quicker to establish as it is not subject to the same validation processes as credit-bearing provision, and, it is often short in duration, and, of course, participants are not formally assessed by the institution. Students often enjoy participation in such activities and in some cases it can enhance their exposure to other parts of the institution and staff and students and alumni not involved with the individual's own subject area or faculty. Increasing students' social interactions and networks are an important component of developing entrepreneurial capacity.

There are, however, implications from this finding that should be considered. Firstly, much of this activity is often externally and mainly funded from the public purse. The termination of short-term project funding or the changing of funding mechanisms creates fragility to sustainable provision unless this can become embedded within core-funded HEI activity. Secondly, it is not always clear explicitly how such activities contribute to the learning outcomes being developed.

Overall, although the findings highlight a wide range of extra-curricula provision, it is observed that many HEIs and indeed students engage in a limited number of activities. This could be that some are still new and will grow in

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5. See [http://eur-lex.europa.eu/LexUriServ/site/en/com/2006/com2006\\_0033en01.pdf](http://eur-lex.europa.eu/LexUriServ/site/en/com/2006/com2006_0033en01.pdf)

participation rates, or that others are not seen as relevant by either staff or students as they are not perceived as fitting easily within what individual HEIs are trying to do and achieve.

The final section of the template aimed to illuminate the broader context and environment within which enterprise and entrepreneurship support is provided. The 28 characteristics can be grouped into 4 main categories: (1) institutional policy approach; (2) infrastructure development; (3) faculty/staff development; (4) integration of provision.

In so doing it can be observed that on average most HEIs are engaged in integration of their provision externally across their region and locally with Business Links, and internally with their careers services and technology transfer offices. Around half of the HEIs in England reported on average having the range of infrastructure developments listed, i.e. incubators, hot-desks, student start-up funds and champions. Less than half reported having explicit enterprise policies and embedded mission statements, or curricula development funds and sabbaticals for staff. Around one quarter on average reported specifically supporting women-friendly groups or having Professors of practice or development. In general, the lower levels of response were in areas of faculty support and staff development. This would become a concern if there was no sign of future growth.

## **6. Summary and Next Steps**

In summary this paper aimed to present the findings from the NCGE mapping study of enterprise and entrepreneurship provision across the HEIs in England, it was conducted in 2006 and 94% of the identified HEIs provided online data for the survey. The aim of providing a comprehensive map of the 9 regions of England has been successfully completed and this now provides an illumination of the HE landscape in England for supporting student enterprise and graduate entrepreneurship. The self-reported data illustrate the scale and scope of provision and engagement in credit-bearing and non-credit-bearing activities currently offered and planned for the near future. Additionally there is an insight into the characteristics of the institutional environment within which this takes place, i.e. the HEI context for entrepreneurship education.

As with all self-reporting surveys there are always limitations to the interpretation of the findings and the conclusions that can be drawn – due to accuracy, interpretations and understanding – however these data are the most recent and most accurate data available and care has been taken not to misinterpret the findings. HEIs vary in their capturing and management of enterprise and entrepreneurship related data. Indeed, institutions are not incentivised to collect and hold such data unless the provision forms part of core funded or project funded activity and the providers of funds require specific data reporting. There

are data fields, therefore, that were more or less easier to complete than others. For example, data about teaching resources proved difficult for a number of institutions.

The approach taken in this survey with all the existing data held online, however, creates the opportunity for annual surveys to be undertaken with a low upstream resource requirement for participating HEIs. Updating records is easier than first creating the initial data record. Undertaking an annual analysis will enable a range of trends/patterns to be observed. Furthermore international comparison will be possible.

In closing, it is implied from the findings that government policy initiatives and funding mechanisms have stimulated a growth in HE activity, i.e. SEC, HEIF, and HEA. Such growth has broadened engagement by faculty staff and students and enabled the development of a momentum and an interest in supporting student enterprise and graduate entrepreneurship within and outwith the formalised curricula.

The completion/termination of some funding mechanisms and uncertainty about future funding could impact on provision, or at least its future rate of growth. Most commentators would probably agree that a 7% penetration of the total student population is too low an engagement in enterprise and entrepreneurship provision and that this % needs to be significantly increased over the next decade. This will require further stimulation by those agencies supporting enterprise and entrepreneurship development working closely with HEIs and national bodies.

The challenge, therefore, for all involved – HEIs, educators, RDAs, Central Govt, national organisations, employers and entrepreneurs – is to develop longer-term coherent and cohesive strategies for sustainable development and growth in supporting student enterprise and graduate entrepreneurship within the HE sector that complement local, regional and national frameworks. This survey instrument will be a valuable tool for benchmarking developments.

**References:**

- Dainow, R. (1986), "Training and education of entrepreneurs: the current state of the literature", *Journal of Small Business and Entrepreneurship*, 3:4, 10-23.
- Gibb, A. A. (2006), *Toward the Entrepreneurial University: Entrepreneurship Education as a Lever for Change*, published by the National Council for Graduate Entrepreneurship, Birmingham, UK.
- Gorman, G., Hanlon, D., and King, W. (1997), "Some research perspectives on entrepreneurship education, enterprise education, and education for small business management: a ten-year literature review", *International Small Business Journal*, April/June, 56-77.
- Hannon, P. D. (2006), "Teaching Pigeons to Dance: Sense and Meaning in Entrepreneurship Education", *Education and Training*, 48:5, 296-308, Emerald Group Publishing Ltd.
- Hannon, P. D. (2005a), "Graduate Entrepreneurship in the UK: Defining a Research and Education Policy Framework", proceedings of the 2005 ISBE Conference, Blackpool, November.
- Hannon, P. D. (2005b), "The Journey from Student to Entrepreneur: A review of the existing research into graduate entrepreneurship", proceedings of the 2005 International Entrepreneurship Conference, Guildford.
- Harding, R. (2006), "Graduate Entrepreneurship in the UK". A Summary Report from GEM UK to the NCGE.
- ISBA (2004), "The Journey from Student to Entrepreneur: A Review of the Existing Research into Graduate Entrepreneurship". Final Report to the National Council for Graduate Entrepreneurship, ISBA and UCE, September.
- Katz, J. A. (1994), "Growth of endowments, chairs and programs in entrepreneurship on the college campus", in Frank Hoy, Thomas G. Monroy, and Jay Reichart (eds), *The Art and Science of Entrepreneurship Education*, Volume 1 Cleveland: Baldwin-Wallace College, 127-149.
- Levie, J. (1999), *Entrepreneurship Education in Higher Education in England*, London Business School.
- McMullan, W. E. and Long, W. A. (1987), "Entrepreneurship Education in the Nineties", *Journal of Business Venturing*, 2, 261-275.
- Pittaway, L. and Cope, J. (2005), "Entrepreneurship Education – A Systematic Review of the Evidence". Proceedings of the 28<sup>th</sup> ISBE National Conference, Blackpool, November.
- Plaschka, G. R. and Welsch, H. P. (1990), "Emerging Structures in Entrepreneurship Education: Curricula Designs and Strategies", *Entrepreneurship Theory and Practice*, 14:3, 55-71.
- Price, A. et al (2004), "Mapping Graduate Enterprise: Final Project Report", National Council for Graduate Entrepreneurship Research Paper 2, July.
- Solomon, G. T. (1986), *National Survey of Entrepreneurial Education*, Vol. 1-6, U.S. Small Business Administration, National Center for Research in Vocational Education.
- Solomon, G. T. (1988), "Small Business Management and Entrepreneurial Education in America: A National Survey Overview", *Journal of Private Enterprise*, November.
- Solomon, G. T. and Fernald, L. W., Jr. (1991), "Trends in small business management and entrepreneurship education in the United States", *Entrepreneurship Theory and Practice*, Vol. 15 (3), 25-39.
- Solomon, G. T., Weaver, K. M. and Fernald, L. W., Jr. (1994), "Pedagogical methods of teaching entrepreneurship: an historical perspective", *Gaming and Simulation*, 25:3.
- Solomon, G. T., Duffy, S. and Tarabishy, A. (2002), "The State of Entrepreneurship Education in the United States: A Nationwide Survey and Analysis", *International Journal of Entrepreneurship Education*, 1:1, 65-86.
- Vesper, K. H. (1986), "New developments in entrepreneurship education", in D. L. Sexton & R. W. Smilor (Eds.), *The Art and Science of Entrepreneurship*, pp. 379-387, Cambridge, MA: Ballinger.
- Vesper, K. H. (1987), "Entrepreneurship academics: how can we tell when the field is getting somewhere?", *Journal of Business Venturing*, 3, 1-10.
- Vesper, K. H. and Gartner W. B. (1997), "Measuring Progress In Entrepreneurship Education", *Journal of Business Venturing*, 12, 403-421.
- Vesper, K. H. and McMullan, W. E. (1988), "Entrepreneurship: Today courses, tomorrow degrees?", *Entrepreneurship Theory and Practice*, 13(1), 7-13.

**ANNEX**

**Annex 1: Primary Enterprise Learning Outcomes**

No.	Primary Enterprise Learning Outcomes
LO1	To raise awareness, knowledge and understanding about enterprise/entrepreneurship concept and practice
LO2	To develop individual enterprising/entrepreneurial skills, behaviours and attitudes
LO3	To develop personal self-confidence and capability
LO4	To develop empathy with an entrepreneurial way of life
LO5	To embed entrepreneurial values and beliefs
LO6	To motivate and inspire students toward an enterprising or entrepreneurial career or life
LO7	To understand venture creation processes
LO8	To develop generic entrepreneurial competencies
LO9	To develop key business 'how-to's'
LO10	To develop personal relationship and networking skills
LO11	To prepare for becoming a freelancer or self-employed
LO12	To start a new business
LO13	To exploit institutionally-owned IP

**Annex 2: list of non-accredited events**

1	Enterprise Workshops
2	Business Plan competitions
3	YOMP
4	Enterprise Summer School
5	Fellowships/Internship
6	Enterprise Placements within industry
7	Flying Start
8	YEGP
9	SIFE
10	CMI Enterprises
11	NES
12	STEP
13	Career Service Events
14	Student Union Events
15	Alumni activities
16	Personal Coaching
17	Enterprise Mentoring
18	Access to Finance, funds, investments
19	Access to technical advice
20	Access to specialist advice
21	Access to External professional advice
22	Access to Enterprise/Entrepreneur Network
23	Financial Awareness
24	Marketing and Sales support and training

## Annex 3: list of total 28 institutional characteristics.

1	VC/PVC for Entrepreneurship
2	Incubator for Students
3	Start-up funds for Students
4	Hot desk/drop-in facility
5	Entrepreneurship Champion
6	Student Enterprise Interns
7	Awards offered or received for enterprise
8	Sponsorship
9	Dedicated Centre for Students
10	Participation in Regional Enterprise Events
11	Student-led enterprise club
12	Professors of Practice/Development
13	University wide approach to Enterprise
14	Support for Enterprise teaching development
15	Curricula Development Fund
16	Development sabbaticals for Staff
17	Dept staff trained in Enterprise education
18	Integration with Shell Livewire
19	Integration with Business Link
20	Integration with the Patent Office
21	Integration with UK Trade and Investment
22	Integration with Careers Service
23	Integration with Technology Transfer Office
24	Integration of Entrepreneurs in Development
25	Embedded in institutional mission statement
26	Explicit institutional enterprise policy
27	Faculty level enterprise action plans
28	Women friendly or Other specialist group