

## Preparing future generations of creative specialists and business leaders

### Main recommendations:

- Closer links should be established between universities and SMEs
- Higher education courses should better prepare students to work with, and understand, other specialists
- Centres of excellence should be established for multi-disciplinary courses combining management studies, engineering and technology and the creative arts.

Turning creative ideas into new ways of thinking and into successful products and services requires a fusion of different skills. This is often impeded by the inability of business people and specialists to speak the same language, a failure to understand how a combination of engineering, technology, creative and business skills can contribute to a business, and a misunderstanding about what 'creativity' is and how to manage it.

The requirement is simple. We need business people who understand creativity, who know when and how to use the specialist, and who can manage innovation; creative specialists who understand the environment in which their talents will be used and who can talk the same language as their clients and business colleagues; and engineers and technologists who understand the design process and can talk the language of the business.

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Creativity needs to pervade the whole of an organisation and, for this reason, the nature and value of creativity needs to be an integral part of all learning. Some businesses, such as Unilever and John Lewis, are starting to work with organisations like Arts & Business, to create specific improvements in their skills base and employee attitudes. Indeed, understanding creativity should be part of equipping everyone for life and work in the 21st century. It is pleasing to see that this is increasingly being recognised; there is no doubt that there is much more creativity in primary and secondary education nowadays.

Recently, the drive has been boosted by the Arts Council's *Creative Partnerships* programme, which uses creativity and the arts to improve learning and delivery of the wider curriculum. The programme, which started in May 2002, has already been introduced to over 5,000 schools, reaching almost 400,000 students.

More is planned. The Department for Culture, Media and Sport (DCMS) and the Department for Education and Skills (DfES) are running a review of *Creativity in Schools*. It is focused on primary and secondary education and will consider how education can further encourage pupils to become creative, innovative and enterprising. Turning to further education, I very much hope that the current *Foster Review*, and the work of Creative and Cultural Skills and the other Sector Skills Councils, will result in similar developments. I have therefore concentrated my own review on higher education, or more especially, those aspects of higher education with a direct impact on getting more creativity into the smaller business.

There is no doubt that the UK's higher education, with its variety of institutions and courses, is in many ways a great strength. The fact that so many overseas students – notably from the fast-developing economies – seek places within our higher education system underlines the international regard in which it is held, particularly in science, technology, the creative arts and management studies. So, too, does the fact that several countries have already encouraged leading UK universities to set up local campuses. Our leading academics are being continually headhunted by top-class overseas universities. The great success of our creative industries undoubtedly owes much to the quality of our arts education and the stature of our leading arts colleges. In terms of its ability to produce specialists, our education system should therefore be a great asset in facing up to the competition described in this review. But there is a weakness.



The UK education system, in contrast to its American and some of its European counterparts, channels students into ‘arts’ or ‘science’ at a relatively young age, so reinforcing the perception that ‘creativity’ is the province of a few, when it should pervade every aspect of modern life, including business. Creativity needs to be part of technological and scientific learning, and also of management or business studies. On the other hand, those who go on to study the creative arts need to appreciate the context in which their skills will be applied.

I believe that higher education needs to play a stronger role in overcoming some of the problems mentioned earlier in this review: equipping tomorrow’s business leaders, technologists, engineers and creative specialists with a greater appreciation of the context in which their different skills can be applied. Some universities and colleges recognise this, and have devised highly innovative programmes. The challenge is to make these the norm rather than the exception. I make three recommendations here that would go some way towards meeting this challenge – encouraging universities and SMEs to form stronger links; incorporating a greater breadth of teaching in existing curricula; and establishing centres of excellence for cross-disciplinary teaching.

### **Encourage universities and SMEs to form stronger links**

I believe that we need many more, and stronger, links between universities and SMEs. Larger companies have been developing excellent links to universities for some time, increasingly so in the wake of the *Lambert Review*. Unfortunately, the same cannot yet be said widely of SMEs.

There are great benefits to be had, for both sides. Smaller companies would benefit from the specialist knowledge available, the research capability, access to facilities such as prototyping, and potential recruitment. The universities would benefit from more opportunities to try out ideas in practice, placement opportunities and access to that large part of industry where so much entrepreneurship is to be found – particularly at a time when more and more universities are themselves spinning out small companies.

Only 14 per cent of students gain a place on a graduate training scheme with a blue chip employer; this implies that a large number of graduates need to find employment in smaller companies. SMEs not only make up around half of the economy, but they contain many of the most entrepreneurial ventures. Graduates taking placements or permanent jobs with such companies can often apply their skills with much more impact than they could with larger organisations.

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There seems to be a two-fold problem in forging such links – first, the apparent lack of understanding by SMEs of what universities can offer, and second, the effort required by universities to reach out to them. But my research showed that these obstacles can be overcome; a number of universities have formed successful links with SMEs, with some highly productive outcomes, and those businesses that had made the effort to get engaged appeared to have formed enduring links. As an example, one small business, Easibind International Ltd, described how it had to battle initially to attract the right placement students from the local university. However, its tenacity paid off: six years on, it is still taking two students a year. It has found that the students make a real contribution to the business, helping the company to introduce new items and to extend existing lines. The MD, Harry Skidmore, says that, “The fresh approaches the students bring are helping to drive my business forward”. The business organisations, at a local level, could themselves do more to form links with local universities and could use their regular member meetings – which are very much aimed at SMEs – to promote this.

This autumn, the next round of bidding for the Higher Education Innovation Fund (HEIF) takes place, of which 25 per cent is available for competitive bids. I would urge universities to use part of this as an opportunity to forge closer links with SMEs. The business community, with its associations and representative bodies, should also play a role in spreading the message about the value of university links: the local Chambers of Commerce and branches of the IoD can, and in some cases already do, play a constructive role in this process.

A word needs to be said, too, about the role of the *Knowledge Transfer Partnerships* programme (formerly known as the Teaching Companies Scheme), which takes recent graduates into companies for one to three years. The graduate’s university knowledge is transferred into the company, often with dramatic results – on average, participating companies increase their revenue by £40,000 in the first year and by £172,000 per annum in the longer term. There is, however, a lingering misconception that these partnerships are limited to technology transfer, whereas, in practice, funding is equally available for creativity-related knowledge transfer. This is slowly being recognised: one in nine of the partnerships now explicitly focuses on design and creativity. I am very pleased that the programme will, from next year, also include design and creativity in the training syllabus.

Although outside the focus of this review, my investigations gave rise to another cause for concern – a further missed opportunity – that I believe should be mentioned. The encouraging links that we have seen developing between big business and academia are largely confined to engineering and science schools and faculties. I believe that there is significant potential for similar links to be established between design schools and big business. This would be beneficial to both parties, and there would be a two-fold benefit that would cascade down the business chain: more business would understand design and more designers would understand the business world.

## Ensure that higher education courses do more to prepare students to work with, and understand, other specialists

Every specialist student likely to deploy his/her skills in the world of business needs a sound appreciation of where those skills fit and how they can be made most effective. This applies to creative specialists, engineers, scientists and students of business alike. I am not arguing the case for diluting specialist degrees, nor for more generalists, but rather for ensuring that specialists have a broader understanding. For example, with regard to technology education, a recent Deloitte report said, “Presently, the UK appears to be adept at developing world-class subject-matter experts who too often lack commercial aptitude. The result: school leavers and graduates often have little or no idea of how a company works, and how they could fit in. The cost: too many great technological ideas are squandered as their creators have little to no idea how to express their inventions”.

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Were this a universal picture, one might despair, but there are good examples of courses and initiatives that address the wider need. The challenge is to learn from and build on them and make such approaches much more widespread.

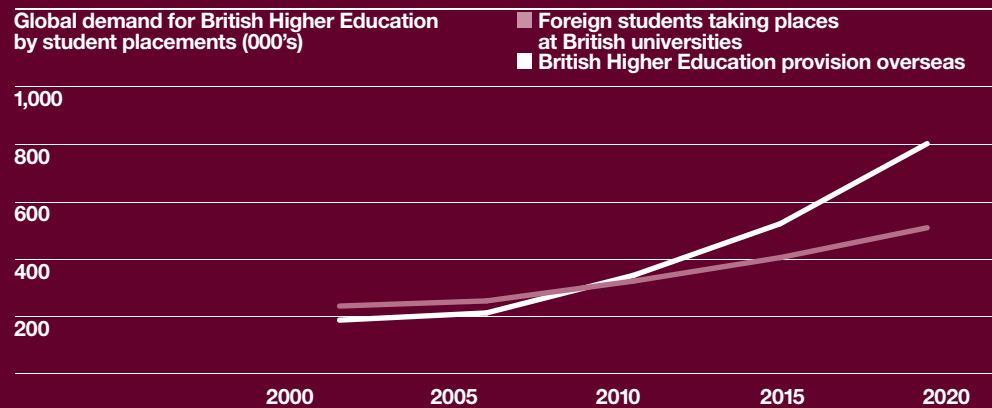
For instance, the Royal Academy of Engineering has initiated a scheme of Visiting Professors in Principles of Engineering Design. This enables distinguished, senior engineers in business to work with their academic colleagues to provide a bridge for undergraduates from education to industry. Their role is to demonstrate and transmit to students and staff that design is the integrating theme in all the engineering disciplines within the university. It is precisely the kind of move that is needed.

However, much more needs to be done. The parallel DTI Economics Paper states that, “Obtaining the benefits of design depends on managing its integration in a structured and systematic fashion”. It would be good to see more universities adopt the CDIO (conceive-design-implement-operate) approach pioneered at Massachusetts Institute of Technology (MIT). Queen’s University Belfast is already using this, and I understand that the Engineering and Technology Board (ETB) is looking at promoting its wider adoption.

The problem is not confined to technologists and engineers. Surprisingly, perhaps, few business schools address the issue of creativity and its management. Some have introduced ‘innovation and creative thinking’ modules on MBA courses but these rarely form part of the core curriculum. A more committed approach has been demonstrated by INSEAD, which has entered into a collaborative venture with the Art Center College of Design in Pasadena, California to teach students jointly the role and value of design in business.



## UK Higher Education is highly sought around the world...



Source  
British Council

**“Design engineers increasingly need an understanding of economic and environmental issues as well as technical expertise to ensure success.”**

**Geoff Kirk, Chief Civil Aerospace Design Engineer, Rolls-Royce plc**

**“Advertising agencies look for ‘diagonal thinkers’ – those who can move comfortably and rapidly between linear and lateral thought processes, people who think ‘creatively but commercially’.”**

**Hamish Pringle, Director General, Institute of Practitioners in Advertising**

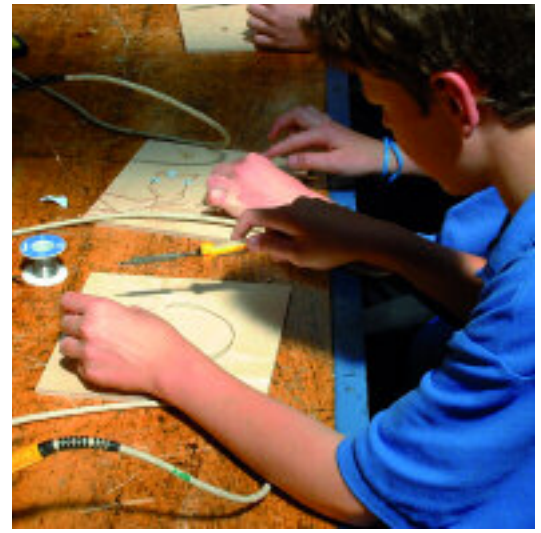
**“There has been a national failure over many years to recognise fully the importance of engineering design, which has in turn contributed to a serious loss of international competitiveness.”**

**“If undergraduates were educated appropriately about the principles of engineering design, every future professional engineer would be that much better placed to contribute effectively to regaining international market share.”**

**Royal Academy of Engineering**

**“We need to equip all students with an understanding of business and technology – in addition to the creativity at which they already excel – if they are to use their skills to the full.”**

**Sir Christopher Frayling, Rector, Royal College of Art**



Our highly regarded creative arts courses could also benefit significantly from more exposure to other disciplines – particularly if they are to ensure their competitive advantage in the face of the continuing improvement in the quality of overseas creative courses. Giving creative students of all types, especially those in fields such as design or advertising, the opportunity to work much more closely with business would equip them to use their creative skills far more effectively.

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There is also another strong reason for doing so: the majority of students studying the creative arts will never have an opportunity to practise as professionals. In itself, this is not a problem. After all, most students who read law don’t become solicitors or barristers. The concern is that there is too little preparation for creative arts students to use their skills in a wider context. As leading designer, Wayne Hemingway, of Hemingway Design, put it, “Design and creativity is increasingly seen by young people as an exciting, stimulating and useful career path. If the private and public sectors were able to channel some of this interest in creativity into other jobs that would benefit from more creative thinking, then we could fully harness the education investment”.

An effective way of exposing students to this wider business context is through industrial and business placements. The main barriers to setting up more of these seem to be the time and effort required by the university, particularly if the placements are to be with SMEs, as already discussed. I believe the effort is well worthwhile, however.

One interesting example of a scheme to foster placements and facilitate knowledge transfer has been the *Inside Track* scheme piloted by the Design Council in conjunction with the *Shell Technology Enterprise Programme (STEP)*. Under this scheme, a final-year undergraduate business student is paired to work with a design student on a joint placement for eight weeks. Together, they assess how the business uses design before progressing to a project chosen in conjunction with the company, both to deliver an immediate commercial benefit and raise awareness of the potential that exists for innovation. It is intended to help design schools to produce graduates who can go beyond executing a brief and add real value to the decision-making process. More of these opportunities should be made available for business students.

Placements alone do not change the need for the courses themselves to give students that wider grounding, outside their area of specialisation. I recommend that all universities and colleges – working with the employers and skills bodies – review their courses to make sure that they all give an essential insight into how their skills fit with those of others.

## There are a number of UK institutions pioneering approaches to more rounded specialism...

### London Business School (LBS) – New Creative Ventures

A new combined course which brings together 35 students from the University of the Arts London and 35 from the LBS MBA programme. The elective unit sets students a practical project where they must work collaboratively to develop a business plan.

### University of Strathclyde – Design, Manufacture and Engineering Management

Strathclyde addresses industry's need for engineering graduates with analytical skills, management skills and leadership potential. Students from all years work closely together, simulating real-life business conditions. After initial grounding in a range of engineering disciplines, students study modules in Marketing, e-Business, Operations Management, Finance, Product Development and Entrepreneurship, with many opting to spend time studying abroad.

### Formula Student

Formula Student has been running since 1997 and sees students competing to build and race the best car in a number of categories. Mechanical and automotive engineering students assume a manufacturing firm has engaged them to produce a prototype car for evaluation. Cars are judged on performance (braking, acceleration and handling qualities), cost, reliability and ease of maintenance. The car's marketability (aesthetics, comfort and usage of common parts) is also taken into consideration. Through the competition, engineers develop skills in marketing, design, business and project management.

### Glasgow School of Art and Glasgow University – Product Design Engineering

A new Glasgow course is split between the two institutions, with students initially coming through the engineering faculty. During the first year students spend four days per week on engineering theory and one day on design. This division gradually reverses through the course to produce graduates equally comfortable speaking the languages of engineering and design. Since its inception in 1987 there has been a shift away from traditional manufacturing towards product design, new media and electronics.

## There are good examples of university – SME interaction...

### Nottingham University Business School

To go beyond the established links with major corporates, part of the Institute for Enterprise and Innovation was sited in the local science park. As well as hosting mature, Nottingham-based entrepreneurs and graduates just starting businesses, they also reach out directly to regional SMEs, breaking down the perceived barriers between business and the academic world and showing companies the opportunities for help and expertise from the University. For example, the creative problem solving approach used in the 'Entrepreneurship and Business' module, now compulsory for all incoming students at the business school, is also available to the SME network through the 'Capturing Creativity' programme. Local SMEs also mentor the Entrepreneurship and Business students, giving both sides access to new ideas and experiences.

### London Metropolitan University – Furniture Works

Furniture Works brings together a network of designers and manufacturers of furniture and related products. These local SMEs get access to the University's specialist prototyping facilities, expertise, services and courses. The venture is an integral part of the University's Sir John Cass Department of Art, Media and Design. It is part-funded by the London Development Agency and collaborates closely with other organisations supporting small businesses.

### University of the Arts London (UAL) – Creative Learning in Practice (CLIP)

UAL draws upon its close links to working practitioners and employers to provide students with a world-related learning experience. Students have increased opportunities for innovative projects linking work and education and access to modern equipment and facilities. Personal Development Planning for each student supports this learning model. The Institute is a Centre of Excellence in Teaching and Learning and aims to spread best-practice through the Higher Education Academy subject centres.

### Service Design

One North East has developed a concept of how to apply a service design model. It has been tested in real life business situations, and will now be exploited in the region. The model is expected to be applied commercially to service businesses to improve their performance, and also to educate a new generation of service designers. Service design as a concept will be introduced at school level as part of creativity awareness. Further Education colleges and universities will be engaged to teach the model and embed it within business.

## Higher education is becoming more multi-disciplinary around the world...

### International Design Business Management programme (IDBM), Finland

IDBM is a joint teaching and research programme of the Helsinki School of Economics, the University of Art and Design Helsinki and Helsinki University of Technology. Students are drawn from each institution to take part in courses and form a mixed discipline team which tackles a project commissioned by industry. The programme teaches students to make full use of their own skills and potential, as members of an interdisciplinary team.

### Zollverein School of Management and Design, Germany – MBA in Management and Design

The Zollverein School brings together managers and designers, to teach the former how to understand and use design to improve a company's productivity and competitiveness and to give the latter a grounding in business and economics and both how to link these activities to company strategy.

### Stanford D-School, USA

The D-School teaches design to business, engineering and humanities students so that they come to see design as a fundamental discipline. The School merges disciplines, encouraging students to collaborate, innovate and push the limits of their creativity. David Kelly, from the school, sums up the importance of this – "Great innovators and leaders need to be great design thinkers".

### INSEAD, France and Art Centre College of Design, Pasadena, California

MBA students from INSEAD work with design students from Pasadena to develop a new product and present their concepts to investors, who could potentially take the ideas to market. The programme gives MBAs an insight into the role of creativity in business decisions, how innovation really works and why design is important to corporate management.

**“What the country needs is more specialists who also have good general skills – creative graduates who can speak the language of business.”**

**Sir Michael Bichard, Rector,  
University of the Arts London**

## **Establish centres of excellence, combining creativity, technology and business teaching**

Giving every student likely to work in, or with, business a wider understanding would be a great step forward. However, I believe that there is an opportunity for some universities to go further, running masters programmes that bring together the different elements of creativity, technology and business. The students would be drawn from the different disciplines, including participants who already had industrial experience. The outcome would be executives who better understand how to exploit creativity and manage innovation, creative specialists better able to apply their skills (and manage creative businesses) and more engineers and scientists destined for the boardroom. There are a few examples that come close to this around the world – IDBM in Finland or Stanford Institute of Design (or D-School) in the US – but, as yet, the approach is not widespread, which gives the UK an opportunity to be at the forefront.

***‘...The outcome would be executives who better understand how to exploit creativity and manage innovation, creative specialists better able to apply their skills... and more engineers and scientists destined for the boardroom...’***

It would be unrealistic, and unnecessary, for large numbers of universities to attempt this. I therefore recommend that centres of excellence be created that specialise in such multidisciplinary programmes encompassing both post-graduate teaching and research. These are not envisaged as the only places where such initiatives would be pursued, but they would act as the pacesetters. Ultimately, it is the market – in terms of the value put on the graduates and the desire for places on the programmes – that will prove the worth of such multidisciplinary courses and encourage the spread of such thinking.

I accept that it is not always easy to establish links between different faculties and institutions, but we already have highly successful models of joint courses, such as Imperial College and the Royal College of Art (RCA) offering an MA in Industrial Design Engineering. These courses prove that effective collaboration between institutions can be achieved and I believe the prize to be well worth the effort.

I should like to see at least one centre of excellence embrace service design within its curriculum. It is a much neglected area, all the more worrying because of the rising significance of the service sector. Moreover, service plays an important role nowadays in the activities of many manufacturers. Rolls-Royce, one of our most successful manufacturers, derives around half its income from services.

I believe that the creation of five such centres would move the UK into a leading position in this field. They would bring together students, researchers and businesses in a shared environment, involving collaborative research and also satisfying the growing demand for continuous professional development among experienced practitioners. Given the urgency of the requirement, I recommend that HEFCE take responsibility for carrying this proposal forward.