

Product Design Education and 'The Man in the White Suit'.

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# **International DMI Education Conference**

## **Design Thinking: New Challenges for Designers, Managers and Organizations.**

### Track 4: Design and thinking and innovation models

Product Design Education and ‘The Man in the White Suit’.

#### **Introduction**

The title for this paper was inspired by the 1951 satirical Ealing comedy “The Man in the White Suit” which provides an ironic view of both capital and labour (Perry 1981). In the film a fresh-faced Alec Guinness plays a young, driven, would-be research chemist, Sydney Stratton in a textile mill whose job is restricted to washing up the dishes in the laboratory. Unbeknown to the company, he sets up, at huge expense, an experimental area. After extensive explosive tests he finally achieves his dream of creating an indestructible fabric that never gets dirty and never wears out. However, if the product lasts forever it raises the question; what will become of the work force and how will the mill make money? Through this narrative the film illustrates the cultural, management and labour divisions that exist within the firm.

This film has much to offer the area of Product Design and Design Management for not only does it present a view of Britain in 1951 in which age old practices and inefficiencies are pursued to maintain the status quo but it is also relevant to a society today which is driven by continuous consumption which as Redhead (2000) comments

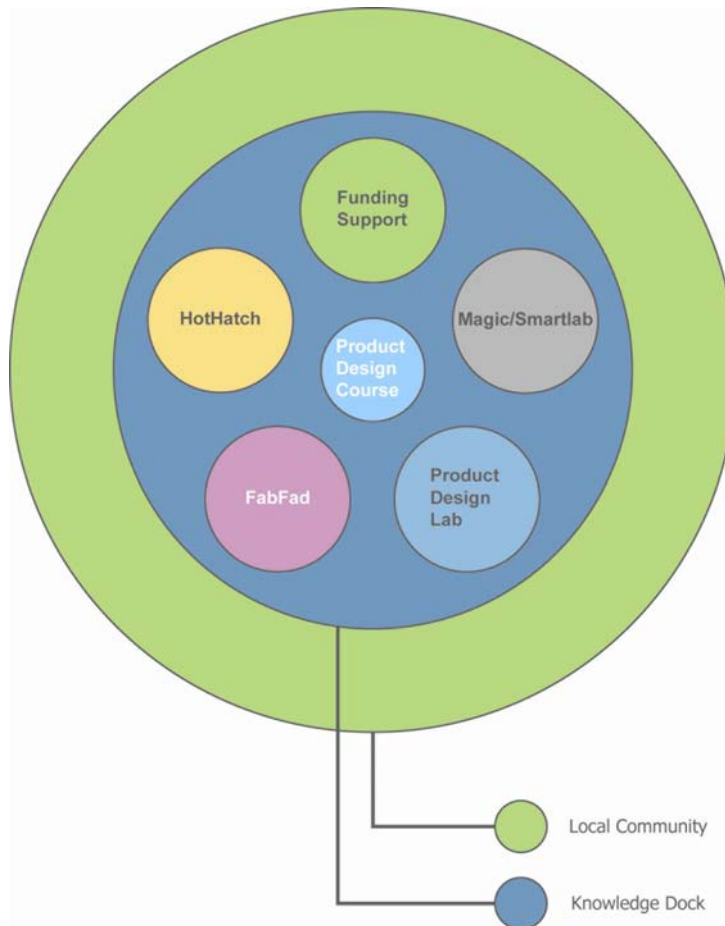
*“ Want to survive? Then reinvent your products, your strategy, your industry every year. Whatever you want, it seems as if you can have the new version almost as soon as you’ve bought the previous model. More production, more technology and more speed equals more possibilities and more possessions and more profits. That’s the way things work in the design-driven age of techno- capitalism.”*

This paper presents, through a number of student projects, the way in which the Product Design Futures course at the University of East London is bridging the business school, design school divide that often exists within education and also reducing, through its integration of theory and practice in the studio tutorials, the dichotomy that prevails between economic growth through product development and sustainability.

#### **Background**

Since September 2007 the undergraduate Product Design Futures course at the University of East London has been uniquely and fortuitously positioned within the University’s Knowledge Dock Centre. This is the university’s enterprise and development service provider and the courses’ location within this environment has implications for the teaching and learning culture within and surrounding the product design course. Figure 1.

Figure 1. Diagrammatically represents Knowledge Dock its services and the location of Product Design Futures within it.



## Knowledge Dock

Geographically placed between the School of Architecture and the Visual Arts and the Business School, Knowledge Dock aims to encourage and assist the development of enterprise opportunities for students, inventors, academics and local companies. This is undertaken through Knowledge Dock's incubation services (Hot Hatch), expert centres and support programmes. These services help to identify new ideas that have commercial potential and help bring them to market. Support is wide ranging and may involve raising development finance, producing a conceptual or physical prototype or drafting business plans and working on the skills required to achieve success in a business setting.

Knowledge Dock is supported by the European Union Development Fund, the European Social Fund, Higher Education Funding Council, London Development Agency and Communities and Local Government.

## **Knowledge Transfer the Cultural Context**

### ***Hot Hatch***

Leadbetter (1999) writes that entrepreneurship in the UK is much riskier than the USA because it is harder to get access to a network of complementary ideas and people who can provide the entrepreneurs with information, opportunities, finance and technology; support that is imperative if they are to gain access to the market in order to make their business a success. Moreover, he stresses that in the knowledge economy the 'basic unit of innovation and entrepreneurship is not the firm or the individual but the knowledge creating network.'

The following projects, involving the Product Design Futures course demonstrate how the culture of Knowledge Dock and its 'knowledge creating network' is providing a unique business environment in which the students can see the commercial pressures and requirements of setting up a business but also benefit from the network of expertise and facilities that are part of the Knowledge Dock Service.

Hot Hatch within the Knowledge Dock group assists individuals with business progression by understanding directions for commercialisation. Once clear, individuals are assisted through workshops, seminars and one to one discussions. Due to the wide-ranging network of funding organisations, institution guidance is also given to where and how people can progress.

In addition, there is an opportunity to set up a business on site, either in a physical or virtual environment. Providing e-mail, postal and administrative services and the facilities to network with other business and service providers, creates a knowledge transfer between wide ranging disciplines. An example of this success is demonstrated through the work of a graduating Product Design Futures student who, as a winner of the Lighting Association Award, received advice on 'how to set up her business' and legal advice from Hot Hatch and went on to supply the product to the John Lewis Partnership. Figure 2.



Figure 2. Zsuzsanna Nagy Lighting award 2006.

### ***FabPad (Fabric Printing facilities)***

FabPad provides a commercial large format printing service – which allows the students to experience the technical nature and design implications for preparing large format material for regular presentations and exhibitions. The FabPad is also involved in large-scale commercial projects such as printing the fabric for the ENO Minghella Production of Madam Butterfly and fabric for Alexander McQueen. This service and its commercial responsibilities allow the students to observe the commercial pressures that exist within the supply side of the creative industries and also to have access to up-to-date printing facilities.

### ***Product Design Lab***

The Product Design Lab (PDL) situated within Knowledge Dock is a dedicated commercial product design and innovation consultancy. The lab specialises in the research, design and development of new products and the redesign and improvement of existing products. The centre has access to extensive resources and expertise, which enables it to create and innovate within a variety of product sectors. The close proximity of the Product Design Futures course to the Product Design Lab creates a link through which the students, at key stages of their course, can have organised presentations with the Lab, where expert knowledge transfer is given on the commercial viability of the student's ideas, advice on production techniques and commercial feedback. This professional input creates the equivalent of a client designer relationship between PDL and the students.

## ***Shell Step Scheme***

The Shell Step Scheme, run through Knowledge Dock, gives the more experienced students in the 3<sup>rd</sup> year the opportunity to undertake, for a short duration, work placements with companies associated with the centre.

For example a number of 3<sup>rd</sup> year students have recently been working on a project that involved a number of high street brands looking at diversifying into interior accessories. This opportunity provided the students with first hand experience of the design process on a one-to-one level; working with a company to commercial deadlines and fulfilling business requirements such as costs, ease of manufacture, packaging and branding but within an educational context.

Companies approach the Shell Step as an alternative to using a design consultancy on the basis that these are very explorative and frequently very short projects that are about investigating new ideas for their business in a very informal and flexible context. Companies within the local community also find this approach can support their involvement in other areas of Knowledge Dock and its services, for example with the rapid prototyping facility.

These business services are all available to the Product Design Futures students and the courses' presence within this environment reinforces the fusion of design and business strategy for the students.

## **Design as Strategy**

### ***Project 1: Live Company Project***

From Design as Project to Design as Service, Thackara (2005) writes:

*“Our business models in design have to change if collaborative, open, and continuous design is to flourish. In the past, design was about the form and function of things.....Stand-alone products refrigerators, cars cookers.....are needed within product-service systems, but the real action will take place amongst the organizations developing new services and infrastructures.*

Through an introduction from the Director of Sustainable Research in Knowledge Dock, the product design students began working on a design project with a company responsible for 'Innovative Washroom Solutions' in public and commercial environments. The brief, instigated in collaboration with the company, aimed to be both user and brand centric. The students were expected to select and assess an existing product from the company's range of washroom products and evaluate how each product was used. In addition the students were required to assess the sites where the products were located (e.g. motorway service stations) and identify similar products available in the market. Once the product, market and location audit was undertaken students were asked to consider areas for improvement and innovation based around the following criteria:

- The environmental impact of the product, this was to be a priority.
- The most appropriate manufacturing process.
- Evaluation of the most suitable mechanisms for the product

- How was the product to be disposed of, the 'product's end of life', separation and disposal?
- Exploration of appropriate materials in conjunction with the recommended manufacturing techniques
- Consideration and suggestions on how the product identity (visual language) might repeat itself in other products within the company's range
- Samples were to be presented of suggested materials for the client and the final presentation

On fulfilling the research areas students were required to produce sketch models for three of the concepts together with Solidwork CAD models.

What emerged from the projects and the research was a company that viewed itself as an 'install and replace' business for washrooms. The emphasis, which was apparent from the brief, was on washroom products. However, during the final presentation the student's demonstrated the potential that product design could play in designing the overall service experience. Instead of just addressing products, they were also interested in broader design of the washroom service experience. Through this project students were able to use design thinking to identify a new strategy for the company and new opportunities for the business. From the project outcomes the company has now planned to continue working with the Product Design Futures course. A project has also now been planned to investigate further the service design experience. This is scheduled to start in April 2008.

According to Thackara (2005) 'a growing number of companies that once sold only products now think of themselves as service providers'. He lists Xerox, Electrolux, Wilkhahn and others. By undergoing this shift, the author stresses that although not necessarily intentionally 'green', a move towards a product-service system allows a firm to redirect itself away from 'the commodification of the product and the reduced profit margins that typically entails.'

## **Collaborative Cultures**

### ***Project 2: Academic Collaboration***

In addition to commercial collaboration generated through Knowledge Dock, there is also the opportunity for the Product Design Futures students to work collaboratively with academics using their visual and creative skills in the research process.

SMARTlab is a Digital and Creative Technology Innovation Centre situated within Knowledge Dock. The centre is responsible for three areas of activity.

- A practice-based PhD programme and research centre focusing primarily on questions surrounding artists and technologists working in artistic domains
- A suite of community outreach and digital inclusion projects linked to NGOs and international government agency agendas around e-inclusion and design for ability, assistive technology, IT for women and girls, and educational inclusivity
- A knowledge transfer centre and Gamelab/playroom that operates as a space where public sector and local communities can join forces with UEL academics, artists, technologists and game designers to make and test games and interactive tools.

To introduce the first year Product Design students to research methods, a project was initiated with a PhD student from the Magic SmartLab. The first year project was to be part of the initial stage of a PhD Playground Design Project. Students were expected to explore the definitions and interpretations of key words, generated by the PhD student in order to enhance and explore their understanding through visual representation. The words are listed as follows:

- Rotate
- Roll
- Fold
- Hang
- Compress
- Stretch
- Bounce
- Wrap
- Hinge
- Pierce

Students were encouraged to use their own ‘design thinking’ with the emphasis placed on primary observations in order to capture the meaning of the words. It became apparent that a multi-dimensional approach was needed in order to visually represent the meaning of the words. The research outcomes helped the PhD student to confirm the interpretation of the words. These interpretations were shown on a variety of mood-boards that incorporated materials, mechanisms and booklets to support the research findings.

In the second stage of the project, in teams of 2, students were given a choice of partially realised 3D concept proposals that were related to, and had been developed in the same way from the words in Stage 1. Students were to look at the proposals and to go on to interpret the designs in their own way.

Using workshop facilities and carrying out extensive research of mechanisms and materials, students were able to very quickly assess the selected concepts and replicate 1:1 models using simple sketch modelling techniques (Cardboard/Blue Foam).

This academic collaboration allowed the 1<sup>st</sup> year students to explore different abstract concepts using visual and tactile research techniques through which to represent ideas, usually associated with language. This project reinforces De Bono’s perspective on ‘ideas’ and ‘thinking’ and is essential to creative thinking.

*“Thinking does not have to take place in words. Nor are concepts limited by the availability of words to describe them. Thinking can take place in images and feelings which are quite definite but too amorphous to be expressed in words. People often have to think in practical, messy ways in order to solve problems and bring things about.”*

### **Knowledge creation via Theory and Practice**

In 2003 the author presented a paper at the Techne European Academy of Design Conference discussing the integration of Contextual, Business Studies and Design Management as a means of providing a richer and more meaningful understanding of contemporary and historical design issues.

This integration is still continuing today at UEL and has become even more embedded in the teaching. For example, students currently in the 2<sup>nd</sup> year, receive a lecture on Thomas Edison and the development of the phonograph and Emil Berliner's Victrola; this is presented along side articles from the FT, Economist and The Guardian relating to Sony's Blu-ray DVD player and Toshiba's HD technologies. The lecture and seminar explore how Edison lacked consumer insight, and how Sony learnt from previous format wars, 'how to get it right.' The contextualising of historical data with contemporary issues allows greater exploration between what Petroski calls,

*“The interplay between success and failure in design and, in particular....the important role played by reaction to and anticipation of failure.”*

In addition to theoretical integration there is also now greater linkage between the theoretical elements and the student's studio work. Throughout the design process, staff involved in delivering the Business Studies, Design Management and Contextual Studies elements are involved in presentations and tutorials.

Best (2006) notes that there are a 'range of tools and methods that can be used to proactively identify and flesh out opportunities for design.' Following on from the first and second year Business Studies and Design Management modules, the 3<sup>rd</sup> year students are expected to undertake an extensive marketing plan in association with their RSA project. Students are required to undertake a PEST analysis (Political, Economic, Social and Technological) and a SWOT (strength, weaknesses, opportunities and threats) analysis in relation to their proposed product or service. Equally techniques such as perceptual maps are explored in connection to where their product or service fits in relation to the market.

In contrast to 'Sydney Stratton's' desire to create an indestructible fabric in post-war Britain, Woolley (2003) notes that after the Second World War, the strategy of built-in-obsolescence was further extended by the notion of the pleasure of a product being 'effectively inverted in relation to the period of ownership.' Further more this has been exaggerated by the trend in consumer society that has moved from long-term ownership to shorter and shorter cycles of pleasure through purchase.

The following project summaries demonstrate the integration of theoretical elements of the course into the studio design work and how this is providing tools for students to explore ways to reduce environmental damage resulting from 'the combined effects of the consumption and disposal of products within contemporary society' (Woolley 2003). Although not consumer products, the following two projects both provide examples of how pleasure was added to packaging by making it collectable and memorable and thus increasing its value and longevity.

### ***Project 3: Food on the Go: Sustainable Food Packaging for the 2012 Olympics.***

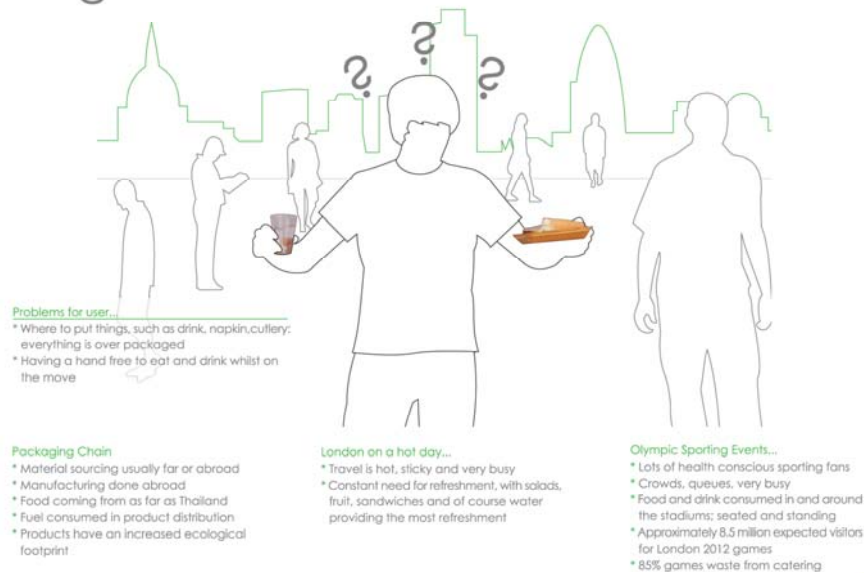
In 2007 a final year student Andrew Millar created a project brief building on the aims of the 2012 Games committee board that the Olympics would be a zero waste games and would provide London with the opportunity to demonstrate newly developed sustainable systems to the world figure 3. The student also produced his dissertation on this topic "Sustainable Packaging for Minnie Millar" which explored sustainable packaging in relation to the impact on his future offspring, called Minnie Millar.

Via the marketing plan the student identified the users and the estimated 85% of “games waste” which was predicted to come from the catering industry. The project brief was to design a product for the market of sustainable eco-friendly products. The target market was to be spectators and competitors of the 2012 Olympics and regular customers of Pret A Mange and M&S who buy sandwiches for their lunch. The project objectives were as followed: Figure 3.

- To ultimately design a product with little or no ecological footprint
- To consider the lifecycle of packaging from cradle to cradle
- Consider all stages of the packaging chain when designing the product
- Encourage reusing where appropriate
- Add extra value to the product

This project examined every aspect of the product and its life cycle and went as far to identify local suppliers and manufacturers around the Thames Gateway corridor and situated near the Olympic site, as part of the marketing plan. The design used sustainable materials, kept these to a minimum and made the accessories such as the spork and cup collectable. This project went on to win the RSA Sustainable Packaging Award in 2007. Figure 4

## \*Design Problems



**RSA**\*Sustainable Packaging



**Figure 3. Identifying the design problem.**



Figure 4. 'Food on the go' Olympics 2012 RSA Winner 2007 designed by Andrew Millar.

***Project 4: Sustainable Packaging and the Cosmetics Industry.***

In this second project a current 3<sup>rd</sup> year student investigated, through her dissertation on packaging and via her practical work and marketing plan, how a cosmetics firm can design, create and capture value through sustainable packaging.

McCracken adapted a model, created by John Deighton and Robert Dolan at the Harvard Business School that identified the 4Cs of 'consumer, company, competitors and collaborators'. McCracken decided to added 'culture' to their list and placed it at the top of the 4Cs; for him this helped show how a firm can 'manage meaning in order to create customers, profit and its place within the world.' Cultural meaning is achieved through a complex range of elements including the marketing mix, communication media, ritual and experience.

In relation to the student's project, it was decided to look at the over-packaging in the cosmetics industry and reduce waste through materials and energy in secondary packaging and also create cultural value. The student listed the following objectives for the project. Figure 5.

- Explore the whole life cycle of the product
- Retain the marketing message and luxury feeling
- Conserve the ritual linked to cosmetic purchase
- Simplify material use
- Avoid or limit the use of adhesives (stickers, glues)
- Consider the use of environmentally friendly printing process

One of the key objectives was to maintain the ritual and the luxury feeling associated with the purchase of cosmetics. The student chose the Chanel brand to apply her design, as it is associated with 'haut couture' and historically one of the most culturally rich brands in fashion.

The final design was a silk stole (approx. 40-70cm) moulded with potato starch that could be reused for a multitude of purposes after being machine-washed. The attached label with the product information was made from recycled leather with its brand name on one side and its contents on the other. These tags could be re-used as ID luggage tags. A pin/broche in the Chanel motif was used as a closure.

This project used design methods that aimed to add value through culture and ritual. According to Woolley (2003) 'youth and fashion markets are particularly geared to stimulating, intensifying and repeating the pleasures of new ownership.' Within cosmetics much of this stimulation and pleasure is created through the packaging. The student's project made the packaging valuable and collectable and thus reduced and reused the waste usually associated with cosmetic purchases.

# RSA

## Sustainable Packaging

### o Brief

My brief focuses on:

- Over-packaging
- Focusing on secondary packaging in the cosmetic industry
- Reducing waste, by considering energy consumption and material use

### o Objectives

- Explore the whole life cycle of the packaging product
- Retain the marketing message and the luxury feel
- Maintain the ritual linked to cosmetic purchase
- Avoid or reduce the use of non-sustainable adhesives (stickers, glues...)
- Consider the use of more environmentally friendly printing process

### o In more details

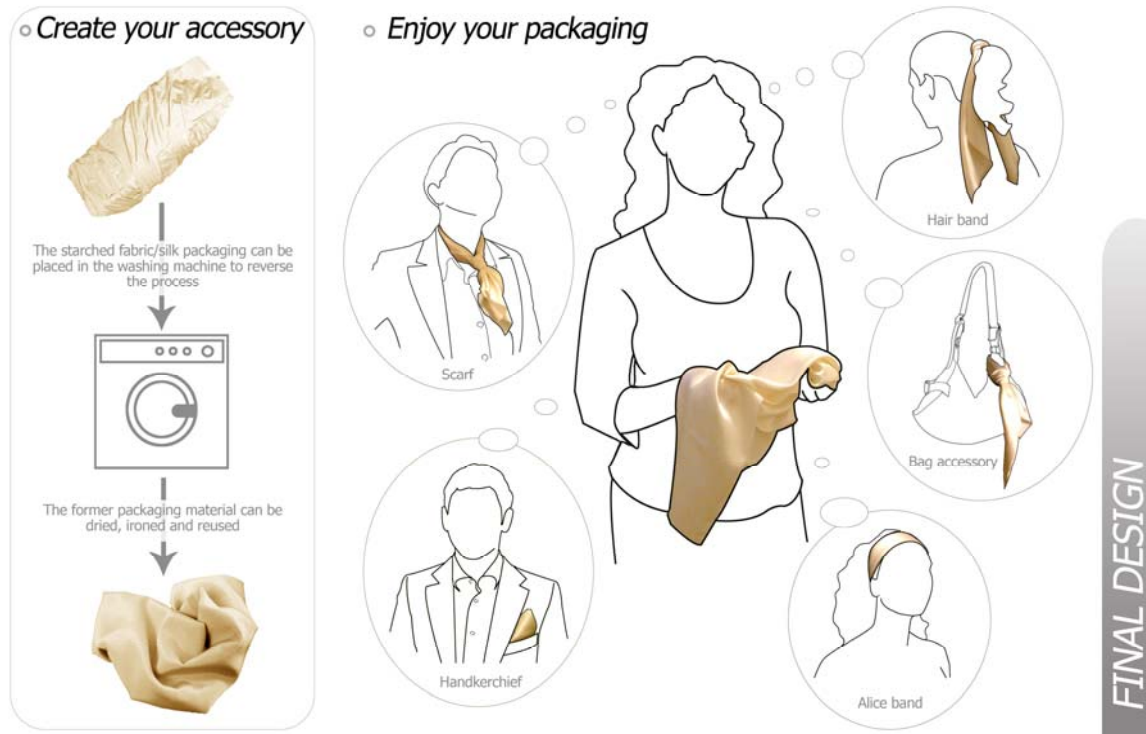
- 1 The gift comes in a shopping bag
- 2 The gift is presented in gift wrapping paper and finished with a ribbon
- 3 The product packaging is often protected in a layer of cellophane
- 4 Most product packaging consists of printed, coated and glued cardboard, often with a plastic window in the front. Protective material, like blisters, can be placed inside the cardboard box to help positioning the product.
- 5 Finally, everything is binned...

### o Problem Identified

It is a delight to receive a perfume or a cosmetic product as a present, however the amount of packaging that comes with seems rather unnecessary. Indeed, gift packaging is often like a "mille-feuilles" (cake with numerous layers):



Figure 5. Ritual and cultural value of current cosmetic packaging, the majority of which is binned



**Figure 6. Creating ritual and adding value.**

Today, The Man in the White Suit is perhaps even more relevant than 50 years ago because today, more than ever, we need innovative design solutions and design business cultures which address the never-ending short term cycle of consumption.

At UEL the unusual location of the Product Design Futures course provides an environment where design and business are treated as symbiotic and equal partners. Access to the different business services and the opportunities to collaborate, in a variety of ways across Knowledge Dock, prepares the students’ professionally and reinforces the connection between design and business.

In contrast to a recent British Council’s industry research survey, which showed ‘93% of designers think that business skills are either essential or useful in the curriculum, whereas only 54% of design colleges think that business skills are either essential or useful in the curriculum (Best 2006), Product Design Futures is integrating business, design management theory and contextual studies into the studio design work. These elements are viewed as crucial to the education of our students and is successfully reflected in the student’s design work, furthermore it is reinforced by the business enterprise culture that surrounds the course in Knowledge Dock.

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