Knowledge Transfer: Industry, Academia, and the Global Gift Market

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Introduction

People often assume that design is an international visual process, understood by everyone involved. When it comes to the global market, however, allowances have to be made for cultural differences. It is often a learning process among the parties concerned: designer, manufacturer, buyer, and consumer. Knowledge is exchanged among all of them.

Knowledge transfer in the 1990s became a focus of management theory, as a way of stimulating and creating innovation, particularly in design and product development. The same decade saw the world shrinking because of modern communication technology and as business increasingly traded globally (Machlup, 1980; Naisbitt, 1982).

"Knowledge is defined as the meaningful links people make in their minds between information and its application in action in a specific setting. Linking knowledge to action is a useful way to differentiate it from information" (Dixon, 2000: p.13). One sector in which the transmission of knowledge is at the core of its business is higher education. Universities in the United Kingdom offer a range of design and business support services, supplementing the traditional domain of teaching and research. Higher education in the UK trains new blood for industry, a large proportion of which find design- related work both in the UK and abroad. There is a commitment to share research expertise with the business community, and most British universities provide bespoke solutions to industry. Knowledge Transfer Partnerships (KTP) is a government-sponsored program that helps businesses to improve competitiveness and productivity through the better use of the knowledge, technology, and skills that reside within the UK knowledge base. KTP was formerly known as the Teaching Company Scheme (Ktponline, 2007) and has been developing since being set up in 1975, when the scheme focused on engineering projects. From this, the UK government's scheme has embraced the knowledge transfer approach, focused it on the university research sector, and widened its remit to cover most of UK business.

This paper sets out to explore some of the strengths and pitfalls of this academic-based knowledge transfer in the context of the global gift market, using case studies in the design and prototype development of a range of toys and seasonal items. Here the KTP scheme is not used for engineering-based products, but for products that are far more culturally specific. Universities have seen a growth in cultural studies, communications, and creative industries courses.

Geographers (Atkins, 2001) and anthropologists (Bourdieu, 1993; Latour, 1993) have been called on to analyze changes in the global market alongside economists (Hofstede, 2001). Using KTP case studies alongside theoretical approach- es has proved valuable, and "knowledge management specialists are acknowledging the value of case studies and narratives for capturing culturally embedded knowledge" (Holden, 2002: pp.
208-9).

Partly funded by the UK's KTP scheme and lead by staff at The University of Northampton, design management competence is being developed for a range of businesses in the giftware sector, including the retail division of a charity and two producers and importers of giftware. Under this scheme, design graduates (associates) are placed within the companies to research, plan, and implement a new product design methodology by designing products such as gift- ware, decorative housewares, and toys. The associates are usually employed by the University for two years, with their salary partly funded by a government grant and partly by the firm, but they work full-time at the company premises.

The academic staff who supervise the associates are an important part of the design knowledge exchange. The scheme focuses on how the transfer of research knowledge that resides in the university sector can be used to stimulate innovation in business (Hodge, 2007).

The program should be understood in the context of the British Government's policy of promoting and supporting the creative industries (Smith, 1998: Burnham, 2008). Design has long been promoted by the UK's Design Council and by the Department of Trade and Industry's (now the Department for Business, Enterprise, and Regulatory Reform) Design Initiative. Good design was commonly used as a tool to generate increased exports. But increasingly it is design expertise and design management skills that are exported—in the form of intellectual property, technology transfer, and knowledge

exchange. So here are key aspects of design management knowledge exchanged by government promotions.

The University of Northampton is itself a growing and changing institution. It is located close to the heart of England in a town renowned for its tradition of shoe-making. It also has a long history of engineering in specialist areas, such as lift technology and the high performance motor industry, the latter due to its proximity to the Silverstone Formula 1 racing circuit. It has excellent communications with the capital and with the rest of the country, and therefore has attracted global businesses, such as Barclaycard, Carlsberg, and Avon, all of which have used the town as the location for processing, manufacturing, and distribution. Teaching in the University's own School of the Arts reflects changing local industry. The product design course has an integrated approach, with students linking research, business management, and marketing studies directly with design projects. Undergraduate students tackle a variety of projects throughout their three academic years, some live projects with local firms, some linked to international competitions, and some set to challenge the students with the global realities of today's marketplace. The case study and the project form the basis of design management teaching—learning by experience is key; this parallels the experience in Australia (Griffith, 2007) and the US (Morell, 2007). The (US) National Science Foundation (1995) proposes that "the learning experience must move away from lectures as the dominant mode and toward a higher level of active learning approaches, such as laboratory and internship experiences. These experiences should encourage world-class design development… Cooperative learning approach- es and other contextual and experimental learning must be integrated into the classroom" (Morell, 2007: p. 29). In Britain, the *Cox Review of Creativity in Business* (2005) identified the need for the UK to exploit its creative capabilities more fully in order to respond to the growing threat from rapidly emerging economies.

The review put forward several recommendations promoting multidisciplinarity in higher education as a driver of innovation, including preparing students better to work with and understand other disciplines. In response to these restructuring recommendations in design education (ibid., 2005), the knowledge transfer approach, the KTP in particular, encouraged the university to adapt various activities, specifically its cross-cultural and global focus.

Learning and teaching at the university has been particularly enhanced through exposure to current solutions of global gift production, new markets, regulatory requirements, and by amalgamating the KTP experience into live teaching. The associate introduces students at the university to operations that involve manufacturing overseas, with some parts made by automated processes; shipping from the Far East; and sub- sequent UK distribution. This process augments the sharing of knowledge by inviting industry into the university to run live projects, by employing outside designers on a part-time basis, and by entering international competitions. While the associate is an employee of the university, he works at the company and is involved with setting up design facilities and design management processes within the partner organizations. Embedding the graduate in a real job but with active links to the university is central to the KTP approach to knowledge transfer.

The case studies of a charity retailer and two housewares companies explored in this paper are not of large international corporations, but of relatively small British firms trading globally with a specific range of products. In all three cases, the consumer buys the products as gifts for family and friends or as collectibles. "Gift exchange" has been analyzed by sociologists such as Mauss (1954), who argued that it is a social process found in all cultures. Gift exchange is seen as a generator of trade and the process has been commercialized. Products are designed to be gifts, and whatever the materials or process involved, they often share key design attributes linked to their cultural and expressive functions (Thomas, 1984). Trade in gift products between the Far East and the West is not new and China, in particular, has been designing to European specifications for several hundred years. For example, one need only think of the East India Company and the imports of vast quantities of

blue and white china adapted to European tastes and forms. Gifts for all ages were always specially designed and traded. A recent UK *Keynote Report* (2007) states that sales volume of the giftware market in the UK was valued at about £4.57 billion (bn) in 2006, with a predicted modest growth in sales to reach

£4.86 bn in 2011. Gifts and toys are produced globally, and most of the ranges sold in the West are manufactured in East Asia. In fact, the major toy and gift brands produce a large proportion of their ranges abroad. Recent US product recalls, such as Mattel for product safety (Coffey, 2007) and GAP for child labor (BBC, 2000), have encouraged producers to ensure that manufacturing meets the quality and ethical standards set by the European Economic Union.

Designers often have to consider these issues from the initial stages of any project, but they may not have direct control or even day-to-day contact with the manufacturer. In many cases, technology and manufacturing facilities in Asia are very advanced—for example, production lines for such high technology products as computer games consoles and the injection

molding used in toys. Gift products often require hand finishing—"handmade-ness"—one of the distinct design attributes of many gift products (Thomas, 1984). This involves skilled and semi- skilled workers willing and able to work for far lower wages than are acceptable in the West. The KTP experience has brought ethical trade and sustainability issues to the fore for the students.

Between the (Western) consumers and the (Eastern) producers exist a host of buyers and traders. Retailers often have "buying houses" in cities like Hong Kong, and order direct from manufacturers and Far Eastern trading companies. Buyers visit major trade shows to see what is available and negotiate directly or through agents. But there is also a great number of importers and manufacturers who buy and develop products for the Western market on their own behalf and then offer the goods for sale to major department stores and multiple retailers, as well as to various smaller gift and toy retailers. Gifts and toys are also sold as promotional goods and fundraisers by organizations, such as incentive businesses, museums, galleries, and charities. This trade is often through mail order catalogs and dedicated websites. In all cases, products have to be sourced and designed to meet specific customer needs. Here, the designer plays a key role in creating the right product for the occasion—not simply for the market. Much of the knowledge of the trade, manufacturing capabilities, innovation opportunities, and management lessons lie within this network and not at the university. KTPs provide an opportunity to transfer this expertise from the business and their trading partners to academics and students. The first case study presents the charity and contrasts the KTP against the live-project and the visiting-lecturer approaches to involving industry in teaching design management.

Educational benefits of a linked live project for classroom students include the following learning experiences: seminar, tutorial session, "making" in the workshop, creative investigation, critical reflection, and developing design skills.

These result in ranges of giftware products. The company also benefits. It gains access to innovation and expertise, and to the exchange of CAD files. Associates are expected to be hands on, implanting design into the organization, visiting manufacturing sites in China, dealing with communication and cultural issues, handling intellectual property issues, using digital skills to communicate to buyers, and attending internal boards and off-site manufacturing. Also, they are expected to guide the key design decisions of the industrial partner using a variety of research and presentation techniques, such as mood boards, model-making, photo techniques, scale, sketch modeling, and materials and components selection. Thus, associates are involved in all stages of the design process, from the original inspiration for the ideas to the finished product—in this case, dollhouses for Christmas.

The second study investigates the implementation of design capability in houseware companies. Here the retail buyer or brand developer plays a key role in identifying trends in surface pattern, innovation, and detailing, then in demanding goods from suppliers to meet specifications. The product has to be designed to be distinctive in the market and yet easily adaptable for different buyers and consumers. Through the KTP, in-house design expertise was developed, with associates creating new ranges of tableware, picnicware, mugs, coasters, and other giftware

items. We shall see that the associate has to work with cultural differences, intellectual property, delivery schedules, and environmental and ethical issues. In the second study, a live project was set for first-year students, who designed new outdoor eating and garden products linked to a changing lifestyle in the UK, but bound at the same time to strong social practices and locations, including the garden shed and the allotment. For the project as a whole, there was a shift from producing functional tableware to a more culturally specific product, a packaged mug and coaster set for Mothering Sunday in the UK and for Mother's Day in the US, key events in the retail year and cultural calendar. Knowledge is transferred in a variety of ways and directions, all of which have proved valuable and challenging. This paper shares some of the lessons learned through the case studies.

First Case Study

The aim of the KTP project involving the retail arm of a charity, The University of Northampton, and the associate is "to create an in-house design capability to limit purchasing of non-bespoke items sourced from China. This will enable the charity to design and sell its own bespoke products. This in turn will help to generate further profits to allow the charity to continue providing palliative and neurological care to patients, while expanding and securing the charity's future" (DTI, 2006: p. 1). This charity has about 400 retail outlets in high street locations in the UK and a growing online presence. For the knowledge-seeking charity concerned, the KTP was successful. It achieved an increase in sales and market share by creating a new, larger, and more diverse product range.

Although the overall project plan structure stayed the same, tasks during partnership changed due to the unpredictably of the commercial environment. The needs of the project altered accordingly with these commercial opportunities and threats. A promotional partnership with a UK newspaper (*The Daily Mail*) is a good example of this, with advertisements of a miniature fantasy castle and accessories. A number of product launches arose through the liaison with the media partner, and these opportunities usually had short and demanding delivery deadlines. The associate learned to respond to these challenges and to make sure his role remained flexible.

The trading arm of the charity hoped the shift in the product range would lead to a wider spectrum of buyers. Currently under development is a range of electric guitars endorsed by some top musicians to attract young males who usually do not cross the shop's threshold. The charity consciously wants to widen its customer base, who "tend to be aged 40 and up, female, and mothers who are socially disadvantaged or have commitments at home" (Betts and Schaber, 2007: p. 2). It offers its customers miniature items "that provoke nostalgia and encourage the customer base to make a purchase" (ibid.). Designing gifts is about creating products that function socially and meet the expressive needs of the consumer.

The initial contact with the university was made after the charity experienced infringements of copyright by sourcing non-bespoke items from China. The charity was not able to control local manufacturers copying and supplying competitors with look-alike products. Since developing design expertise though KTP activities, the charity takes great satisfaction in branding and packaging the new product range as its own. Copyright remains an issue, as the contracted manufacturers overseas continue to copy and sell-on the contracted designs. As with many Western companies, the charity is (through the KTP) developing a "brand experience" and increasing customer loyalty through collector's clubs, reuse bags, and loyalty schemes. The shops retain, through their charitable agenda, a dedicated clientele, which extends to online "fan clubs." In the UK, retail business activities of charities are substantial, recognized by further investigation into their design management.

Ethical trading continues to grow in importance (Pringle, 1999), an issue raised by the case study.
The associate spent an increasing amount of time on branding and graphics projects. A delay in the original objectives was noted and illustrated in revised GANTT charts, which monitored the progress of the project. To safeguard against this development, university supervisors argued at an executive meeting that an internship (student placement) should be offered, or an art worker employed, who could focus on CAD and graphics. Ideally, the academic supervisors like to place one of their own graduates, thus making the associate a supervisor of the design operation, which supports the aim of embedding design management competence.

The associate's activities and achievements are based on his core skills—idea generation, designing, and prototyping. Visualization techniques, such as markers on layout paper, are used to generate a range of images describing features of the various dollhouse designs. These are communicated to the project manager in a presentation of proposals prior to developing 3D models or CAD work. Based on the CAD file and associated perspective visuals, the overseas manufacturer interprets and generates a first model. The prototype shows such features as flat pack assembly—for example, the sections of a fantasy castle's turret nest in order to compact the packaging. Communication ensues with China about color ways and materials.

Alterations take place in accordance with locally available materials, such as plywood. The associate noted that in order to cope with tight lead times, he learned to prepare detailed visual instructions, including perspective drawings, thus minimizing queries and misinterpretation. He also learned to email visual communication in the morning, conscious of the eight-hour time difference with China. This experience on its small scale parallels much larger case studies of knowledge transfers in which local expertise plays a key role (Von Krogh, 2000).

The associate's main project, the design of dollhouses and castles, was expanded to fantasy figures, giving him the opportunity to oversee the design of 40 models and to learn about tooling and fabrication costing. In support, DVD sketching tutorials were on order and computer visualization training courses were investigated. He went to China to develop his understanding of the wood manufacturing and paint finishing capabilities of suppliers. Here, skills were transferred between the associate and the local manufacturers in China's Zhejiang Province.

The associate and his academic supervisors were able to present the KTP case at regional knowledge exchanges and business shows, and at an international conference. Through a shared panel at the conference, the associate was able to parallel his KTP experience with business out- reach programs at universities in the US and Australia. Of interest also was the associate's investigation of home (UK) manufacturing, developing contacts with toy and model-making companies that

stay competitive by producing to a higher quality, customizing and adapting and offering easier communications and transport. He also learned that using CNC and laser cut- ting technology allows for flexible production runs and high dimensional accuracy, and can partially offset the labour cost issue. Lessons from this one KTP are now being transferred to manufacturing businesses in the UK and Asia, and to an international forum of academics involved in knowledge sharing.

In support of learning and teaching at the university, the associate composed a student design brief based on a current project. He asked product design students to begin the concept stages of an Art Deco dollhouse project, sup- porting curriculum efforts to develop a range of 2D concept ideas, 3D sketch models, and CAD skills. Learning was organized in studio tutorial sessions, with the focus shifting to workshop (making facilities) input in the second half of the project. A photo session introduced photo- graphic documentation of models in a con- trolled light facility. Students developed visual presentation and problem-solving skills, useful in future assignments. Skills gained from the live project included identifying deliverables and adhering to deadlines, problem solving through investigation, experimentation, and making. Furthermore, students benefited from a portfolio piece with a brand name, with the possibility of having the winning dollhouse design developed into a marketable product. Students gained insights into manufacturing and managing a design project in an international context with the constraints of in-house design (Betts, Turner, and Schaber, 2007). This KTP was successful for the associate, who was recognized nationally for his effectiveness by being given a Business Leader of Tomorrow award, presented by the UK's Technology Strategy Board. The associate learned that knowledge transfer is the networking of information to and from individuals, industries, institutions, cultures, and governments.

Second Case Study

The second case study is based on two KTPs, both producing ranges for outdoor eating—picnicware and melamine. In both cases, the KTPs did not run their usual two full years and in both cases, goods were sold to key buyers in Europe. These customers increasingly demanded

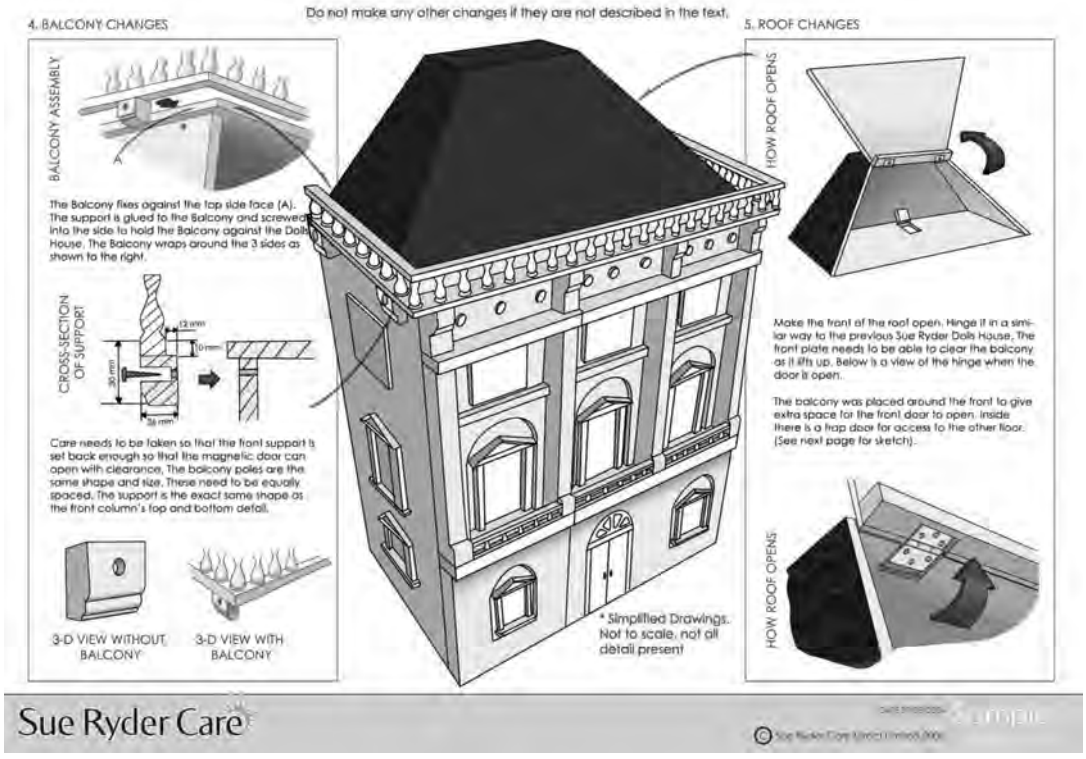

Figure 1. Georgian dollhouse design: Perspective drawing including dimensional and assembly specifications.

own-brand ranges, and were either considering importing directly from the Far East or looking to existing suppliers to produce exclusive ranges for their outlets. Both firms needed to diversify their product offer in order to compete with other firms selling to the same customers. The market in the United Kingdom was changing as people were eating less formally and eating on the move. Healthy eating was promoted in schools and in the workplace. Chilled foods and drinks were recommended for health reasons. The garden was described as the "fifth room" and, with global warming and an increase

in continental style café lifestyles, more of the population was eating outdoors and looking for lightweight reusable tableware. At the same time, both firms realized they depended on the summer trade and that they should develop products that could be sold into the lucrative Christmas and general gift markets.

The KTP allowed them to introduce and widen their design capabilities within their own organizations rather than be led by the buyer or supplier. In both cases, they were keen to innovate, diversify, and introduce more-novel three-dimensional solutions—changing the product fundamentally, not just the surface decoration or finish—designing product ranges to meet the needs of the changing markets and demanding buyers.

The first company, House Wares One (H1), was established in 1996 to produce one product, worktop savers (glass or melamine heat-resistant chopping boards). In 1998, it began to manufacture lap trays, and in time grew to encompass a range of coordinated products (Creative Tops, 2007). The company started to import products using a sourcing team in East Asia that would "analyze the market trends and manage projects from initial concept all the way through to delivery of range or bespoke products" (Creative Tops, 2007).

The company hoped, through a KTP, to embed 3D design skills into their UK offices, where it already had graphic skills and was sourcing imagery and patterns from outside consult- ants, licensing companies, and studios. The com- pany also accessed external design advice through the Design Council (a government organization whose purpose is to enable and promote the best use of design by UK businesses and institutions) on matters of corporate identity and strategic planning. The KTP was seen as part of a refocusing on design in order to cater to the demands of the market. The company actively sought knowledge to enhance innovation.

The educational benefits for the associate were significant, as it was envisioned that he or she would work with suppliers and buyers and develop new three-dimensional products using the newest computer-aided-design software applications. The associate was involved in producing a new range of melamine forms for dinnerware. Some initial work had already been done in-house, but it needed to be developed for the market and by doing so, a three-dimensional design process would be embedded to work alongside the existing graphics studio. The university's rapid prototyping technology was used to develop the forms through a range of physical models created from CAD files through a 3D printing process by fusing an ABS polymer.

Embedding design is a term used in many KTP proposals. It expresses the importance of having someone in the organization providing the key design expertise and management role, who is at the same time able to share expertise and experience with the university, drawing on innovative advice and allowing the industrial partners, associate, and students to get more closely involved through visits and regular seminars. The associate is able to travel to meet with manufacturers and to share knowledge directly with them, as well as bring back information and share experience with all those involved in the UK

. Figure 2. Melamine tableware: Product development using KTP.

The associate was supported by the university with advice on research techniques and expertise about the changing food industry. He was encouraged, as part of the KTP, to obtain more-structured on-the-job management training, leading to a national vocational qualification (NVQ) level 5 in management. That clearly was a transfer of expertise from the university to the associate and to the company. For the company, however, the process was seen to be slow and bureaucratic. Senior members from H1, rather than the associate, were actively involved in a live project with first year under- graduates, asking them to design products to suit the changing garden and outdoor living habits in the UK. However, the studio project, as with many live projects not specifically linked to real product development, did not lead to products ready for the global market. For the company, it may have produced some ideas of possible directions, and for the students some direct contact with a trading company and its requirements. The commitment from the firm was considerably less than the charity live project in which the intention was to produce and market Art Deco dollhouses based on the students' initial research and design proposals.

House Wares 2 (H2) is a newer company, but owned and run by directors who previously worked for a producer of an international brand of chilled drinks containers. They now sell a different product, but to a similar marketplace, producing bags for keeping chilled food products, such as drinks, packed lunches, baby's milk, and picnics. Although the firm is owned

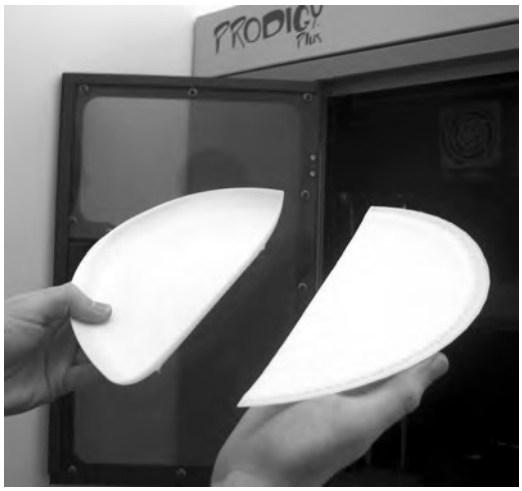

Figure 3. Rapid prototyping: The KTP associate designing a new range of dinnerware.

and based in the UK, it controls the output of a specialist factory in China and sources some components from other firms. It also sells to the larger retailers and develops own-brand ranges, such as specialist baby bags. The company has technical chilled food knowledge in the UK and design manufacturing expertise in China. But it has no design management capability in the UK, no product, graphic, or surface pattern skills it can call on, so it is unable to respond to customer demand as quickly as it would like.

Designers in China do not have knowledge of the UK market and its culture. Here again, the intention was to embed design and design management skills into the UK operations and to allow that transfer of knowledge through these key personnel.

Although the H2 KTP was shelved in its early stages, third-year students benefited from the academic links, as a number of them were involved in designing outdoor and leisure goods, such as backpacks and picnic boxes. However, the H2 management and product development team was stretched with the joint demands of the customers in the UK and the production abroad; communication was slow and time limited; and it was vital that they improve the management of their design and product development. Factors, such as a very wet UK summer, had a detrimental effect on sales and customer confidence. The KTP project was put on hold after a relatively short time for financial rea- sons—primarily a drop in orders, just at the point when the company would have benefited most from design management expertise based in the UK.

In the case of H1, the process of three 3D developments for plastic dinnerware proved to be lengthy and costly. The retailer demanded seasonal changes, and this can more easily be done with decals (transfer prints), outsourcing surface design artwork, and buying new component products to create new giftware. The European Union's import controls on ceramics were lifted during the period of the project and it was possible to import ceramic mugs and tableware at competitive prices. Mugs and ceramic tableware were easily coordinated with the company's existing melamine tray and mat products, without

massive tooling costs or commitment to substantial production runs of a

particular form. Mugs and coasters can easily be boxed together and turned into gift lines for Christmas and for other occasions, such as Mother's Day. The imagery can be changed swiftly, allowing the firm to buy in licensed characters and sell ranges worldwide.

These two housewares KTPs failed in comparison with the first. The rigors of government funding and monitoring were seen as too slow and bureaucratic, and the firms could not respond quickly to the changing market. Retail buyers and competitors bought products directly from Asia, own-branding them by changing the surface décor. The firms were small and had limited research and development resources, and their incomes could easily be affected by bad weather or changes in the buying policy of a key retail buyer. In the international context, in hard times they returned to trading in existing Asian products rather than developing distinctive ones through a transfer of design management knowledge.

Change and response within design education

At the University of Northampton over the same period, expertise has grown and new programs developed, which could specifically help these firms. There has been a growth in courses related to surface décor, which includes a new BA in surface design and printed pattern and a BA in illustration. Longstanding expertise in areas such as leather technology has lead to the growth of a footwear and accessories pathway within the fashion course, in a decade when handbags and hold-alls became a fashionable gift item. In the university, there has been knowledge-sharing between the fashion and product design divisions, with an increasing number of final-year projects showing fabric/textile elements. Interior design has also grown, with students designing new products for the home that link with fast- moving lifestyle changes. The university has the expertise to support any research and development the firms require. Courses that include a substantial design management and business curriculum are in development, such as fashion marketing and creative design in advertising.

Formal business study sessions and contextual studies lectures have widened to tackle ethical and green issues, as well as to provide more background to the global market and intellectual property changes, paralleling teaching changes in Australia (Griffith and Bamford, 2007).

When the product design course started, students had an opportunity to learn a European language and had sessions on the European Union and on the effects of the Common Market. The focus now is more global. The university has learned to adapt its courses to suit the market; it is more focused on developing skills in communications, surface design, and brand development rather than detailed engineering.

The KTP case study experiences are used in all these courses, benefiting another generation of students. Postgraduate provision is set to expand within the classic British art and design schools, addressing an apparent demand from overseas students, already equipped with a sound under- graduate skill set, culminating the experience with the opportunity to undertake doctoral research "by practice." The experience of global design management is envisioned, and the linked transfers of knowledge will grow in importance in all teaching areas.

As for physical resources and facilities, the university is focusing away from maintaining a "making" workshop equipped with general woodworking machinery and tools, metal lathes, and an associated assembly area. Across the art and design university sector, "the studio culture that lies at the heart… is under threat... university- estates officers gaze longingly at studio space" (Leon, 2004: p. 27). Institutions make successful bids and attract funding for business incubation suites and rapid prototyping (RP) centers, which often lead to an amalgamation of the existing workshops and studios and are advertised for their consultancy and income generation value. As for the case studies in this paper, this capability was instrumental in gaining some of the KTP projects in the first place. In Northampton University, a 3D printer and laser scanner complemented an existing 3-axis CAD/CAM milling machine, enabling reverse engineering. The university was quick in advertising these services in promotional literature. Staffing, however, remains a major pitfall, as technical staff is hard to get and to retain; once trained, they are likely to be attracted by better conditions in industry. KTP focus could be said to skew communication; it often uses model making as communication, allowing the visual to be the communication device rather than words. Correspondingly, Holden (2002) has argued that language is knowledge management's lost continent.

A major achievement for the university, apart from income generation, is the curriculum enrichment through live projects provided by the KTP, in which the students get exposure to business situations and a real understanding of lead times and deliverables. The product course has experience involving industry for more than a decade. More recently, KTP schemes have been found suitable to provide the framework for successful project work with undergraduate students.

Conclusions

The concept of knowledge transfer is at the heart of the KTP; when it works well, as in the first case study, it is beneficial for all involved. In the second case studies, however, HI found the process rather bureaucratic and slow to respond to market demands. It found quicker fixes for its customers' needs by buying in existing products and making superficial changes to standard products. H2 did not have the financial resources to follow the KTP through when the market fluctuated.

So, what are the opportunities and challenges of these academic-based knowledge transfers in the context of the global gift market? Academics share knowledge by contributing to conferences, publishing books and papers, and teaching through the case study. In addition, they are increasingly expected to act as consultants and to share their specialist knowledge with businesses worldwide. The KTP provides knowledge and hands-on experience for the academic and brings the real world closer to the ivory tower.

Undergraduates experience curriculum enrichment through live KTP projects, exposure to business situations and project management, and can gain a real understanding of lead times and deliverables in the global economy. The value of the experience, however, varies with each project. The production of models enhances manual skills and creates a deepened understanding of 3D, CAD, and template generation. It can also create possible undergraduate placement opportunities. In a world with many languages and cultural differences, the importance of a visual language, in the form of drawings and models, is key. The importance of teaching visual communication is confirmed by this KTP experience.

The applied research undertaken by academic staff and the associate in the context of the KTP provides up-to-date understanding of current market trends, marketing strategies, and manufacturing processes in a globalized market, which can then be fed back into teaching. The toy and giftware market is undervalued in many design courses. For that reason, the encouragement of research, the sharing of knowledge in particular, is vital in a global market for design expertise in a cross-cultural context.

The industrial partners, with new design capability embedded within their organizations, enjoy a wider set of strategic opportunities and increased company profitability. It is vital that they can offer their own distinctive products and be able to manage the design process globally to ensure the products meet the high standards the consumer requires. The case studies illustrate how swiftly markets can change, and point to the fact that learning to manage change is vital. The first case study allowed for change within the project; in the second, the businesses postponed or pulled out when their market changed.

The relationship between businesses and academic institutions is likely to be more than a short-term gain, and provides networking opportunities to benefit both parties. It has already led to changes in design management teaching, and the experience of long-term working relationships will also affect the student experience.

The associates benefit in terms of experience and furthered academic and management competences leading to fast-track career progression. The UK economy thus gains through increased business turnover and a rising UK design management skills base.

The government promotion, through its backing of KTP programs, is proving successful in terms of knowledge transfer and increased trade. There is some evidence from these case studies that the rigor of the process can make it slow to respond to market demands. KTP pro- grams are only two years long and are intended as starting points, encouraging good practices that lead to further development and growth instigated by the firm. UK government funding is limited; its intention is to encourage investment in innovation, and firms need to be com- mitted to the project and its ongoing success.

Design knowledge and design management experience is being transferred across the globe and embedded within local UK firms that are trading internationally. Thus, these new types of collaborations between the gift industry and academia are proving beneficial for all within the academic world, as well as outside. ■

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