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CONVERGENCE IN INDUSTRIAL AND CRAFT PROCESSES IN UK UNDERGRADUATE PRODUCT DESIGN COURSES

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ABSTRACT
This paper will discuss the convergence of craft practices and industrial processes in undergraduate Product Design programmes in the UK, and explore how the economy and new technologies have changed the priorities in the curriculum. Tom Inns, Director of the Glasgow School of Art, recently asked why we teach product design in British universities when "product design doesn't exist in the UK economy anymore" (Inns 2014)[1]. If it is the case, what should we be teaching?

KEYWORDS
Product Design. Craft. Making.

[1] Video recording at http://www.skillsinaction.eca.ed.ac.uk/live-streaming/ (14:53 – 16:02)

figure 1 One of Jocelyn Mather's *Bags... For Life,* 2013, her graduation project for the BDes (Hons) Product Design at Edinburgh Napier University (courtesy of Jocelyn Mather)

INTRODUCTION: THE FALL AND RISE OF CRAFT

Expensive to run, and under-recruiting, the number of craft-based courses in UK art colleges and universities has been in decline since the early 1990s[2]. But as a teacher of product design I have in the last five years seen an increasing number of student major projects, in my own university and others[3], that less than 20 years ago may have been categorised as craft. Craft is a process often associated with one-off or bespoke items with the practitioner involved at all stages of the creative, technical, and commercial process. Product design is a discipline that has traditionally worked in economies of scale (i.e. mass-production, lean production) with different specialists leading each stage of the creative, technical, and commercial process. However, new digitally controlled hardware has enabled bespoke industrial design that is viable at a comparable economic scale to craft. This is highlighted by Justin McGuirk (2012) who describes the rise in recent design graduates making and/or assembling their own products:

"Who else is going to make their work? The rise of the designer-maker has a lot to do with the fact that while design is an ever more popular career choice, the opportunities to work with manufacturers are not growing at the same pace (and in the UK are actually diminishing). Where product and furniture designers once aspired to get their work mass-manufactured, many have now given up on the idea … with a humbler proposition, the designer as craftsman." (McGuirk 2012)

THE WORD CRAFT

The word *craft* has recently gained a higher level of credibility in industrial design practices.[4] In the early 1990s many products were prefixed with the word *designer*, where by contrast *craft* was a lowly word in designer circles. Today there is evidence that a narrative of handmade is a desirable quality in consumer culture and lifestyle. *Craft* is fashionable in branding and advertising as manufacturers seek to differentiate their products with a sense of authenticity - we can buy *craft* beers, *artisanal*

[2] Crafts Council (UK), 2011. Also, numerous online sources

[3] Product Design programmes exhibiting at New Designers in London increasingly have a wider spectrum of student work on display from 3D crafts to industrial design.

[4] This does not discount the making and craft skills from pre-automated mass manufacturing processes

cheese, and *bench-made* shoes.[5] Leica, the manufacturer of state-of-the-art cameras for much of the 20th century recently published an online film *The Making of the Leica M9-P*[6] (2012), in collaboration with Hermes, which celebrates the hand-making processes in a limited edition camera, case and presentation box. This film, a highly seductive piece of marketing, is just one example of how trust in the quality can be instilled through revealing the making process…

"What we have here is a post-industrial nostalgia for the pre-industrial. In a culture with a surfeit of branding and cheap mass-produced goods, we romanticise the handmade because we yearn for quality, not quantity… What's new is the desire to reveal the process and not just the finished object. These are not-so-subtle messages reasserting the value of the handmade over the machine-made." (McGuirk, 2011)

However, the resurgence of craft is more than a superficial marketing gloss. In 2012, the Crafts Council, Creative Scotland, Arts Council of Wales, and Craft Northern Ireland jointly published a report, *Craft in the Age of Change*, which illustrates the strength of craft in the creative economy, generating over £450m of income a year for UK practitioners (Burns et al, 2012). Christopher Frayling opens his 2011 book, *On Craftsmanship: Towards a New Bauhaus*, stating:

"Craftsmanship has again become fashionable in high places, just as it did during the last few recessions. In the boom times of the early 2000s, the public talk was of design: now it is more of craft, a shift which mirrors the parallel move from 'the creative industries' to 'productive industry'. Government ministers extol 'the joy of technical accomplishment, the beauty of craft skills' and stress the need for a new, updated Arts & Crafts movement to re-energise good old British inventiveness." (Frayling, 2011, p7)

That this new, updated arts & craft movement might be a new *Bauhaus* (Frayling, 2011) – a school that not only shaped the way in which we teach design today, but also sought to embrace the machine as a means for improving living standards for all – indicates that a new vision for the fabrication and ownership of objects is gaining ground. The recent recession has been accompanied by a plethora of books about making and new attitudes to manufacturing and consumption. Frayling goes on to

[5] http://usatoday30.usatoday.com/money/industries/food/story/2011-10-21/food-products-christened-artisan/50896420/1
[6] http://vimeo.com/41869140

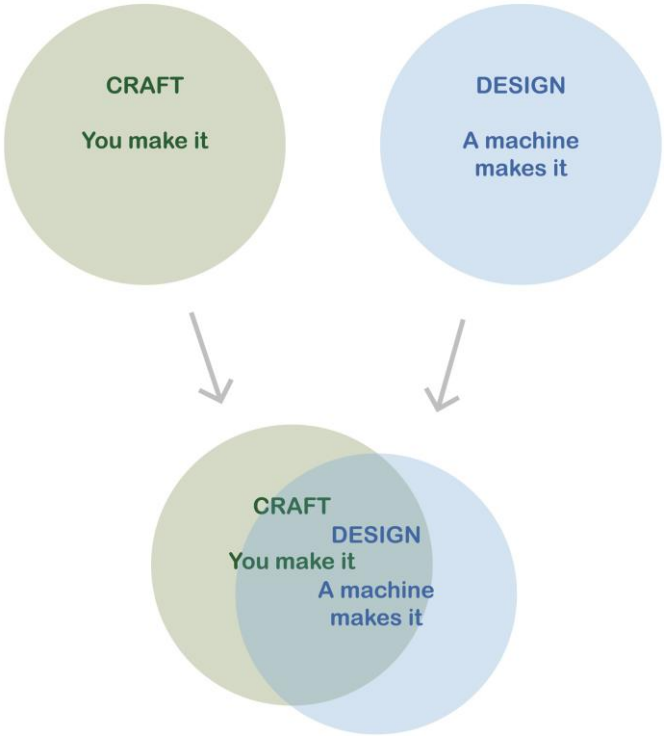
cite two of these authors in his opening pages, sociologist Richard Sennett[7] and philosopher Matthew Crawford[8]. Both argue that the activity of making promotes well-being and enriches lives. Indeed, the *Maker Movement*, which is spreading globally, is founded on free innovation, maker communities, the democratisation of technologies and participation (Hatch, 2014).

CRAFT AND DESIGN

In simple terms, old distinctions between craft and design centred round the making process. In craft, the practitioner is involved in the making process from concept to client. In design, the practitioner leads and facilitates the creative process with input from technical specialists, the marketing department, and retailers, before handing over to product engineers for machine-based manufacture.

Today, the emergence of digitally controlled hardware has opened new possibilities for both craft and design practitioners, where creative methods and economic models increasingly overlap (fig. 3). Furniture manufacturers *Unto This Last* are using digitally controlled flat-bed routers, to create industrially produced items on demand. Their workshop is integrated into their showroom in London, where the making process is at the forefront of their brand identity.

[7] Sennett, R. (2008) *The Craftsman*, London: Penguin
[8] Crawford, M., (2009) *The Case for Working With Your Hands*, London: Penguin



fiure 2 The old positon of 3D craft separated from product design, converges into shared territories today (I. Lambert, 2014)

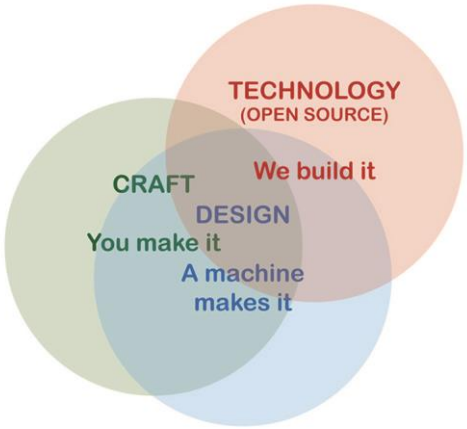
The new culture in tinkering and open-source technologies has opened yet more possibilities for not only how we design and make things, but also how we own, repair, improvise with, and adapt objects. Groups such as the Glasgow based *MakLab* follow an *open-source* ethos and enable the sharing of ideas and resources. Their workshops are open to all (for a small membership fee and with basic training), and they are much used by SMEs, freelancers and students - but have also empowered hobbyists and D.I.Y designers who are using their facilities to create design solutions in a field that was until recently the domain of art school trained professionals. The home page of the *All Makers Now Conf*erence (2014) refers to a new breed of "digital crafters" with the conference staging…

"… a critical debate about a radically transformed vision of 21st century production. In this brave new world of Makerspaces and Fablabs anyone can be a digital *craftpreneur*, harnessing the power of digital technologies to create, co-create, collaborate, make, and sell."[9] (2014)

Many product design courses now teach *Arduino* prototyping as

[9] http://www.autonomatic.org.uk/allmakersnow/

students integrate self-programmed technology into products. The ease of access to these processes and technologies has empowered designers to take control of not only the fabrication, but the distribution of their products, and Product Design courses are adapting (fig. 3).



fiure 3 The added dimension of open source technology, tinkering and hacking points to an empowered community of making and design (I. Lambert, 2014)

THE NARRATIVE OF MAKING

Product design is in a transformative stage. The process of making is not only coming to the forefront of what we are teaching, but what design practitioner-academics are researching. Two recent exhibitions exemplify this. For the 2014 *In the Making* exhibition at London's Design Museum, objects were displayed "interrupted mid-production" (Barber and Osgerby, 2014, p2). Showing part-made objects, such as tennis balls, bricks, cutlery, and coins in the unfinished state reveals new insights for both designers and user groups. The 2011 *Power of Making* exhibition at the V&A, in collaboration in the Crafts Council, also celebrated making processes. That such work has been displayed in two world-class design museums highlights the growing importance of making in our material culture.

John Dunnigan's essay on *Thinking* (2013) describes the process of practice-led/based research, referring to "critical making" as the "symbiotic relationship" between thinking and making (Dunnigan, 2013, p.95). Working with your hands, says

Dunnigan, leads to new knowledge. Christopher Frayling, and Martina Margetts, both writing in the *Power of Making*, the book which accompanied the eponymous exhibition at the V&A London in 2011, highlight this further, in terms of craft as a form of knowledge (Frayling, 2011, p31), and making as thinking (Margetts, 2011, p.39). This can validate the practice-based research activities of tutors, as many designers use the internet to reveal the making process and add value to their work. Materials and processes are embedded in the narrative of Max Lamb's website, but it was the making of his pewter tables, captured on film and shared on *YouTube* and *Vimeo*, that brought him to prominence. Using simple sand casting methods on a beach in Cornwall, the documented making process brings delight and adds a unique value [10]. Dezeen editor-in-chief, Marcus Fairs describes it thus…

"The making of the stool and the narrative behind it are what makes this product special and it could be argued that the evocative time-lapse movie Lamb filmed of the casting performance (and uploaded to YouTube) is a more robust cultural artefact than the stool itself… For me this product represents the way the ease with which projects can be digitally documented plus the distributive power of the internet is changing the way designers work, and the way their work is perceived" (Fairs, 2012)

Similarly, but embracing a hybrid of old and new technologies, Markus Kayser built and programmed his own CNC solar-sintering machine to create glass bowls from sand and intensified solar power in the Sahara desert.[11] The video of him using this process on location has a similar delightfulness factor, and revealing the making process adds value and interest to the artefact.

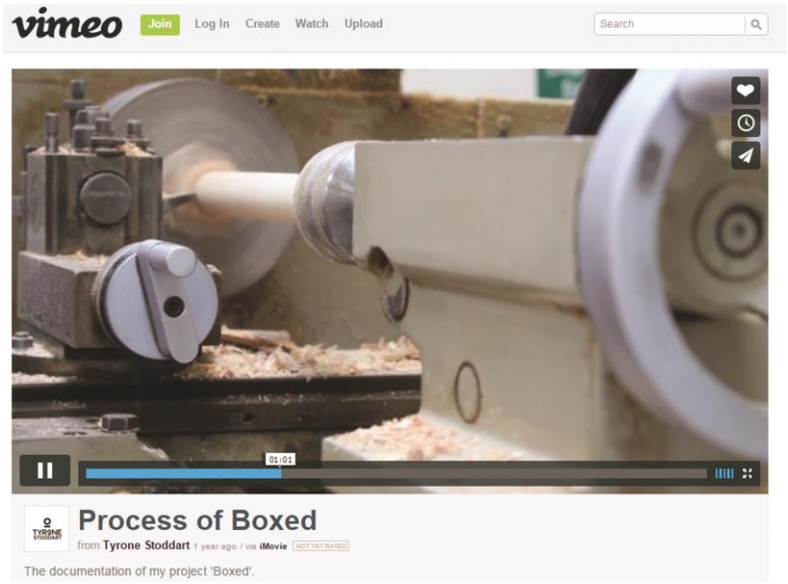
UNDERGRADUATE PRODUCT DESIGN AT EDINBURGH NAPIER UNIVERSITY

I have for the last 5 years run an undergraduate final year Product Design atelier called *Made in Scotland*, exploring how local micro-manufacture and fabrication may be exploited to reduce our reliance on mass-manufacture overseas. Students

[10] See http://vimeo.com/9498805
[11] See http://vimeo.com/25401444 and http://www.markuskayser.com/work/solarsinter/

have also investigated using designer-maker practices where the designer oversees assembly and production from start to finish. (see page 1, McGuirk, 2011). These product design students are engaging with making in the craft sense, by fully engaging with the materials and using their hands. Each was involved in the fabrication process, which became a strong part of the narrative of their work.

Student Tyrone Stoddart's *Boxed* (2013) uses snooker cue fixings for compact multi-use furniture and that can be folded into a box, predominantly made of ash wood. Like Lamb, Stoddart meticulously recorded his making process on film (fig. 4)[12]. This is prominent in his website showing an approach to design that seems far removed from the marker-renderings and CAD models that dominated product design courses 20 years ago.



fiure 4 Tyrone Stoddart's *Boxed*, 2013, in the making, part of his graduation project for the BDes (Hons) Product Design at Edinburgh Napier University (courtesy of Tyrone Stoddart, 2013)

Student Aimi Robertson designed a sofa covered with Harris Tweed, a quintessentially Scottish material, made and upholstered locally. The accompanying tweed-mounted deer antlers, commonly found on many Scottish estates, are, like Lamb's pewter stools, in geographical harmony with the material to form an amusing by-product (fig. 5). Robertson's connectivity with this material, has led to her now training to be a kilt maker.

[12] See https://vimeo.com/65583331

fiure 5 *Tweed Antlers*, Aimi Robertson, 2013, part of her graduation project for the BDes (Hons) Product Design at Edinburgh Napier University (courtesy of Aimi Robertson, 2013)

Student Jocelyn Mather's *Bag… For Life* range (see fig.1) was perhaps the most challenging of all. Mather worked with local industrial waste-streams, in this case abattoirs. This resulted in the production of luxury handbags using tanned tripe, flattened cow horn, and leather. The work received widespread media attention, including with the BBC and STV. Experimenting extensively with locally discarded materials while teaching herself new craft processes, Mather handled the materials, produced enquiring prototypes, including a tripe covered rugby ball, and made the bags from start to finish, with the help of a laser-cutter and sewing machine. She now describes herself as a designer-maker[13].

Student Jiefu Yu's *Pure Table*[14], owes nothing to a mechanised production line. The assembly uses no glue or screws, relying on traditional joinery methods for a robust structure. The table appeared on the front cover of the *Woodworker and Wood Turner Magazine* [15] essentially a publication aimed at craft practitioners.

[13] See http://www.jocelynmatherdesignermaker.com/

[14] See http://jeff091137.wix.com/my-fish-tank#!the-pure-table/clud

[15] See http://www.pocketmags.com/viewmagazine.aspx?catid=1034&category=Hobbies+%26+Crafts&subcatid=214&subcategory=Woodworking&title=The+Woodworker+Magazine&titleid=1558&issueid=69068&issuename=December+2013

While some of our students still engage with the design of industrially produced artefacts, there are many more examples of students taking a maker-led approach. However, by exploiting digital visualisation and modelling skills, all of the students mentioned were able to make challenging prototypes without having the innate craft skills that can take years to acquire. Around ten years ago we worried that CAD was usurping hands-on sketching and making skills (Lambert & Firth, 2006, pp 403 – 408). Now, students have the opportunity to quickly convert virtual models to tangible (components of) prototypes. On the evidence of New Designers, the annual UK design graduate showcase in London, over the last 5 years, this seems to be the case for many other Product Design programmes in UK universities and art colleges. On this basis many courses might be more accurately entitled *3D Design and Making*. However, this would still be a specialism within product design: Product Design in its broadest sense is problem solving with both tangible and intangible design outcomes. While Inns (2014) might rightfully rue the decline of British manufacture, he is wrong to suggest that Product Design does not exist in the UK economy anymore. On the contrary, this is an exciting time, as we start to fabricate, sell, and own things in different ways. In universities we need to (re)invest in technical resources for combined digital prototyping and hand processes and (re)embed making in programme curricula.

PROVENANCE AND OWNERSHIP

This convergence of practice has led to more viably priced small-batch items, which could have a wide impact in a global context. But our students need to grasp that things need to be useful – a product can have low-carbon credentials with regard to materials and processes, but if it is a product we do not need it is still wasteful. In response to the recession of 2007, many have observed that we own too many things, and more people are reflecting on the provenance of and actual necessity for their possessions[16]. Deyan Sudjic, in *The Language of Things* (2009) eloquently describes a “World Drowning in Objects”. In *The 100*

[16] The ‘Prosperity Without Growth Report (2012) discussed Scotland’s possible alternatives to the current system, i.e. proposing endless growth with finite resources.

Thing Challenge (2012), Dave Bruno describes the liberating process of reducing his personal processions to 100 things, in response to "the culture of materialism in America" (Bruno 2012). John Thackara discusses shared use over ownership, illustrating this with a humble power drill, used on average for ten minutes in its entire life (Thackara, 2005, pp 18 - 19). Papanek 10 years before him espoused the same approach to community objects in *The Green Imperative* (1995), but such ideas threaten sales and profitability for manufacturers.

At the turn of this century the term "sustainability" appeared in curriculum structures and even course titles. However, the term soon became embedded in day-to-day teaching and learning about design, the implication being that all design should be sustainable. Sustainability, as an ideal, remains in many student design projects. In industry when companies make genuine claims about the environmental credentials of a product or service, and highlight the detrimental effects of wasteful or harmful production methods of their competitors, the provenance of making processes are used on the discerning consumer. For design that transforms existing waste into new products, inspiration can be drawn from the work of Martino Gamper. In *100 Chairs, 100 Days, 100 Ways,* Gamper plundered waste furniture (discarded chairs collected from London streets) to create new chairs, focusing again on the process of making (Gamper 2007)

However, the 2013/14 *Made in Slums* exhibition at the Triennale Design Museum in Milan[17] demonstrates how this is already a reality for many in the developing world with people fashioning an array of humble objects from whatever discarded materials they can find. Museum director Silvana Annicchiarico writing in the forward to the accompanying book (2013) eloquently reinforces the fact that the intellectual forces shaping the future of design and making are not confined to western thinking:

"We must openly acknowledge that up until yesterday our notion of design had a very precise and necessarily limited geopolitical and cultural place (and connotation.) Design was (is?) a

[17] 26.09.13 – 16.02.14. Visited 14.02.14. See http://www.triennale.org/it/mostre/future/2605-made-in-slums-mathare-nairobi#.VSJi-I54q3s

discipline – and, at once both an idea and a practice – linked to the rich, white, Western world. That is to say, not only the world which produced the first industrial revolution, but which was also able to develop theories, criticism, even philosophies based on its ways and forms of industrial mass production. Today, this is no longer the case. Today, the vehemence of globalisation forces us to deal with a design that becomes a mass profession not only in those rich western countries who first categorised it, but also in those countries and in those poor places in which design takes shape unconsciously, tied mostly to the production of anonymous objects." (Triennale Design Museum, 2014, p.8)

There is much to be learnt from this. Keyser, Lamb, Gamper, et al are producing artefacts that leverage value from the narrative of the making process. Here, we have the production of *anonymous objects*, wrought out of necessity. This can enable us to evaluate priorities, and in each case there is an opportunity to assess the viability of scale. In 2002 I travelled to Tanzania to explore design and consumerism in the developing world. I saw first-hand the resourcefulness with which people fashioned utility objects - people sat at the roadside making kerosene lamps from drinks and food cans, quickly and skillfully soldered with soldering irons heated in charcoal fires or primus stoves. The volume of these lamps in the Dodoma market was staggering, although at the time less than 10% of homes in Tanzania had mains electricity. The near absence of branding was conspicuous: soap was just soap; washing powder was just washing powder; buckets were buckets. I interviewed a group of Tanzanian schoolteachers who found the notion of paying considerably more for a *branded* object unfathomable – how much more would an Alessi bucket cost? With basic priorities such as food and shelter the papers that followed asked "where is the material value in a brand?" (Lambert, 2007, pp. 247 – 257).

However, people can expect higher standards of living than this and societal structures that enable self-esteem and self-actualisation through more than just material belongings.

"The irony is that while western consumers aspire to craftsmanship, the majority of the world's population lives in countries that have local craftsmen but aspire to industrialised products. Mass manufacturing will be essential to lifting a billion people out of poverty, and providing basic goods that we took for granted long ago." (McGuirk, 2011)

It is not for privileged western consumers to deny modern living

standards to those in the developing world, but an expansion of 20th century industrial infrastructures cannot continue (Sterling, 2005).

CONCLUSION

Design writer Justin McGuirk (2011) eloquently describes a resurgent "craft-fetishism" that we "lust" after, but this alone cannot be the basis for new design programmes. However, the current popularity of craft processes and inherent trust in them is adding value to everyday objects.

Fashion designer Amy Twigger-Holroyd recently summed this up in a plenary at the 2015 *Research Through Design* conference[18] when talking about her work with knitwear. A participant in one of her studies on making remarked that "…knitting is really difficult, so why are jumpers so cheap to buy in the shops?" (Twigger-Holroyd, 2015). It is well known that, in the west, we are still heavily reliant on materials and parts produced at low cost in appalling working conditions far away. Twigger Holroyd's succinct conclusion is that we must "bring making closer to use." (Twigger-Holroyd, 2015). Can the shift in UG teaching priorities disrupt the status quo? New economic models, global poverty, environmental factors, and well-being have been key drivers:

> "The events of the last few years have revealed the huge risks inherent in the current global financial system. At a deeper level, there is growing recognition that we need to build a new and more responsive economic model if we are to respond to three imperatives: reducing global poverty, enabling us to live within environmental limits (of which carbon is but one), and moving beyond GDP as the predominant way of trying to measure quality of life." (Bebbington et al, 2011)

Questions are being asked of the future of design as a profession, or at least one that is exclusive to art school trained practitioners. Anderson (2012) believes that digital fabrication tools will be as widely available and empowering as desk-top and subsequently online publishing have become. As a post-graduate student in the 1990s one of my tutors exclaimed that his children were being taught Photoshop at primary school – "what will become of our graphic design course?" he asked.

[18] *Research Through Design* conference, Cambridge, 26 March 2015. Attended by author. See http://www.researchthroughdesign.org/

Proficiency in the use of Adobe software alone does not make someone a graphic designer any more than owning a 3D printer makes someone a product designer. But designers can no longer guard the mystique of their practices.

Bruce Sterling's 2005 view of our position in the industrialised world - that of a *technosociety* - is still poignant and probably well underway:

"The only sane way out of a technosociety is *through it* into a newer one… That means revolutionizing the interplay of human and object" (Sterling, 2005, p.132)

Provenance is a major factor in the future of Product Design. This lies in a more altruistic approach to entrepreneurship, implied by the term "open-source" which in turn is afforded by new digitally controlled hardware and online maker communities, and the indisputably "distributive power of the internet" (Fairs, 2011). But key to this is a commitment to eradicating in-built obsolescence: Bruce Newlands, a founder of the Glasgow-based MakLab, believes that if the rise of the Maker-Movement and our access to hardware and software for digital fabrication is going to have any near-future impact on reducing carbon emissions, it will be through enabling us to repair complex objects, such as televisions and mobile devices. (Newlands, 2015). This is no different for craft-practitioners today – craft and design have converged to occupy the same *modus operandi*. But open-source also implies a global attitude, which can enable Product Design graduates in designing for the other 90%. "Fairness (or the lack of it) is just one of several reasons to question the conventional formula for achieving prosperity." (Jackson, 2009, p.6).

We need to prepare students with a combination of artisan and digital skills and knowledge, embedded in a global perspective that out-spans consumption for the sake of profit. There is an alternative to a design stratagem that creates products for capitalism, where, as Bebbington et al (2011) propose, GDP is no longer the dominant measure of success.

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