Ubiquitous Tendencies: Cultural Inspirations and the Future of Industrial Design for a Global Mass Market

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Abstract

Background This paper is aimed at academics, students and practitioners in order to discuss ideas that relate to design practice and academic research exploring whether designers should seek to include cultural influences in contemporary mass-produced consumer products aimed at a global mass market. It is often assumed that designers are adept at drawing from a wide range of cultural influences for generating differences leading to novelty and innovation when conceiving new designs. However developments in a range of areas from design education to 3d software and digital printing tools alongside the global strategies of major mass manufacturers has drawn this into question with the production of increasingly ubiquitous physical products.

Methods The discussion contrasts a number of diverse experiences from the author's design and research practice working with highly skilled craftspeople in endangered practices through to global mass consumer products to assemble a picture of how industrial designers in the 21st century deal with cultural influences in their work.

Results It questions the value of incorporating specific cultural influences in mass produced global products and asks whether we should continue the practice of earlier generations of designers in using our skills to enrich the lives of users and enhance product values by introducing expressive cultural influences.

Conclusions This develops the arguments of transnational design activity in relation to the homogenizing and heterogeneous globalising polarities produced through industrial design activity and ultimately suggests a re-appraisal of how anthropocentric values are communicated in mass produced products.

Keywords

Creative Destruction, Cultural Transfer, Industrial Design, Design Thinking, Ubiquitous design

Introduction

Industrial design has over a century of activity and continues to develop and expand at pace, spinning off new sub-disciplines that quickly form concrete fields in their own right ranging from interaction design to experience design, service design and the emerging social design. At the beginning of this century of activity we were able to make a good guess at where things were made by the way that they captured local or national cultural values in aesthetic choices and functions of manufactured products. However over time we have seen the increasing development of an overwhelming homogenisation of visual language most apparent in the mass-produced products made in higher volumes including cars, mobile phones, computers and even dishwashers, vacuum cleaners and watches. Experiences ranging from judging global design competitions, commercial research projects and working with a diverse range of universities has illustrated this development across a number of areas. In terms of scale this discussion takes a global view of the homogenisation of products asking a series of questions about the benefit or otherwise of including cultural influences in contemporary products and the value to end users and producers. It asks a critical question; What is the future for industrial design in its capacity to share and shape the development of culture in artefacts and are we creatively destroying or supporting diversity and identity in our current practices?

In order to introduce a deeper background sections two and three will contrast the cultural inclusions in craft production verses globally ubiquitous products while section four will consider the drivers that lead to future homogenisation and heterogenisation followed by the conclusion which speculates on strategies that might redress the balance for creating more meaningful anthropocentric products.

Craft Production

For millennia humans have represented themselves and their beliefs through making artefacts with cultural and psychological values through representations of the human figure going back at least 35,000 years to the Venus from Hohle Fels cave in Germany (Fig. 1). Since this era making practices have increased in specialisation in relation to cultural beliefs and availability of local materials and resources and methods of form creation reflecting specific identities. My own research interest has revolved around how designers gather influences from other cultures in order to fuse them

with their own ideas. In particular my doctoral research (Hall, 2013) looked at how inspirational differences can become 'liberated' from socio-cultural spaces (Hall, 2011) and migrate to new locations through design collaborations. Part of the motivation for this research was to explore if these exchanges could be visualised and connected to ideas of cultural flows at the global scale in order to develop more equitable exchanges between designers and craftspeople.

Fig 1. Hohle Fels Venus

One of the design experiments involved bringing design sketches from Cairn Young, a London based industrial designer to a copper bellmaker on the edge of the Rann of Katchch salt desert in India to ask if he could interpret the designs through his making process. Each stage of the process was mapped onto a series of suffixscapes, a theoretical framework from global cultural anthropology that aims to illustrate the disjunctions in cultural material flows. Activities were mapped onto landscapes of finance, technology, media, ideas and ethnicity. The result (Fig. 2) fused inspirations derived from a UK designer's CAD concept for an industrially mass produced copper lamp with a craft practice developed for hand making copper bells for the cattle who roam the desert close to Nirona where the bellmaker was based. In terms of its aesthetics the design uses inspirations from both cultures yet overall refuses to sit comfortably in either location. The lamp embodies a series of disjunctions that are the direct result of the divergent cultures and making practices of the collaborators.

Fig. 2 Nirona Lamp. Design Cairn Young,
made by Umar Husen, research design Ashley Hall

The outcome of this project combined with four others showed how
designers can make and share information across cultures and that the
making activity itself is supported across locations and has influences
extending in both directions that cross over or 'translocate' the making
process. One of the key pieces of research was the mapping of the five
projects onto Appadurai's (1990) suffixscapes (Fig.3) in order to connect
local exchanges of cultural knowledge through object making to influences
at the global scale. Suffixscapes is a concept from global cultural
anthropology developed by Arjun Appadurai's as a framework to discuss
global cultural flows and in particular as way to describe the distortions
that occur through the politics of exchange between different actors. The
framework proposes a series of overlapping and interoperable landscapes
of influence including technoscapes, mediascapes, finacespaes, Ideoscapes
and ethnoscapes. Not only did the mapping show that many stages of the
collaborations occurred on specific suffixscapes, for example initial
communications on the technoscape, but that the international impacts on
the artefacts produced took place on the transnational level affecting the
ethnoscape of the collaborators. A further piece of research (Hall,
forthcoming 2016) extends the analysis to directly connect specific
collaborative mediums and cultural exchanges that produced changes to
the physical features. This was mapped by using actor network theory
(Latour, 2005) in combination with Appadurai's concept of suffixscapes.
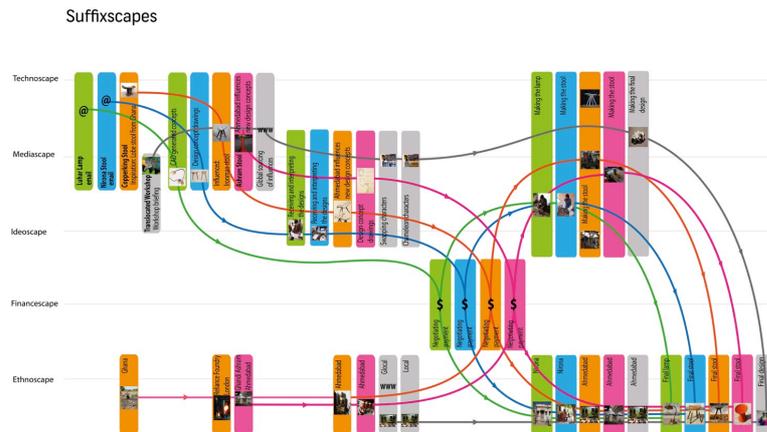
Fig. 3 Five translocated projects mapped onto suffixscapes

Due to a range of socio-economic pressures there are many endangered craft practices around the world ranging from the double Ecutt weaving of Patan (Hall, 2013) through to Sea Silk weaving in Sicily (BBC, 2015) but the aim here is not to suggest that these activities could be revived or directly supported by mass production but to show that cultural influences can travel in unexpected ways and make new types of different object. In order for our creative ecosystem to thrive on a global scale it needs to continue generating diversity. Researching in collaborative practice based design projects can help us understand how influence moves across socio-spatial borders via designer collaborations to exchange cultural insights and apply these methods to other scenarios or larger manufacturing scales.

In terms of the global exchange of goods, the bespoke localised production of products was surpassed long ago by the mass production of industrialised products. The Dutch East-India Company alone imported 43 million pieces of porcelain from the beginning of the seventeenth to the end of the 18th century (Berg, 2004). The impact of such mass importation was one of factors that resulted in import substitution, a form of local competition that aped the materials and aesthetics of imported products but also introduced local functions. This in itself is a form of cultural transfer and became one of the drivers for the British consumer products boom. The huge expansion of import and exportation of large numbers of different types of goods (Berg, 2005) across national and continental boundaries generated a boom in cultural influences and developed new product functions and creative inspirations that affected a wide range of produce from textiles and porcelain to furniture and architecture.

Global Ubiquity

However towards the end of the 20th century we began moving away from producing products as an industrialised national cultural export. Whether this is due to the continuation of cultural influences to such an extreme that global ubiquities have become the result of over-exposure or whether this is due to the modernising forces of industrial production and international marketing strategies is unclear.

Historical examples record designers that have used cultural influence to inspire their mass production work including the Eames's with their studio collection of cultural objects sourced on their travels, Ettore Sottsass's India visits influencing the Memphis design movement and Achille Castiglioni's tool collections of hammers, stamps and sickles. These are all examples of mass production designers using cultural influences as part of their design methods and studio practice. Although this practice continues today in some design studios the general trend is shifting towards ubiquity and reducing cultural expressions of origin. An example of this can be see through Apple computers evolution of their logo design from 1976 to the present (Fig.4) which has evolved away from its Californian west coast counterculture identity towards a much more neutral ubiquitous design as the company has globalised its production and sought to deliver products that are identifiable for the largest possible part of the world's population by reducing local limitations.
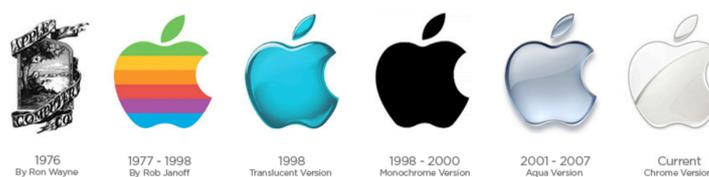

Fig 4. Evolution of the Apple computers logo from 1976 to present.

The changes however are also evident in Apple's product line-up when the six generations of iPhone are compared (Fig 5) and the tactile softer more human scale of organic curves of the first models from June 2007 designed for touching are slowly reduced to a flat black box with minimal edge details designed for looking at as the only differentiation point in 2015. Innella *et al* (2011) studied how industrial design students perceived the difference between physical and photographic media influneces as inspirations in design projects and found a distinct separation between the functional inspiration of physical contact verses the aspirational form appreciation gained from photographs. Launches of new mobile phones

are often accompanied by large numbers of customer pre-orders, often running into millions of units. A conjecture point here is to consider whether design practices have shifted to prefference visually consumable designs received via media platforms over more traditional 'try before you buy' consumption habits. Is design for mass produced ubiquitous products shifting to a visual consumption model where customers first touch point for a new products is received via a website or metro station billboard?

ig 5. Apple phone generations 2007-2015 (Image courtesy iMore)

We can also see this tendency in the automotive industry over a longer period of time when comparing the best selling cars in the UK, USA, France and China between 1970's and 2014 (Fig. 6). iPhones have evolved along similar lines to other brands in the category by developing the shiny black tablet format for smartphones (Savov, 2015), while automotive brands meanwhile have largely lost their national characteristics as the last vestige of links to a geo-located making culture and are now much harder to distinguish from each other. The Lincoln continental's long distance cruising heritage alongside the 2CV's capacity to drive across a ploughed field have been sacrificed for a globalised product ubiquity. Being acceptable to the widest possible global market has superceeded national design characteristics

Fig 6. Best selling cars 1970's to 2014 USA, Japan, UK, France

As corporations have globalised new drivers have emerged that have changed the way that designers deploy aesthetic and cultural inspirations. Whilst it would be easy to label these new designs as culture–free products the reality is that the type of culture represented has shifted from national to global corporation.

A number of the more significant influencing factors that have driven this change are described below.

Industrial production technologies – Manufacturing processes are highly cost engineered from cutting to injection moulding using straight lines and minimal details are generally the most efficient. Isotropic material that can be cut in any direction and that have uniform strength in all directions are preferred to natural materials like wood or leather which involve hand crafting or more wastage.

Specific product function requirements – Complex technical products need to be housed in cases, often resulting in ones that minimally cover the functional parts inside. Circuit boards and touchscreens are one of the major limits to the form factors of complex technical products and result in the inevitable flat tablet.

Marketing strategies – Marketing strategies and risk avoidance prefer new products that are competitive with those that already exist rather than buck the general trend for a new direction. Strong cultural motifs and identifiers may be good for encouraging a local market but alienate global consumers.

Business drivers – Quarterly profit statements encourage iteration and reduce the motivation to experiment and develop longer-term product visions that diverge from those that already dominate the market (Savov, 2015).

It is interesting to consider the size and life exposure of global corporations to their staff verses the historical multi-generational craft making cultures and suggest that the former may be drawing on less and that a 'natural making culture' has been supplanted a for one devised according to abstracted branding codes and identity designs. Therefore it is no surprise that this shift from a geo-located social culture to a global corporate cultural model has a differnet focus. It would be a mistake though to see this as being an inferior development for expressing cultural values and even if it were it is currently the dominant prevailing model.

We can see how globalisation has produced a number of scaling issues that corporations have responded to by developing multi-national operations. This has made the reflection of a particular local or national making culture through product design a difficult task for global marketing and even more difficult when a product is made and assembled with parts from many countries. It is a risk that having a strong making culture reflected in a company's products can reduce interest from consumers who may have issues with political or other prejudices they associate with the activity of a nation. At the same time a parallel development has seen cultural influence shift from hardware to software via localised apps and operating systems that bring in behavioural and image based affirmations of local and national identity in a more customised form. Wenjin Yao in her PhD (Yao, 2014) Approaching Chineseness quickly moved from classic visual language and artefact related enquiries to the experiential and behavioural through collaborative design projects with Microsoft, Alibaba and Nokia. She investigated Chineseness as a cultural influence through the experiential medium of software-service offerings rather than physical products features. While strong external visual forms can limit local acceptance relevant software can be downloaded, customised and used locally. Inevitably this has led to the physical form being supplanted by sophisticated software experientialism as the vehicle to connect users to reassuring relevant local content. The sacrifice of culturally expressive external forms has in effect globally democratised the purchase of sophisticated technical products like smartphones and automobiles and

inserted locally relevant experiences via software. A secondary aspect that is less discussed is that ubiquitous products escape cultural signs of domination and imperialism and restore local relevance.

Industrial design as a discipline is largely founded on form-function generation and the different expressions of individual designers through their work, ubiquitous design does indicate a significant shift. One of the discussions that continue to be heard in design circles is that we are providing less for more. Larger numbers of products that physically have less to differentiate themselves and provide less tangible and tactile engagement for consumers. Is this the future of industrial design for mass production, when the demands of global markets mean we serve more people by providing less discernible differences and stimulation, that physical artefacts are now hollow vehicles for locally relevant software?

Globalisation is often assumed as an inevitable process with a fixed outcome providing more generic products for the world's populations however the reality is more complex as localising and globalising factors interplay in a continuous cycle. Barber in McWorld vs. Jihad (2003) polarises this argument in terms of failed states and successful westernised democratic economies in a homogenising process for both the winners and losers. Conversely Cowen (2002) describes creative destruction as the process that allows successful cultures to adapt by absorbing external influences, which are either rejected as inappropriate or accepted and hybridised in order to develop the culture. Destroying the old as it is making the new. One of the most important agents in contemporary practices of creative destruction is the designer. In order for creative destruction to continue delivering the requisite variety of new influences designers need to keep generating diversity through both the physical and software combinations for mass consumed products. To do otherwise will surely contribute to the homogenisation of designs and retard our ability to evolve cultures resulting in stagnation. In a sense transnationalism (Fiss, 2009) – the idea that nations of people are no longer confined to geographic spaces, but have been liberated through communication technologies to spread across multiple parts of the planet yet retain their cultural belonging – is at the same time supporting diversity and encouraging homogeneity. When we share ideas with others we risk normalising a solution or creating a lowest common denominator. At the same time sharing cultural inspirations can provide step-changes in how people live and relate to the products around them. What separates these

outcomes are the methods that designers use, their motivations and sensitivities to how cultural inspirations can be a source of innovation or conflated into an averaging process. Designers are loosing out by not leveraging one of their key attributes and part of the classic skill set of the accomplished designer that can enrich the product engagement quality for consumers and increase identification with products in a way that will encourage longer-term attachment.

The evolutions discussed so far can be summarised as a set of developmental phases:

> - The historical practice of embedding culture in crafted artefacts by individual artisans and small groups.
> - Industrialisation and mass production leading to national design identities.
> - Product brand identities for globalised corporations liberated from socio cultural spaces and developing differentiated global brand values for mass consumption.

It is important therefore to look ahead at what factors may influence the development of cultural expressions in industrial design product aesthetics. It would be naïve to suggest a partnering with local craftsmen or a return to national design models. Future developments need to take into account identity design for global entities and build on cultural expressions that come from a genuine source that resonates with the consumer. The future need is for a new generation of cultural expressions combined with company values and globalised cultural expression to create a genuine meaningful value in products that regain the lost potential of tactile physical identity and encourage diversity for identification.

Future Factors

A number of factors are emerging as positive and negative drivers for evolving a new approach to embodying meaning in mass-produced products yet it would be simplistic to list them in term of homogenising and heterogenising forces. Many of these depend on the motivations of who is assessing the outcome and the scope for long-term impact projection. For example as explored in the conversation above there are both positive democratising and negative impacts for ubiquitous products and the line between either will vary between people, cultures and commercial pressures. In contract strong differentiation can create resistance through

unwanted or badly fitting cultural impositions or can result in healthy differentiation and advances in cultural practices.

The training of designers is a key stage in influencing creating outlooks, design methods and studio practices. Over the past decade cross-cultural educational collaborations have become a desirable experience for training designers to cope with the demands of global design practice. My own experience has been through the Royal College of Art/Imperial College Innovation Design Engineering masters GoGlobal project (Barker & Hall, 2009; Hall *et al*, 2012) which since 2006 has visited China, Thailand, Japan, Ghana, India, South Korea (Tek-Jin & Hall, 2013), Australia, Israel-Palestine (https://vimeo.com/120090712) and Russia to introduce design collaborations between different cultures to see how they could learn about each others approach to design and create design innovations proposals that could only be the result of a partnership. The project themes often tackled craft and making cultures (India, Thailand, Ghana, Israel-Palestine but also more diverse subjects like social city interactions (Seoul, Korea), the future of food (Japan), sports innovation (Australia) and recycling (Russia).   The natural assumption with collaborative projects is to explore the spaces between cultures but dangers lie in too much assimilation and homogenisation without consideration of the longer-term developments and the same applies to differentiation.

Another homogenising feature of our educational landscape is the teaching of form generation and how this has been shared and disseminated widely through design conferences, academic exchanges and publications. A recent experience judging a design competition having over 1,200 design works from 17 countries showed that although there were many high quality designs it was very difficult to discern the country of origin for the vast majority of the entries. One has to ask why we are normalising visual language and what is preventing design educators from encouraging national identity and cultural expression in design? Is it the fear of a parochial nationalism or limiting the career opportunities of our graduates by reflecting local rather than global values? Or is it something more prosaic relating to the mechanisation of having to teach form generation to increasing numbers of design students? It is clear that design training is the main route of encouraging the diversity of expression in artefacts and that we may need to radically revisit our ideas of preparing students for design on the global stage.

Innella *et al* (2011) as discussed earlier noticed the prevalaence for mediascapes providing the form inspirations for designers who may never have encountered the products they are drawing influences from in real life. Not only does a danger lie in the misunderstanding or unintended (though possibly useful for creative destruction) difference between remote and real product experiences but this trend drives the tendancy in trainee designers to 'design for seeing' rather than 'design for experience'. In effect the final tendancy moves towards a monosensorial design approach where products are designed to be visually consumed through media platforms.

With one foot firmly in the 3rd industrial revolution the future of making offers new opportunities through 3d printing technologies to localise the design and production of sophisticated artefacts through the increasing network of makerspaces and hackspaces houses in local communities and institutions. Alongside offering the benefits of localisation the technology also has the capacity to be highly disruptive on several fronts ranging from design control to IP Issues, challenging global industries, safety and product branding. The issues that are central to this discussion revolve around effects that liberate the consumer relationship alongside the configuration of the technology and its interface. Localised or re-distributed manufacturing promises an opportunity to regain the localisation of production and retain a cultural making environment that traditional centralised production process are unable to offer. For example at the moment we can all buy the same gardening tools in our local superstore irrespective of whether our gardens are in the sub-arctic north, tropical regions or arid areas and whether they are flat or in sloping hilly terrain. Useful local tuning has been lost to low cost globalised production providing an optimised or averaged pair of garden shears, spade for digging or trowel. Conversely the majority of 3d printing machines on the market use 'globalised' materials and cannot be used with locally sourced variants due to the specific requirements of the technology. In addition 3d printing largely precludes thinking and experimenting through making as the human hand is not part of the production process and so all the little mistakes and experiment that a craftsmen would encounter are excluded from the process. An aggravating features in the educational world is a tendancy of thinking to make rather than thinking through making, as 3d printing systems due to high cost and other factors are tending to become final delivery systems rather than encouraging an iterative creative process.

A similar risk-opportunity lies in computer aided design software where

currently less than half a dozen applications dominate the marketplace. On the one hand the industrial value from interoperability and reduced training are great benefits and on the other hand the reduction of choice and differentiation from limited toolsets reduce diversity and encourage ubiquity. Even though haptic and alternative input devices exist their impact on form for design is very limited.

The final ubiquitising trend emerges from the availability of differentiating influences. Pre—internet most designers gathered their influences from local sources or travelling overseas. Books and trade fairs disseminated ideas quite slowly whereas the internet suddenly brought about the instant availability of almost any image source a designer could imagine. We would expect this to vastly proliferate the variety of design on offer. Surely increased variety offers more combinations as influencing differences are much easier to source. However looking back one might agree that the reverse took place and than instead of increasing the differentiation it increased the normalisation of design. The communication capacity of the Internet may well have swamped our opportunity for difference and opened up a world instead where we could all see the same online design magazines, blogs and websites. The effect increased our ubiquity rather than increased the differences.

In terms of aesthetics and creeping ubiquity, the future of industrial design will be developed through how we chose to educate our students in relation to the globalised world, the disruptive opportunity of new digital making and computer modelling system and how we access creative influences and differences in design practice.

Synthesis and Future
To conclude the discussion it's worth revisiting a few assumptions. Is it arrogant to assume that ubiquitous global products are inferior having rejected affordances that express the culture in which the product was made? And is it acceptable to embrace this point of view when we are free to fill our homes with a balanced variety of locally sources products? The competitive business environment of supplying highly invested products ranging from digital products to automobiles may well dictate a ubiquitous rationale but it would be disappointing to say the least if designers were not able to leverage one of their core skills to add a richer tactile physical experience back into these product categories in the future. The answer lies somewhere between imaging a new type of cultural making space freed

from traditional geographical limitations and branded corporate identities.

One opportunity lies in the experiential software–hardware ecology and to extend the relationship to cultural value more fluidly between physical form and human experience. When reviewing Apple's product ranges it appears the last time a cultural–geographic indicator of performance was on the original iMac's Bondi blue rear casing. The link to surfing and counterculture was subtle yet there. Recent evidence of this has re–emerged in the operating system and desktop images (Fig. 7). OSX Mavericks used an image of a wave from the world famous Mavericks beach where some of the biggest surfing breaks in the world occur. Only those in the know would realise the subtle link between place and performance. This was repeated in OSX El Capitan with an image of the 2,300m Yosemite rock face with its world famous rock climbs 'sea of dreams', 'new dawn' and 'born under a bad sign'. Again subtle indicators of world–class performance linked to American sporting culture in the same part of the country as Apple headquarters.

Fig 7. OSX Desktops Mavericks and El Capitan showing subtle geographical performance links to US culture

Successful though these are, a closer integration that steps over the

hardware to product experience gap seems the next opportunity in delivering meaningful cultural identities that consumers can relate to.

The concept of translocated making shows that we can effectively liberate differences from geography and we can also create new types of objects with cultural reference points that can work across geographic spaces. Translocation could be an approach that enables the generation of authentic cultural values derived through collaborations to function at the transnational level and provide an alternative strategy to the minimalist ubiquity of current design offerings.

The immediate challenge remains in finding methods to understand when to design creative destruction resulting in homogenized ubiquitous products and when to push for differentiation through deliberate cultural imprints.

Ultimately the design field may need to reappraise its position in terms of influence, culture and visual language for mass produced products and whether distilling brand identity into three dimensional forms will remain the dominant strategy for the foreseeable future. More broadly we may need to conside whether we can manoeuvre into positions which allow us to gain some foresight of whether our design methods will lead to increasing ubiquity or difference in the design of future consumer products.

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