Translocated making in experimental collaborative design projects

Ashley Hall PhD Thesis 2013

CERTIFICATE OF ORIGINAL AUTHORSHIP

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text. I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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Date: April 21st 2013

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Cover: Nirona stool, research design Ashley Hall, Industrial design Matthew Kavanagh, legs made by Bhavik Bhavchaya, of Nirona and seat by Yunas Bhai of Bhuj, Rann of Katchchh, Gujarat, India, 2012.

For Clarence Hall 1936–2008

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Abstract

This thesis examines the activity of designing and making across geographical distances. Through critical reflection on the author's own design practice, and the initiation of new collaborative design projects, the thesis develops and tests the concept of translocated making. Translocated making is explored as a form of production where activity, influence, media and understanding are shared across multiple locations, both physically and virtually.

The author's own design practice is situated and analysed in the context of how the manufacturing possibilities of mature western markets have developed since the 1990s. With the rise of digital technologies, greater degrees of interaction and collaboration between designer and manufacturer have been enabled; however, it is found that the effects of geographical and cultural distance on designing and making have not been systematically researched, nor understood from the perspective of the designer as creative agent.

Drawing on theories of cultural interaction, and in particular Appadurai's theory of suffixscapes, the thesis sets out a framework for experimenting with and analysing the effects of cultural and geographical difference on designing and making. Collaboration across distance is established as a key mode of designing and making, bringing to light the effects of difference in design outcomes. Gujarat in India is the location for a series of design projects in urban and remote locations. These are investigated through designing research and researching through design methods.

New knowledge is articulated through the way in which the design projects allow for the testing and reflection upon theories of cultural interaction. The experimental design methods employed in the projects show how exchanging differences through collaboration in digital and analogue media can create new artefacts with hybrid cultural values.

The value of this research for designers and makers in advanced and developing economies is through helping them to understand the possibilities of collaboration across geographical distance. For academics and researchers the value lies in critiquing and further developing practice-based design research methods, and in exploring the longer-term strategic, creative and cultural changes that globalisation and digital technologies are bringing to all forms of design and manufacture.

Introduction

A globalisation of cultural creativity is in full flow with the potential for significant and fundamental changes in the ways that we create and influence one another. Cultures from around the world have exchanged artefacts for millennia through a series of activities ranging from trading and gift giving to exhibiting and the spoils of warfare in a process that slowly influences how we make objects, the functions, roles and significance we assign to them and how we interact with them in our daily lives. The rapid emergence and penetration of digital technologies has accelerated this process and is connecting hitherto remote communities of makers with the potential of even wider and more rapid exchange. Vulnerable and privileged groups are now able to communicate with a speed and efficiency previously unheard of.

Designers are curious and adventurous by nature and have led the way in how collaborations across diverse locations can be negotiated in ways that take advantage of cultural differences for exchanging knowledge in how we can make new things. However, the mechanisms through which this occurs and its place in the cultural landscape are still not fully understood. The way we recognise cultural artefacts based on knowledge and differences from our own positions becomes part of this research. In turn, the research seeks to uncover new insights that aim to be useful for designers and makers, researchers and institutions to help understand the processes that take place and how equitable exchanges can be negotiated in the future as new communication platforms emerge.

1

Objects to Networks

This research project explores practices of designing and making in distinct contexts and tests influences on those processes from different geographical locations. The question 'How does translocated making manifest itself through design activity, and how can it be related to a theoretical field of knowledge?' will be explored by the researcher who will be situated both internally and external in a number of collaborative design projects involving craftsmen and designers in India. The aim is to make a contribution in how design can be understood and practiced across physical locations through various forms of exchange and tested through a number of theoretical cultural transfer frameworks. The research begins with a series of case studies capturing the tacit knowledge of the researcher and builds towards a series of questions and observations around practices in commercial design and academic scenarios where cultural knowledge from external locations is exchanged. Reflecting on one's own work enables the formalisation of tacit knowledge with the recognition that an important part of the thesis is explored through acting as a designer in a network of influence.

By reflecting on the last eighteen years as an industrial designer, the aim is to capture particular aspects of the ways in which design and production have been organized in the context of mature Western markets. Key features include: the short lifespan of products, resistance to conceptual and material innovations and incremental development in mass production processes. Another aim is to capture experiences from more recent academic collaborations over the last six years and explore the way that working across distance and cultures has led to a questioning of these accepted limitations, and the potential for different ways of engaging with designing and making. This chapter will formalize the experience in a number of case studies as a way toward framing a new set of collaborative design projects undertaken in the latter part of the thesis. The conclusion draws together the various strands of thinking to focus on how the key issues identified can be articulated against other fields of knowledge.

Archer (2004) argues that designers need to solve a problem in a short time frame with a limited budget while design researchers have to be able and willing to disprove everything. This comparison illustrates a realisation that designers generate narratives in order to structure creativity and deliver a successful result. In doing so they exclude information that disagrees with the storyline. This is a successful strategy when designing, but potentially problematic when conducting research. Therefore an approach that aims at challenging the natural tendencies to 'produce a good result' is required in this study.

Through a globalised design practice working with remote clients in mainland Europe and further afield, and in conjunction with developing collaborative cross-cultural education projects between designers in Thailand, China, Japan, Ghana and India, a tentative idea began to form that the collaborative process between designers and makers was evolving. The established linear model of designing objects in one place for production elsewhere was being replaced by a complex state of multiple connections in different geographical locations supported through design materials held concurrently on analogue and digital media. In other words the realisation began to take hold that we were moving from a focus on objects to an engagements with networks. The emergence of fast digital parallel communications and media formats appeared to be not only changing the reality of designing, but the conceptual model of design collaboration. The following case studies from the authors design practice and academic experience begin to draw out a number of important issues and questions around the idea of moving from objects to networks.

1.1 Diplomat

The researchers activity in design practice was based on skills and methods learnt during design education and are described here at the outset to inform the trajectory of development. The RSJ Bench project at the Royal College of Art describes in detail the level of form handling skills of the researcher upon graduation and how the focus of design activity was based purely on concerns for the artefact being produced. It was an important project in the evolution of a line of thinking that began after visiting the deconstructivists architecture exhibition at the museum of modern art in New York in the summer of 1988 (Johnson & Wigley, 1988). The dissertation that followed on Peter Eisenman and Deconstructivist architecture (Hall, 1990) sought to translate architectural theatre into the domain of furniture design, following the great creative tradition of the 20th century whereby architects tested ideas in small-scale furniture experiments. Proponents of this approach included Le Corbusier, Mies Van der Rohe, Frank Lloyd Wright, Alvar Aalto, Vico Magistretti and more recently the tradition has continued with Frank Gehry, Zaha Hadid and Norman Foster to name but a few.

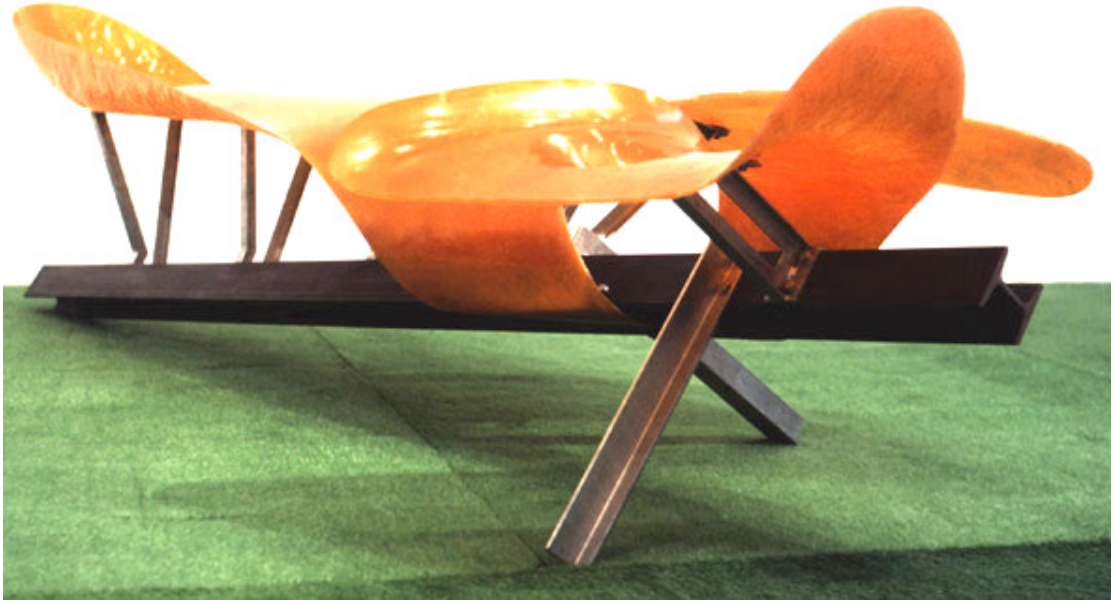


Figure 1.01 RSJ Bench, RCA degree show 1992

The RSJ project (Fig. 1.01) developed an approach initiated in undergraduate work that sought to use the geometric principles of deconstructivists architecture to radically challenge the composition of structures. The ultimate aim was to liberate new forms and elicit new functional relationships in furniture designs that sought to break free from traditional Cartesian forms of interior architectural relationships. Most furniture designs obey a composition where they respect the planar surfaces of the floor and wall. The objective in using this new design approach was to break free from these limitations. The aesthetics juxtaposed combinations of linear and organic languages for the seating and frame elements. Traditional furniture designs tend to be composed of either organic of linear languages and to combine them in such an overt fashion was at that time quite unusual. The materials selected expressed the contrasts between an old heavy industrial, essentially non-consumer materials (rolled steel joists and 'T' sections) and a modern composite material (an amber translucent glass reinforced polymer) that partially exposed the hand made layup process and polymer 'crafted' construction. The relationship of the organic and linear sub-assemblies defied conventional notions of composition and challenged functional logic by using such a lightweight and heavy material in combination. Not all of the elements were antagonistic as the translucent amber GRP gave the impression of floating above the uncompromising steel base, providing a sense of protecting the human form from the structure underneath. The unconventional structural arrangement liberated new seating possibilities that allowed users to sit facing each other,

lying down, one leg up and straddling the bench in various positions, while the tripod base was an unusual exploration of the bench typology.

Figure 1.02 illustrates through a series of scale models and prototypes the evolution of thinking that took place in developing the organic verses linear language, and the impure arrangement of forms that resulted.

Figure 1.02 RSJ Bench, evolution of models and prototypes, 1992

At the same time a second project was being developed that evolved a clearer narrative history for questioning the conventional relationship between furniture forms and interior architectural relationships for the design of a small cabinet. It is included here as a detailed illustration of the geometric processes that were used to generate and manipulate forms. The process begins by assembling a series of three rectangular elements that rotate in relation to each other (Fig. 1.03). Small cubes are added at intervals and a grid plane is added to the top level. The final phase adds a framework around the forms and is rotated to act as the element that breaks the conventional relationship to walled surfaces by creating a perimeter that has no front, sides or flat face.

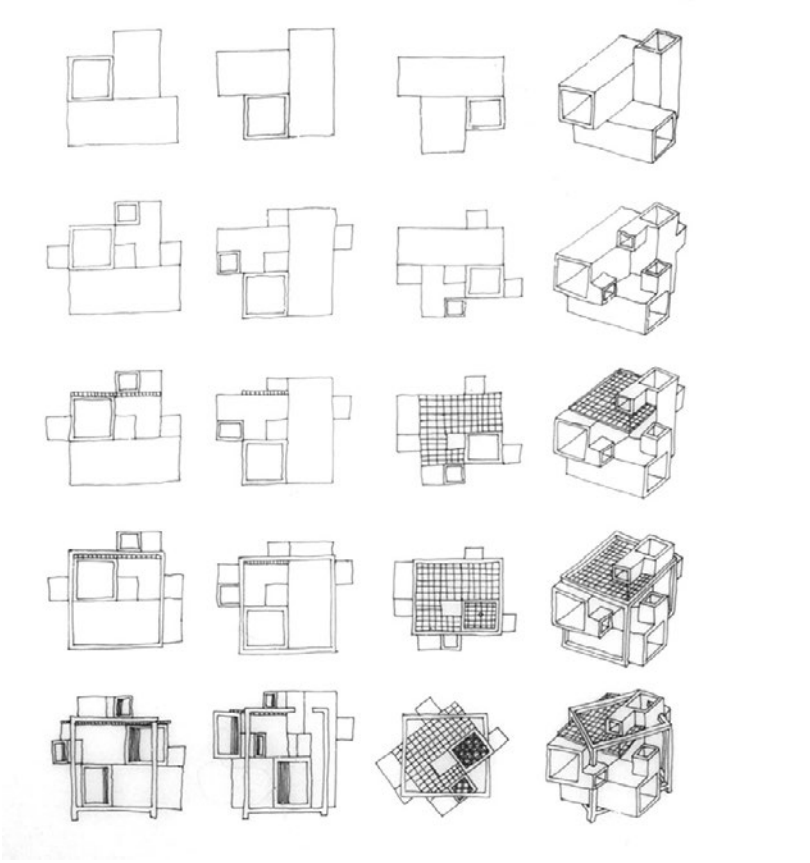


Figure 1.03 Compact cabinet narrative diagram illustrating form evolutions, 1992

The approach had many elements that encouraged a non-linear creative process and advanced form generation skills that were ideal for a career in both mass-production and developing experimental designs. Although the geometric elements were used in a less overt and experimental manner, the mental possibility of recombination and contrasts has remained as a thread running through the creative process, if not in the visual language of the end results.

The RSJ Bench and Cabinet projects describe the level of form handling and production control that was a central part of the researcher's design methods. These skills were refined to even greater levels with commercial exposure in Diplomat's design practice and describe the initiation point for the transformation of design methods described through the following research. They relate how an experimental object-centred process focussed on the 'total control' of the generation and execution of designs and how it evolved to engage with networks of influence in new locations.

Diplomat design (www.diplomatdesign.com) was established in 2000 and is the researcher's design partnership with Matthew Kavanagh. Together they have developed

two different design and production routes to build commercial success and experimental design capacity. The two markets are mass produced chairs for domestic and contract markets, and experimental limited edition chairs designed and produced in small volumes by Diplomat. The More chair by Origlia (Fig. 1.04) is an example of a mass produced chair selling in the 10,000's of units, while experimental hand made designs are made to order and represented by the Zilla, Moby and Zuki chairs (Fig. 1.05).

Figure 1.04 Mass-produced chairs designed by Diplomat, the More chair is centre top row

Figure 1.05 Experimental chairs designed and hand made by Diplomat. From the left Zilla, Moby and Zuki

The two approaches are served by methods that share common design tools (sketching, form generation, ergonomics, CAD, prototyping, technical drawings, material handling and manufacturing) but different creative agendas and drivers, while generating mutually beneficial outcomes. The experimental pieces act as test beds for new materials, forms and functions and generate publicity for Diplomat, whilst the mass-produced designs

demonstrated the consumer marketability, client investment and consumer acceptance. The results however appeal to very different mature western markets with mass produced pieces selling through agents to volume business purchasers and the experimental pieces to individuals and design collectors.

In this context, a key trait in the creative process has been thinking through making and using the production of components and structures as a reflective practice that keeps open the option for change, experimentation and alteration for as long as possible. This approach has been discussed by Sennett (2008) as an equal, if neglected form of thinking to be considered in parallel amongst other forms including writing, debate, drawing, performing and calculation. In parallel a choice has always been made to vary the combination of methods and media in design projects as the needs required, and to continually vary the output and diversify visual language. In practice this could mean initiating a project full-size in the final materials, then shifting to hand drawings, CAD and back again to full size. Another variation involves starting with sketches, then a scale model and prototype, or starting from CAD then moving to a prototype, pausing to make a scale model then returning to CAD and the prototype to continue development. A common starting point was to 'cold brainstorm' by generating ideas in a pre-research phase in order to encourage naivety and avoid the pre-conditioning that tends to be imposed by the commercial context. This was followed by a phase of researching materials and production processes then a 'hot brainstorming' with a final phase that compared, contrasted and combined the cold and hot brainstormed ideas to fuse originality with commercial promise. In this way the creative process becomes more non-linear, reflective, adaptive and experimental in its nature. This passage describes a focus on the object and the designer's internal personal agenda of offering designs for mass consumption. It can be seen in retrospect as a classic industrial design model of 'us' to 'them' (us meaning designers and them consumers). Emergent Translocation describes how exposure to increased international networks begins to shift and evolve design practices when digital tools are introduced.

1.2 Emergent Translocation

The researcher's initial experience of developing communications with remote manufacturers began around 1995 with Italian factories working on furniture and domestic consumer product designs. The cost of travel and frequency of communication

and manufacturing data meant that faxes were the main form of information exchange. Quite often the client was visited only once and sometimes this took place after the products were launched to the public. A few years later around 1998-9, manufacturers with a global client base quickly adopted email and Internet connections radically changing the speed, quality and density of information exchanged. A number of interesting developments happened during the period that affected what could be described as the emergence of a remote practice. The Diplomat design partnership was formed in 2000 and quickly developed a range of international clients who were all outside the UK, a common situation at the time for many designers. It therefore became essential to master early Internet media for successful communications. The main advantage of using digital media was primarily driven by needing to improve remote communications for business and manufacturing efficiencies. The majority of exchanges focussed on conveying technical design information, negotiating contracts, arranging visits and reducing inconsistency rather than considering the communications themselves as potential creative opportunities. Although some cultural influences were inevitably able to flow along these lines it was not the focus of the design process.

In retrospect it could be observed through Diplomat's design activity that a decentralised network of making emerged that began to exchange information physically, conceptually and culturally by generating a continuous flow of data along an expanding international network. An interesting observation occurs when considering the use of CAD files. Details and components were rapidly cut and pasted, exported and shared between designers, clients and sub-contractors. Portability encouraged this activity and the ownership and origin of some elements became fuzzy and difficult to trace. Moreover in an extended set of exchanges and swapping, inherited 3D computer files could be understood as a pool of constantly shared digital three-dimensional objects that became an evolutionary ecology in its own right, mutating, changing and evolving.

The Milan furniture fair is still one of the world's most influential design fairs with over 194,000 foreign operators attending in 2012 (Volpe, 2013). Pre-internet, this was one of the most important ways to gather information on new design thinking, materials, manufacturing methods and visual language. Designers would return with suitcases full of magazines and brochures that contained an essential body of influences and design research for the next year's creative work. Following the mass adoption of the Internet, far more information was instantly available and although this enabled an almost universal

access to influences and inspirations for those that owned the technology, another force came into play. Conversations at Diplomat revolved around noticing a certain homogeneity in new designs (described in-house as 'Eurodesign' referring to a transnational design language without an obvious cultural root) and speculated that the mass consumption of Internet based images and the use of CAD with its limited set of form generating tools may have been the cause. Previous generations had worked more remotely with slower transfer of less information and the idea emerged that overexposure to the Internet was having a tendency to reduce the individuality of some designers outputs.

The Palm chair designed in 2006 (Fig. 1.08 and Fig. 1.09) was manufactured and launched by Arrmet srl. This is an example that describes the emergence of the physical and conceptual disconnection of making from place. The series of images in Fig. 1.06 illustrate the main stages of developing the design from the initial freehand concept sketch emailed to the client, 1:5 scale hand carved model posted to the client, 2D CAD drawings emailed to the client for dimensional control, 3d cloud data model produced by laser scanning the 1:5 scale model, the full-size CNC (computer numerated cutting – 3d machined from a solid block) in foam of the seat form, and finally the finished chair.

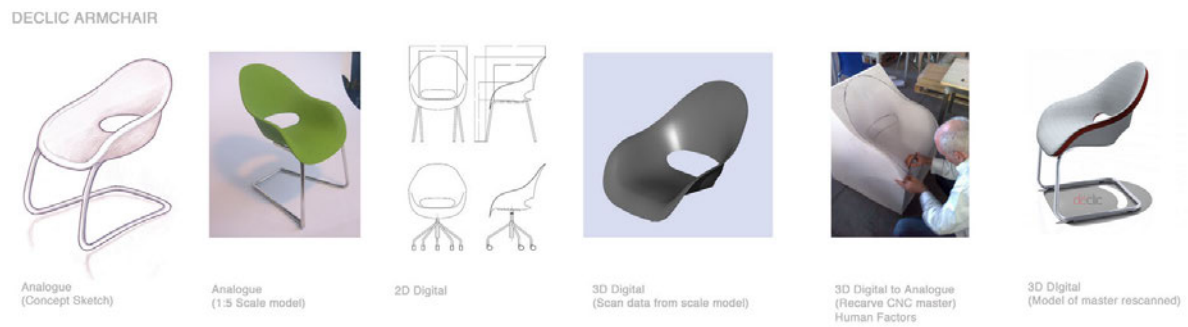


Figure 1.06 Palm chair design process showing the emerging disconnection of making from place

The physical shifts that took place lay in the digital and analogue communication of data describing and controlling the seat form. The conversion of data from analogue to digital was exchanged five times in the process; from the sketch to email, from the model to the CAD drawing, from the model to the laser scan, from the laser scan to the full size foam master and from the full size foam master to the final laser scan surfaced data file and production tool. The final seat form was re-carved by Diplomat (Fig. 1.07) from the CNC cut foam master to refine the aesthetics and ergonomics. Apart from a 20mm section in the lumbar region, the rest of the refinements were in the 5-10mm range indicating that the 1:5 scale hand carved model was made within a surprising 1-2mm accuracy.

Figure 1.07 Palm chair re-carving the seat form by hand in the factory, 2006.

The design and development process was discussed with Arrmet's production team before and during prototyping with the specific aim of allowing the hand making, shaping, correcting and refinement of form to take place at every possible opportunity up until the 'freezing' of the design at the final stage. This key decision came about as a result of Diplomat's choice to resist suggestions from the client to computer model the chair from the beginning even though it was largely the practice of other designers. This decision was made to enable Hall & Kavanagh to engage their hand carving and exacting form control skills that they could only employ at a physical scale. Hand carving the foam and using carving skills was aimed at the total control of abstract form rather than in any culturally embedded forms of material handling, techniques or expressiveness. The aim was to avoid the limitation of digital CAD software for higher levels of crafted form control to generate a seductive seat form that would be easily recognisable, yet neutral enough to fit in multiple commercial and domestic settings.

CAD data from laser scans of physical models was exchanged several times during the project and a fluid reliance on the physical analogue and digital data meant that the exact 'location' of what constituted control of the chair became very fuzzy. During some periods the physical model became primary while at others the scanned data became the leading

control of aesthetics and ergonomics. At the same time, specific but separate features were controlled digitally and physically in different locations. The digital mediums that were being used began to change the way that designs evolved. They freed decision making from the slow exchange of paper and models towards a fluid exchange of material on computer files. At the same time a conceptual shift took place between the more traditional communication of design data to the manufacturer, where the designer consulted externally on refinements for production, to a dual relationship where digital communications became the mediator. Tamke (2005) describes the limitations in using only digital technology as a form generation process in Architecture while Bermudez (1997) gives a contemporary account of the challenges to integrating and understanding the relationship between digital and analogue technologies in studio practice, and calls for dynamic relations between both. These examples however describe the process within one location and organisation.

The use of digital and analogue means to collaborate across geographical locations shifted both the nature of the design process, and the way that designs developed. The reduction of clear boundaries between the designer and manufacturer increased the sharing over separate locations of the technical information that was used to develop and control a design.

Figure 1.08 Palm chair production models side view showing seat form, 2007

Figure 1.09 Palm chair pedestal base model, 2007

The significance of the reflections on Diplomat's design practice and the Palm chair is through the early emergence of digital tools and how they affected making and the conceptual model of design practice in the way that information exchanged between collaborating parties based in separate locations. However the cultural influences that ranged from aesthetic interpretations and tacit skills to more esoteric ideas on design thinking from local making cultures that flowed along the same lines of communication were not actively discussed, nor were they a conscious element of the remote sharing of design material. The tendency in communications is to emphasise clarity and understanding, and to overcome cultural differences, yet the same differences could act as a creative inspiration. Deciding to make physical models of the Palm chair and integrate them with digital technologies alongside visiting the factory to refine by hand the final masters were cultural design differences to those practised by the local designers encountered. The result was a different design process and type of engagement with form. Could these observations be built upon to develop an experimental approach to facilitate cultural transfer between partners in different locations, and especially those in more diverse cultural making environments? Would it be possible through design collaboration to place the exchange of differences centre stage in an attempt to trace the way that exchanges take place and their relevance to ideas of place and cultural influence?

The trajectory described from the RSJ Bench project through Diplomat's design practice and the Palm chair has shown how a design method that was intensely object orientated became affected by a combination of digital media communicated via the Internet and collaborating with companies in different cultural locations through a networked activity.

A separate range of experiences that also engaged with cultural transfer in design and making across separate locations were gained through the opportunity to conduct academic collaborations on the RCA's GoGlobal series of educational initiatives in Thailand, China, Japan, Ghana, India and South Korea. The GoGlobal projects (Hall *et al*, 2012) developed collaborations between UK-based masters students and an educational partner to conduct design projects under the broad theme of the integration of product innovation with production, policy, social and economic factors. The aims were to bring students from different cultures together to share ideas of globalised design issues, enable academic research collaborations and most importantly to tackle a regional or national issue that tested how design thinking could be an active ingredient in bridging the gap between policy and implementation.

1.3 eArtisans

Ghana was the location for the eArtisans GoGlobal project that ran in 2009 (Barker & Hall, 2009 and Barker & Hall, 2010) with the Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi, the country's second city and capital of the Ashanti Kingdom. The aim of the project was to partner local artisans with teams of Ghanaian and western trained designers to create local hand made products with global export appeal and through this process develop a design enterprise model that if successful could be copied elsewhere. The Aid to Artisans NGO provided contacts and support for craftsmen, Africa 54 would provide the Internet infrastructure and SMS banking systems and the British Council supported an event where artisans and designers could meet to share open-source designs at the conclusion of the project.

The assumption was that the KNUST designers would contribute an understanding of local cultural and creative possibilities while the western trained RCA designers offered knowledge to generate potentially successful designs that could be attractive to global markets. Students would work in mixed teams to encourage an exchange of design methods and cultural insights.

An example of one of the final outputs from the eArtisans projects illustrates how design can use digital communications on the Internet to connect clients to designers and makers in a way that can enhance the transaction by allowing the makers to leverage their customisation capacity and provide user input and unique products for the customers. Fig. 1.10 below shows 'Ahoma', a woven shoe developed by one of the eArtisans design teams. The concept suggested that buyers of the shoe could use a web interface to draw their own designs that were handmade creating a unique and individually customised product. The intention was to pay the artisans through an SMS banking system provided by a pan-African logistics agency (Africa 54) who would collect and quality inspect finished goods and ship them worldwide.

A number of cultural transfers between different locations were proposed in the design concept and took place in the collaboration between the participants. The customer would receive cultural information from visiting the artisans website and then make a modest cultural contribution when they created woven patterns for the shoes via the Internet. The artisan would make the shoe and send it to the customer transmitting physical cultural material in how and where the shoe is made. A second loop of exchanges took place as the result of the western designers visiting Ghana, bringing with them a diverse mix of global design influences from their divergent backgrounds (each year group has around 14 different nationalities with around the same number of disciplines). This was combined with the Ghanaian students knowledge of local culture, craft materials, techniques and local production capabilities. The combined mix of cultural information was synthesised into a final design, which in the case of the Ahoma shoe contained Ghanain influences in the materiality of the shoe fabrication and choice of materials, western influences in the Internet user participation concept and a joint process of form generation.

Figure 1.10 Ahoma woven shoe made as part of the eArtisans project in Ghana 2009, designed by Aymeric Alandry, Michael Babanawo, Christopher Black, and Angeline Ohui

Involvement as project tutor provided the experience of investigating the potential use of digital technologies for connecting local makers to global markets and through the same technologies to explore how users and makers could be more closely linked for collaboration.

A key insight came about when visiting the craft workshop of Suleiman, a wood carver based on the outskirts of Accra, the capital city. He was carving masks, figures and other cultural artefacts based on a book published in the mid 20th century by the British Museum on African tribal art. Listening to him discuss his creative process led to a realisation that visitors to Ghana were in fact buying objects inspired by a British book that was written by curators and academics according to what they considered important about African art. The selection on offer from Suleiman was derived from colonial collections and reference frames re-introduced to Ghana. Objects were bought and exported by westerners who assumed they were being offered a local indigenous selection. Combined with this was the admission by Suleiman that he often used Nigerian (Yoruba) imagery, as the tribe produced a much larger spectrum of objects which he reinterpreted with his own colours,

finishes and details. Fig. 1.11 illustrates a range of his masks waiting to be exported to western collectors. Suleiman's mask designs were larger, accentuated the use of beaten metal sheet and used more synthetic colours than were evident in similar local designs. These first hand experiences illustrated the analogue loops of cultural transfer across geographies and how the histories of cultural artefacts are creatively contaminated. The evolution and cross-pollination of cultural ideas through artefact exchange is of course well known and a historical example occurs in 18th and 19th century British industrial ceramics production where import substitutions developed in order to successfully combat the importation of Chinese porcelain products (Berg, 2004). Cultural transfer took place in the production of local interpretations of Chinese blue and white Ming dynasty porcelain through hybridising functions and forms to satisfy local British aesthetic tastes and domestic rituals.

Figure 1.11 Suleiman's wood carving workshop visited as part of the eArtisans project in Ghana 2009. Note the masks reinterpreted from examples from a book published by the British Museum.

Experience from the eArtisans project began to illustrate the diversity and range of potential global cultural influences, coupled with the speed of iteration via digital technologies. These are factors that could give rise to rapid and significant changes in how

designers, craftsmen and artisans operate between local and global scales and how influence, information, ideas and differences could be exchanged by makers in radically different environments, with very different conceptual models of their practice. It would be interesting to discover how Suleiman would respond to accessible digital influences and a creative collaboration with a designer from a different culture in producing new objects rather than relying on a single historical source of information.

The eArtisans research phase involved visiting a number of craft villages in the countryside around Kumasi to see Kente cloth weaving, woodworking and non-ferrous metal casting skills. A roadside bronze-casting foundry on the outskirts of Kumasi became the inspiration for a range of experimental projects by Diplomat that introduced cultural influences from Ghana into a western design context. This project involved a very different approach to engaging with cultural transfer from the previous Italian furniture design experiences.

1.4 Ironman

In common with many designers, an important aspect of design practice has involved the interpretation and transferral of cultural influences. In Diplomat's design practices described previously, the main flow of influences appeared to be from the designers to the manufacturing context.

The casting process adopted by the foundry on the edge of Kumasi was based on the lost wax method whereby a wax master is either carved or hand made with soft wax. It is then coated in a heat resistant refractory material, in this case a mix of straw and dark grey river clay with hole in the bottom so that molten wax can flow out when the mould is heated later on. A ceramic cup with bronze offcuts is placed below and several dozen of these were placed on the floor of an area surrounded by three walls. Charcoal and timber are placed on top and a fire was set. After several hours the timber was removed and the cups were inverted so that the molten bronze contained in them from the offcuts could flow into the now empty clay chamber after the wax had melted out. It is clear that bronze casting has existed in west Africa for at least several hundred years before Portuguese explorers arrived in 1484 and the techniques witnesses match very closely those described in historical records (Meyer 2001). Nevertheless, the process of inverting a molten cup of bronze over a glowing clay mould appeared to require great skill and care.

Fig 1.12 shows the foundry casting area, wax masters, clay balls ready to cast and some sample figures waiting to be fettled.

Figure 1.12 Ghanaian roadside bronze foundry showing fresh figure castings, the foundry casting area, clays drying in the sun, dry clay with wax master inside and bronze offcuts with cup underneath

After returning from Ghana a conversation developed with Diplomat design partner Kavanagh around a long-term ambition to design a range of single piece cast metal stools. A particularly influential line of interest revolved around how the Ghanaian foundrymen sought to maximize the value of each casting by cleverly fettling (filing off and trimming excess material) their castings so as to avoid having to recast a faulty item, wasting time and effort. In addition the visual complexity and 'looseness' of the making process facilitated this activity.

After reviewing photographs of the casting techniques and sample castings a decision was made to conduct a design experiment to see if it could be possible to developed a single

piece cast metal stool influenced by African wooden stools that could be made in London. The researcher had bought two Lobe stools in Ghana (Fig 1.13) and these became one of the form inspirations for the project. Designs for the new Diplomat stool were developed through a verbal conversation that described approximate forms and the first masters were carved as one-offs from solid blocks of polystyrene foam.

Fig 1.13 Lobe stools from Ghana

The master form for each stool was individually hand carved and the casting process and mould packing process varied due to the soft polystyrene foam material being deformed by the mould packer so that each piece is unique and has its own character. Carving the stools required a new process that involved part scraping, pulling and filing the polystyrene balls that made up the foam structure to retain their integrity (Fig 1.14 left). Polystyrene foam has a low melting point so when the molten Iron was poured in it vaporised the foam while taking its place creating the final form (Fig. 1.14 centre). Once cast, the stools were allowed to cool and hand fettled, the seating surface was polished to give a sense of pre-use or wear and the structure itself was zeebrighted (Fig. 1.14 right). Zeebright is a graphite base mixed with oil that is applied to hot iron in order to assist the material in forming a durable burnished surface. The process has been used since the Victorian era on fireplaces but is now rarely used.

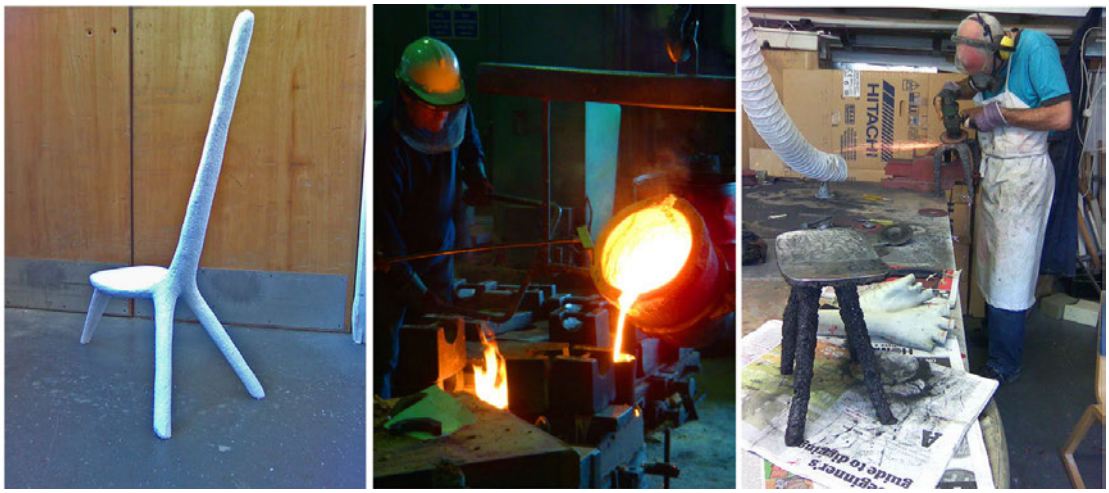


Figure 1.14 Making Ironman: Foam master, pouring Iron at Reliance foundry and fettling and finishing the iron stool castings in the Diplomat studio

The unconventional seating positions and utilitarian constructions of African stools were combined with highly developed organic design language and further integrated with techniques straddling African craft to western industrial metal casting methods. The cultural touch points are a combination of the small scale sitting position of the one piece west African stools with their proto-modernist geometry, Victorian industrial revolution domestic products with their burnished graphite iron surfaces polished by generations of users, and a contemporary organic twist applied to the overall form generation. Fig. 1.15 illustrates that the Ironmen combine all of these influences in a collection of pieces that have visual references across three very different time periods and cultural traditions from the Victorian, and African to the contemporary.

Figure 1.15 Ironmen range of West African inspired stools cast in CS Iron at Reliance Foundry in London

On reflection Ironman was a cultural transfer experiment in imagining how craft techniques from a Ghanaian bronze foundry and form inspirations from wooden stools could be transposed to a design studio and Iron foundry. This translation allowed the two seemingly separate design influences of wooden stools and a making process to combine in a one-piece cast metal stool. In effect this was an example of transferring a cultural making practice from Ghana to London to see what design and making process differences might occur in the translation. The cultural exchange took place with material from Ghana being brought to London by the researcher for re-interpretation in a new context. The Ironman project has described how an object centred design method has shifted to embrace a network of cultural influences in the design of a stool. The limitations in this process compared to the Ahoma shoe project is that it lacked the reciprocal activity of iterative exchanges and challenging cultural situations where the designers are embedded in the culture from which they are absorbing influences.

1.5 Situating knowledge

The critical moments that come together as a result of these case studies are brought together here to search for common threads than focus thinking around issues of cultural transfer and questioning methods of design practice. The conversation will draw together the unstructured opportunities and sporadic moments as sets of relationships, objects, material systems and making cultures to situate the knowledge in a series of questions and

issues for design practice.

The chapter opened by describing an internalised set of design methods and motivations employed by the design researcher in an object focussed practice illustrated through the RSJ Bench and Cabinet. During the Palm chair project, it began to emerge that the combination of digital and analogue media used to communicate designs was blurring the boundaries around exactly where and how a design is developed and made. The material being communicated was mainly technical with cultural exchanges conducted during face-to-face visits. The opportunity to work on the GoGlobal eArtisans project explored a different type of relationship where cultural transfer took place between participants in one physical location and remotely via internet as student groups searched for product inspiration and market information to support design concepts. Ironman shifted the educational exposure from a new culture into practice based work and experimented with combining influences from a remote location in London to make a series of stools that synthesised Ghanain cultural material with local design and making skills. It became clear that the Ahoma shoe and Ironman stools were enhanced by the influence of cultural material from a location the designers had visited. The RSJ bench on the other hand referred to an abstract theory and the Palm chair was designed to be culturally neutral in order to be acceptable for diverse settings in global markets. Ahoma and Ironman made the transition from object to networks by placing the objects in fields of cultural influence that were acted upon by the designer's collaborations, the interaction between designers and makers and the communications between the collaborators and a global network. Ironman however was limited in that even though it had drawn on powerful cultural motifs in term of form and materiality, it lacked a feedback loop to the culture that had inspired the design.

The examples from Suleiman's masks and Berg's import substitution of Chinese porcelain show that the exchange of cultural material through objects has existed for some time on the physical plane. Palm and Ahoma show us that the engagements with cultural material via digital networks has the potential to open up a new set of conditions around the dislocation between designers, makers and customers and the speed of information exchanged on digital networks as opposed to moving objects.

The key elements that have emerged from the case studies are the central focus on the

object, the liberating effects of engaging with a cultural network of influence around the object, the making cultures that are engaged and who transmits and receives cultural information from one location to another. Table 1.01 makes a comparison between the object, network, making and cultural elements that have emerged from the case studies.

Transition	RSJ Bench	Palm chair	Ahoma shoe	Ironman stool
Objects	Design focus on the RSJ Bench as object	Focus on delivering the Palm chair design but became aware of digital and analogue exchanges blurring boundaries of design and making location	Focus on the shoe as part of an experience shared between the artisan, designer and the customer	Focus on stool as central element in a series of cultural and making relationships
Networks	Remote to the object	Emerging network of technical sharing of design media on digital and physical layers	Established between visiting and local designers and a global context	Network of cultural influences flowing from Ghana to the UK. No reverse flow of influences
Making	Locally conceived and constructed design	Prototyping physically shared between the UK and Italy. Final production in Italy. Conceptual model shifting with analogue to digital observations.	In Ghana between collaborating partners from different locations. Design input from global clients. Model shifting into a cultural network	In London with direct influences from Ghana. Direct feedback loop to originating culture missing
Cultural influences transmitted	Viewers decoding theoretical ideas in practice	From the designers to the client through project interaction and from clients to designers	From the customer to the artisan. From artisan to customer. Designers to each other and to artisan and customer via the project concept	From Ghana to London and the stools to the customers and users
Cultural influences received	From abstract theories (Deconstructivist)	Design intended to be culturally neutral. Inspiration from designers own form generation processes	Received by designers from global influences and each other. The artisan to the client and client to artisan	From Ghana to London and from London and designers own context to each other

Table 1.01 Evolution from objects to networks in translocated making

It shows that the object focus initiated with the RSJ Bench becomes subsumed into a technical network with the Palm chair, while a cultural network emerges around Ahoma and Ironman. In terms of making, the RSJ bench is conceived and made within one culture and location from a theoretical inspiration. The Palm chair begins to blur the boundaries by engaging with a more complex technical network of influences through analogue and

digital media. Ahoma is practiced and conceived within an influential culture where the ownership of the idea for making an object becomes less distinct, it is shared between the designers and their concept, the artisans material culture and the customers creative input. Ownership becomes detached from a single cultural group and flows across the relationships in the objects, media and communications traded between participants. Ironman brought this external observation from an academic experience back into design practice to see how the cultural material from Ghana could become the inspiration for a new approach to object generation in the researcher's methods. This engaged a network of influence that resulted in a series of transitions of making processes and cultural form and function inspirations.

Drawing upon these observations has formed the idea that the conscious involvement of cultural networks in collaborative design activity is conceptually and physically releasing the idea of making from place. It can be understood as a delimiting of the idea of making as it moves from a reliance on objects to networks. It becomes transient as the agency of making flows between locations, a translocation of making. Translocated making is a term coined by the researcher to describe the emerging idea of design and making across locations connected through cultural networks.

1.6 Key Questions

Researching how to explore these observations further requires a set of questions underlining the core issues that have emerged in translocation of making and how these can be clarified through practice based design research and framed against existing theories.

1. What are the detailed analogue and digital exchanges that take place between participants in a collaborative cross cultural design and making project and can they provide a new way of understanding the activities taking place?

2. Can translocated making be explored as a method of design practice to experiment with new collaborative design formats and make objects with new properties that test cultural influence?

3. How can the processes described in translocated making be understood through comparing them to ideas of cultural transfer and global influence?

In order to further explore the issues surrounding the case studies, the research will draw on a number of theories of cultural interaction to compare ways of understanding some of the relationships taking place and how these could be tested through selecting appropriate design methods for field studies.

2

Globalising Frames

The summary and research questions formulated at the end of chapter one provide a set of reflections on the case studies that require contextualising in terms of larger theoretical frameworks. Globalising frames begins by exploring ideas of cultural transfer and broadens the investigation into wider concepts of how culture and society can be understood in terms of global scales of information flows. These are discussed as a range of wider cultural issues that are resident in a number of related disciplines including social science and anthropology through the theories of Latour and Appadurai, economics and design studies where Fiss and Clarke signpost a series of cultural observations where differences are exchanged between cultures through design activity. The chapter concludes by framing translocated making against the theories that have been explored.

2.1 Cultural transfer

Chapter one described a number of case studies where one of the key activities was referred to as cultural transfer. A number of researchers have investigated design mechanisms for cultural transfer between indigenous cultures and consumer driven economies including Richie Moalosi (2007), Rungtai Lin (2007), Mohammed Razzagi (2006) and Liz Ogbu (2009). Moalosi, Lin and Razzagi's research investigates the development of a structured understanding of how cultural transfer takes place in design projects. Moalosi and Lin have been researched in more detail here to show how they developed models for understanding how design can be inspired by cultural understanding. Moalosi describes the issues facing designers in this context:

> There is no solid theoretical framework which can assist designers to consciously integrate users' culture in designing products. This challenges designers to gain a deeper understanding of users' culture and find strategies on how they can use culture as a resource in product development and promote culture-orientated product innovation. (Moalosi, 2007a)

He goes on to makes the point that this area of knowledge is underdeveloped and has tended to focus on aesthetics and the cultural encoding and decoding of semantic and semiotic observations whilst the more sophisticated behavioural and philosophical levels increasingly relevant to contemporary design remain less understood. He suggests the Spencer-Oatley model as a way of understanding cultural transfer (Spencer-Oatley, 2000). The Spencer-Oatley model's structure is based on inherent cultural beliefs are placed on separate layers ranging from artefacts from rituals to behaviours.

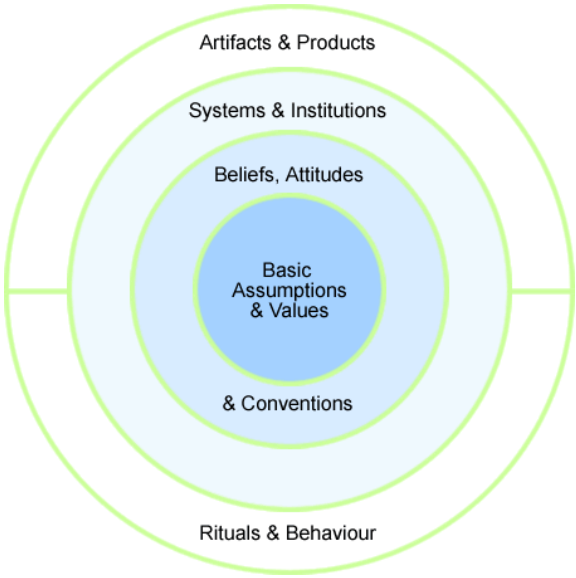


Fig. 2.01 The Spencer-Oatley model

Moalosi asserts that culture needs to be integrated at a conceptual level in the design process and goes on to propose a three-section culture orientated design model based on Spencer-Oatley and his own research (Fig. 2.02) that he tested successfully with a number of design students. Moalosi's conclusions support the idea that culturally driven design research can provide new knowledge and novel products that users can value for their higher levels of powerful emotional attachments. Moalosi's research context is African crafts in Botswana and the paper forms part of his doctoral research (Moalosi 2007b) at Queensland University of Technology (QUT). The concept of layers of cultural transfer from the physical/tangible through to the behavioural and philosophical are useful and will be noted for the project phase as methods for difference and influence to be employed beyond purely visible forms of analysis.

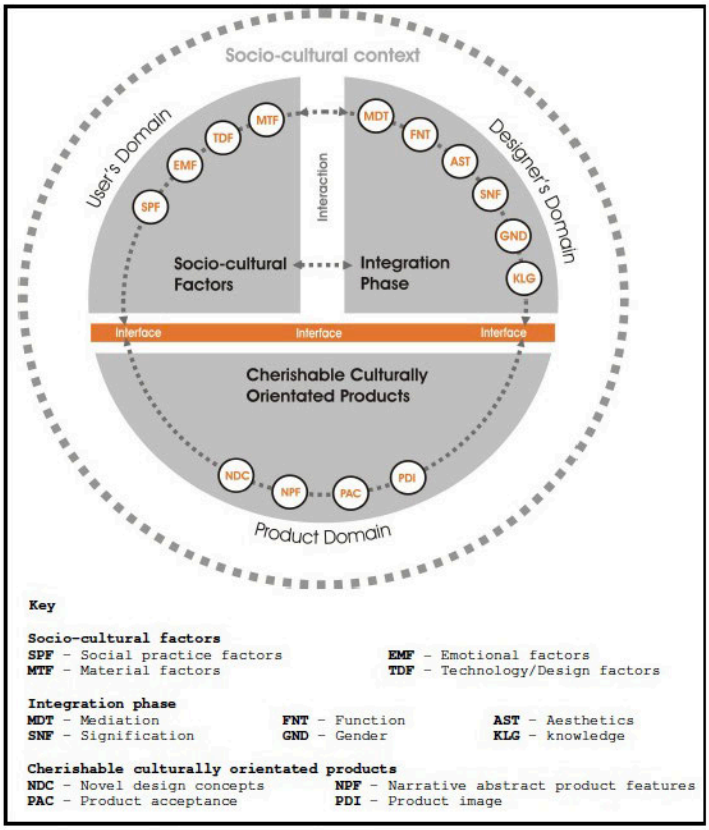


Fig 2.02 Moalosi's culture orientated design model

Lin (2007) describes the rich crafts of Taiwanese aboriginal cultures and relates a collaborative project to design a *Linnak*, a double handled cup used for religious ceremonies. Her research involved proposing a three layer analysis of cultural meaning based on the work of a range of researchers including her own, and Leong and Clark (2003)(Fig. 2.03), and applies the outputs in a design project aimed at enhancing the use of cultural motifs and symbols shown as a framework in Fig. 2.04.

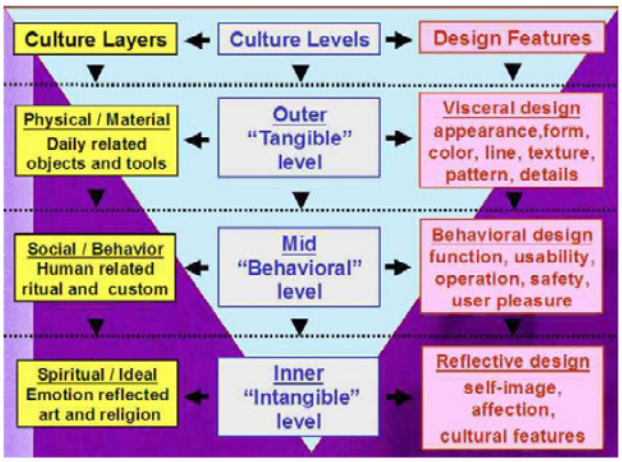


Fig. 2.03 Lin's three layer model for understanding cultural levels and design features

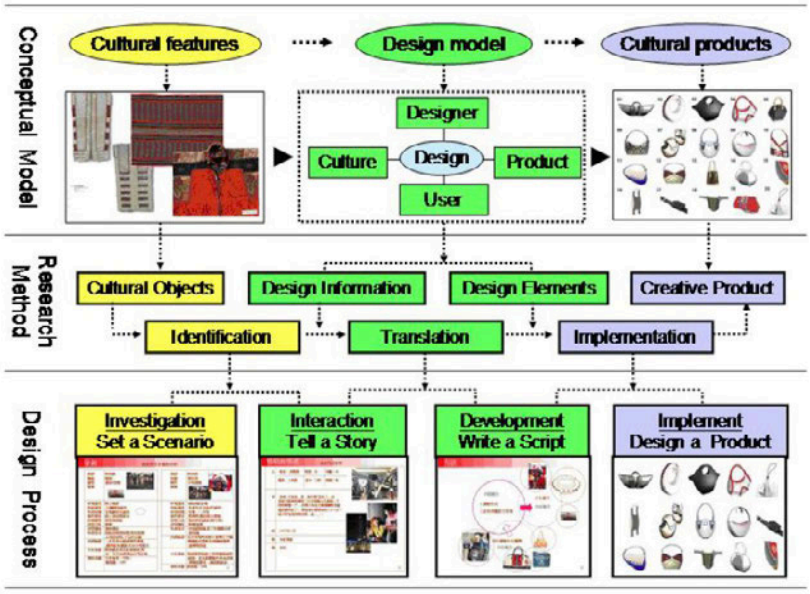


Fig. 2.04 Lin's framework for combining cultural level and design features to enable understanding cultural product design

The focus of Moalosi and Lin's research is between different cultural groups in the same country and they describe the transfer from traditional cultures to contemporary cultures broadly within the same cultural group. In both cases the designers and researchers are studying a local culture, extracting meanings and then applying these through design techniques to create new artefacts. Both authors report success in the results, however when compared to the findings of the case studies in chapter one some issues emerge. The first is that neither of these examples appears to involve design and making collaborations with the cultural group under study, therefore the subjects of study are not selected as a result of their specific making culture. In addition the cultural transfer takes place locally and does not cross significant cultural and geographic borders indicating that they are less likely to be exposed to heterogenising global influences. The limitations when these models are compared to the issues raised in the case studies is that they do not provide a framework to understand the global issues of cultural flow across diverse locations via analogue and digital media. A theory that can provide a framework to connect objects, people and cultural material is required.

2.2 Reconstructing the social

Actor network theory (ANT) is a material semiotic theory in Social Science developed by Bruno Latour (2005, 2009, 2010) and a number of other social sociologists including Michael Callon and John Law in the early 1980's. Its aim is to offer a method for

reconstructing as opposed to constructing our idea of society or the 'social'. Latour asserts that we have such a well-developed and pervasive idea of the social that it clouds our ability to look for new structures and relations. ANT studies the infrastructure around innovation and technological breakthroughs in the way they impact society. As a method of understanding the impact of innovation through humans and object relations it recommends itself for further detailed study.

In *Reconstructing the Social* Latour (2005) sets out the basic concept of the theory. He proposes a network of relations between people and objects with the important feature that humans and non-humans (objects, things etc.) have equal capacity for influence. This is referred to as 'agency'. A number of important features in ANT are the concepts of mediators, intermediaries and punctuation. To quote Latour:

> An intermediary, in my vocabulary is what transports meaning of force without transformation: defining its inputs is enough to define its outputs. Mediators, on the other hand, cannot be counted as just one; they might count for one, for nothing, for several, for infinity. (Latour, 2005, p. 39)

Mediators and intermediaries are nodes on the network of relations between humans and non-humans in any given social context. Intermediaries pass on information untouched, they communicate, while a mediator manipulates information by expanding, reducing, distorting, filtering etc. This approach can provide a real advantage when analysing a particular context as it avoids the human-centric classic analysis models. Instead computers, technology, artefacts and other physical objects come into play to form a networked way of seeing new social structures.

Punctuation is a way of reducing the inevitable complexity of tracing every single link on a network and allows assumed groups to be 'parked' under a single heading. ANT has been used in a wide range of social evaluations and has branched out more widely into other domains. The researcher met Christian Derix of Aedas architects research group to see examples of ANT maps of relations for the development of the London Olympics (Yaneva, 2012). The live outputs showed the locations of debates around planning permissions, community responses and other useful indicators for planners to understand the influential nodes in large-scale public planning developments (Fig 2.05).

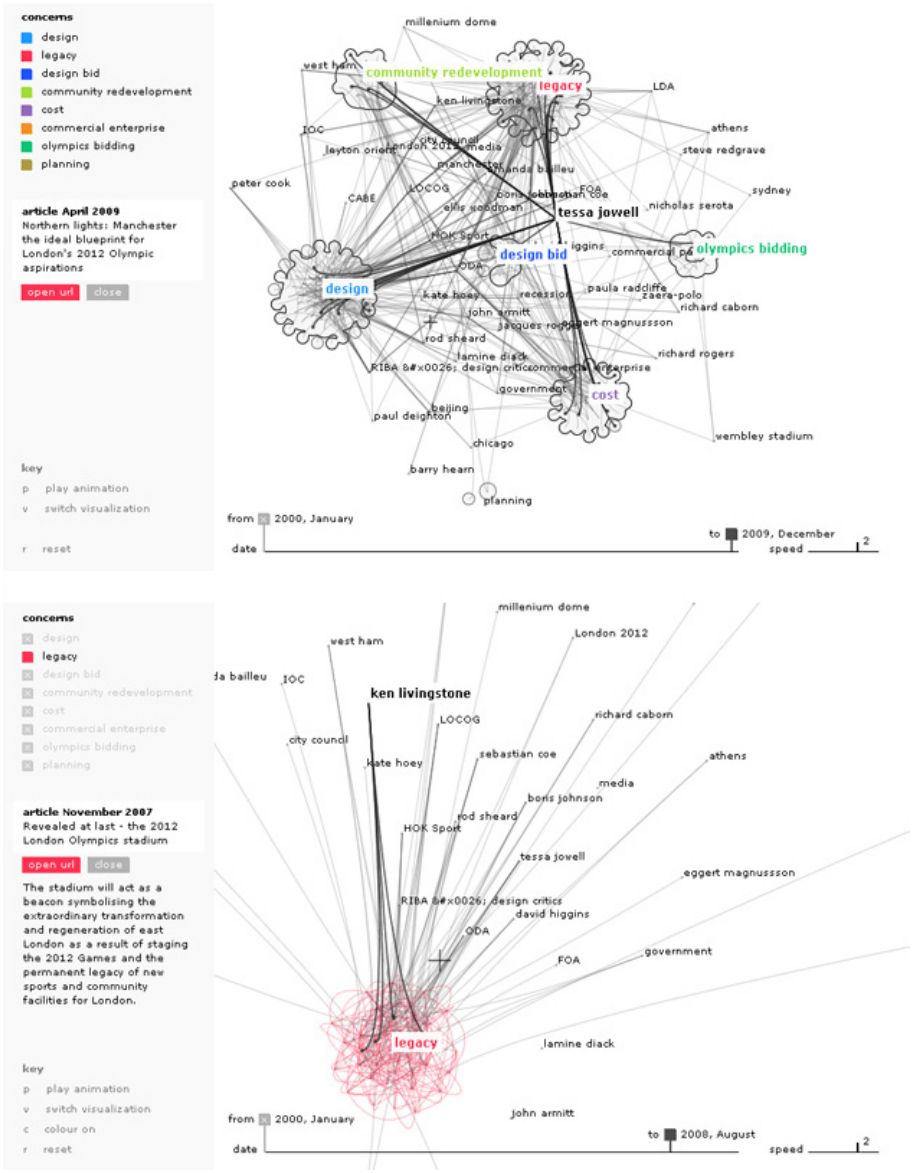


Fig. 2.05 Aedas research *group's ANT map of London Olympics coverage. Note the different map structures.*

ANT has been criticised in a number of ways, primarily in the form of the advantages that it proposes. The equality of human and non-human elements has led to a claim that it can negate or interfere with the tracing of structures useful to determining human action. The density and breadth of a network that is completely delimited asks questions over where the boundaries for punctuation are drawn and why some potential links and actors are excluded. Toenneson (2006) in a review of ANT in 17 journals for the purpose of exploring inter-domain concepts finds critical evidence of using ANT. He describes issues around how to distinguish the difference between an actor and an intermediary. In addition, the analyst is left with figuring out what constitutes ANT material and the difficulties in

attributing agency, responsibility and authorship. They cite Mutch (2002) and Collins & Yearley (1992) who problematize the impartiality of networks and go on the question:

> Another elaboration of ANT revolves around the question of what voice should be attributed to actors who are systematically excluded from a network and network accounts (marginality). For example, by asking the explicitly political question of how it is possible to use ANT to critical ends that 'champion' those actors with whom the analyst identifies? (Toenneson *et al*, 2006, p. 26)

This final point is of concern if difficulties were to be encountered when attributing agency to the interactions of the practice based project 'champions', specifically the designers and collaborators. The powerful liberating qualities of ANT require a level of structuring from the researcher in order to be able to investigate questions of human determinism. In conclusion ANT is a valuable theory for reconstructing new ways of understanding social relations between humans and non-humans, but due to the potential difficulties in attributing agency, framing the cultural, authorship and responsibility due to its delimited nature, it appears to be problematic to consider for use in a translocated context.

Placing the exchange of cultural knowledge for the production of artefacts in context requires an understanding of the global flows of cultural material and a comparative framework against which to test this.

2.3 Suffixscapes in global cultural anthropology

In *Disjuncture and Difference in the Global Cultural Economy* (1990), cultural anthropologist Arjun Appadurai tackles the problem of how to describe culture on a global scale and proposes a new transnational framework of overlapping conceptual landscapes. Building on Anderson's imagined communities (Anderson, 1983) and McLuhan's global village (McLuhan, 1964), it describes a new economic and cultural framework through a series of information flows across multiple 'suffix-scapes'. Appadurai's motivation is to propose a new way to discuss the political cultural issues around 'The central problem of today's global interactions in the tension between cultural homogenization and cultural heterogenisation' (Appadurai 1990, p. 295). He criticises the polarisation of globalization theories:

> What these arguments fail to consider is that at least as rapidly as forces from various metropolises are brought into new societies they tend to become indigenized in one way or other way: this is true of music and housing styles as much as it is true of science and terrorism. (Appadurai, 1990, p. 295)

The classic centre periphery models and the most complex and flexible theories of the Marxist tradition are criticised as inadequate to deal with:

> The new global cultural economy has to be understood as a complex, overlapping, disjunctive order, which cannot any longer be understood in terms of existing centre-periphery model…Nor is it susceptible to simple models of push and pull…or of surpluses and deficits. (Appadurai, 1990, p. 296)

The innovation in Appadurai's thinking lies in its reconceptualization of cultural-economic activity away from the traditional colonial centre-periphery model to a series of decentred post-colonial overlapping scapes. In addition he proposes a fundamental redefinition of culture into static and dynamic descriptions. Appadurai understands *culture* as the static quality of people, traits and traditions, whereas *the cultural* is a dynamic flow of oppositions, questions, contrasts and differences. Fundamentally, he sees culture as embodying differences 'Typically, contemporary nation-states do this by exercising taxonomic control over difference; by creating various kinds of international spectacle to domesticate difference' (Appadurai, 2009, p. 304).

We could see how localising differences could play into the hands of those who would use this as a separatist tactic for all manner of political uses. He gives another related example of the accelerating disconnection between nation and state, with the imagined world of a nation belonging to people who shift across borders both regionally and globally and the relationship with a state that assumes the control of those people increasingly in tension as they move out of grasp. This example works at the political level but discussion also takes place in terms of the scales of suffixscapes operating from the global, national, regional, local, family, individual and agent.

A summary of the five dimensions of Appadurai's suffixscapes is presented here:

> *Ethnoscapes* – The flow of cultural information contained in and transmitted by tourists, refugees, visitors, migrants, workers and travellers.

Mediascapes – The production and distribution networks of images containing cultural information that is broadcast on traditional and new media outlets.

Technoscapes – The technologies that support the flow of cultural transfer by communicating, hybridising and interacting with culture.

Financescapes – The network of financial instruments, currencies, bonds and shares on a range of scales from the individual to the continental and global.

Ideoscapes – The collections of ideas from individuals to movements, politics, philosophies, religions and other conceptual models. (Appadurai, 1990)

He presents the model and emphasises the key operational drivers:

> This formulation, the core of my model of global cultural flow, needs some explanation. First, people, machinery, money, images, and ideas now follow increasingly non-isomorphic paths: of course, at all periods in human history, there have been some disjunctures between the flows of these things, but the sheer speed, scale and volume of each of these flows have become so great that the disjunctures have become central to the politics of global culture.
> (Appadurai, 1990, p. 301)

Through this description we can see that one of the core operators becomes the increase in non-isomorphic paths and their capacity to accelerate disjunctures, a lack of coordination or separation between flows of information that lead to uneven eventualities. These have become central to the rapid evolution of global culture. Although the five varieties of suffixscapes are articulated independently, their practical operation is a complex network of interactions and interconnections, rather than cleanly defined autonomous landscapes. He describes the 'deeply perspectival constructs' (Appadurai, 1990, p. 296) of how suffixscapes are viewed depending on the positioning and cultural experiences of the viewer; they are not framed as a uniform description or experience. Suffixscapes must be assessed against Appadurai's intent, which is to conceive of a way of understanding cultural flows so that they can be used as a way to frame political arguments around power and influence in the global cultural economy. They are conceived as a framework, a way to understand something but they are not designed as a method, a way of acting.

Ethnoscapes, financescapes and ideoscapes are all platforms for communicating different types of culturally important data. Material, economic and ideological means of communicating cultural information are supported in all three scapes. The technoscape and mediascape form a separate pair of facilitation activities whereby cultural communications are supported by technology and transmitted by media that is also supported on the technology platform, as is the financescape. Importantly the ideoscape and ethnoscape can be supported with a fluid exchange of both analogue and digital methods. We can use a variety of methods including books, newspapers, walking, and various transport products for communicating ideas and for transmitting cultural information.

De Aranaga in *Goodscapes: Mapping Design* (2004) argues for the inclusion of 'Goodscapes' as a new crosscutting field linking all of the original five dimension-scapes. The logic for this development lies in the capacity of goods to embody financial, media, conceptual, and cultural information. The term Goodscapes needs interrogating, in light of the term 'goods' and its link to trade and commerce. It can be counter-argued that artefacts are external to goodscapes. Artefacts can be defined outside of the conventional notion of 'goods' as they can be moved, given transported and loaned outside of commercial relationships yet have the capacity to carry cultural information (e.g. museum artefacts). The original suffixscapes have the capacity to contain all of these meanings in overlapping combinations without limitation.

One of the most interesting ideas in Appadurai's view is the blurring of the real and the imagined as part of the cultural dynamic. He describes how suffixscapes can support a de-contextualised shift from the real to the unreal:

> The lines between the real and the realistic and the fictional landscapes they see are blurred, so that the further away these audiences are from the direct experiences of metropolitan life, the more likely they are to construct 'imagined worlds' which are chimerical, aesthetic, even fantastical objects, particularly if assessed by the criteria of some other perspective, some other imagined world. (Appadurai, 1990, p. 298)

Could the blurring of the real and the imagined describe the mindsets of collaborating designers and makers who make a temporary imagined world as a result of the information

they share? Subsequently Appadurai describes the relationship between reading and hearing and that the cultural differences in this morphology are highly variable in influencing the ideoscape of the receiver. This would seem central to the observations in the case studies in chapter one of the importance of the choice of analogue and digital media being used and its creative influence on designers and makers. In terms of design, suffixscapes could be used to compare interaction between collaborators across a number of scapes and the analogue and digital interactions that facilitate this. Table 2.01 describes the relationship between suffixscapes and the design case studies from chapter one seeking to illustrate where cultural information is exchanged.

Case Study	Ethnoscape	Mediascape	Technoscape	Financescape	Ideoscape
RSJ Bench	Local to the designer	Limited to the physical object and personal drawings of the designer	Yes, through experimenting with composites and steelwork	Limited to the local purchase of materials and finishing processes	Yes, by absorbing and testing the Deconstructivist theories explored in the design project
Palm	Yes, from business trips to Italy to meet clients, factories and experiences of Italian culture	Through exchanging images through CAD data, physical models and photographs	Supported via internet communications, CAD data and applications, physical prototyping	Limited to client payments	Yes, through the emergence of translocated making via digital and advanced media
Ahoma	Yes, strong physical exchange between collaborating designers and external influences	Analogue materials shared between designers and physical prototypes. Internet communications between client	Yes, through the digital financial backbone and using internet media for customisation	Yes, through the global distribution model and local artisan payment system	Yes through western and Ghanaian ideas of making craft and market exchange. Client to global consumer
Ironman	From Ghana to the UK and project output to consumers	Analogue one way from Ghana to the UK. Drawings created by designers	Bronze and Iron casting	Basic between designers and suppliers and clients. Local	Yes, strong cultural transfer around ideas of making, craft and maximising difference

Table 2.01 Comparison of suffixscapes and case studies

The table indicates strong cultural information flows around the areas most closely linked to design activity in Ethnoscapes, Technoscape and Ideoscapes. As could be expected, financescapes are weak in terms of design motivation and mediascapes are important as a communication pipeline, but do not play a central role. The eArtisans Ahoma shoe and

Ironman project have the most significant cultural movements across both digital and analogue media.

Appadurai's concept of global cultural suffixscapes is a useful model that could be considered for how it can support the media and actions of a design research project, and provide a way of understanding the flows of data between agents in the communication exchanges of people, artefacts, emails, drawings and models that can act on each other in the process of cultural transfer. However, the model is weak in terms of explaining the relationship to geography, and the mechanisms that liberate and transfer pieces of cultural information that make differences as they move from one place to another between collaborating partners.

It is easy to forget that Suffixscapes were proposed in 1990. Although an early version of the Internet was in operation the scale of differences that it brought about and continued to bring about were not widely known at the time. However bearing in mind the events and changes that have taken place since it's difficult not to see this as a prescient idea that could easily accommodate the complex flow of digital cultural information that has accelerated in the meantime and the practice based projects will bear this in mind. There are hints that Appadurai was aware of high-speed telecommunications, if not the full impact of the Internet and other mobile digital technologies: 'technology, both high and low, both mechanical and informational, now moves at high speed across various kinds of impervious boundaries' (Appadurai, 1990, p. 297). And 'as currency markets, national stock exchanges, and commodity speculations move megamonies through national turnstiles at blinding speed, with vast absolute implications for small differences in percentage points and time units (Appadurai, 1990, p. 298).

The most important assertion in Appadurai's work is that deterritorialisation (a term originally coined by Deleuze and Guattari in the book Anti-Oedipus (1972), but has since been adopted in a wide range of disciplines including anthropology) is one of the central globalising forces of the modern world. In *The Production of Locality* (2009) he describes the 'translocalities' of emigrant communities in dispersed global cities (Appadurai, 2009, p. 192), mirroring the liberation of making and location in the case studies. The value of discussing this lies in the potential to explore a meta-level framework that could become a model for understanding how analogue and digital methods affect various understandings and types of information moving between cultures. The questions raised at the end of

chapter one involved the interplay of digital and analogue media. The table below (Fig. 2.02) tests the potential of suffixscapes to support cultural material exchanged across analogue and digital media.

Suffix-scape	Form	Analogue support	Digital support
Ethnoscapes	Relocating cultural information through people travelling	Yes, supported by analogue methods, human and animal power	Yes, supported by technology for transport
Mediascapes	Formatting and transmitting information with cultural content	Yes, through papers, books and printed media	Yes, through telecommunications, digital, broadcast and cloud media
Technoscapes	Supporting cultural activity to cross borders, class state and national boundaries	Analogue history of supporting cultural dissemination	Primarily digital in the emerging large scale effects
Financescapes	Means of transmitting value that supports and defines cultural activity	Limited analogue value in high-speed trans-global effects. Mainly used for local exchanges.	Almost exclusively digital in the way the term is understood within global and transnational financial movements
Ideoscapes	A medium to hold, and communicate the ideas that define cultures but that is accessible across frontiers and geographies	Yes, though the analogue methods have been heavily exploited	Yes, digital media has accelerated the transmission of ideas and is continuing to offer new media formats for this

Table 2.02 Form, analogue and digital media in Appadurai's suffixscapes

An analysis of the table shows that it has the potential to support both digital and analogue media as key operators across a range of suffixscapes. This could be potentially exploited in the design projects in term of where different media is used as part of the cultural exchange of design materials.

Suffixscapes are cited in a wide range of cultural literature ranging from Central American gangs (Beary, 2007), leadership in South African schools (Christie, 2010), artistic evolution (Oiyama, 2011), global corporations (Preston & Young, 2000) and Universities (Powell & Steel, 2011), to religion in the Americas (Vasquez & Marquardt, 2003). Examples are given in a few cases to highlight individual scapes but evidence is not presented for using it as a method for analysing a particular activity, context or culture through fieldwork. It appears that following Appadurai's call for more investigation connecting to real world scenarios there is little evidence of the framework being tested in a practical application.

The arguments for including suffixscapes as one of the globalising frames of reference lie in how they can support a decontextualisation of cultural material exchanged between collaborators. They have potential to explain the cultural flows that take place between designers and makers when they work together across diverse geographies and cultures, and this recommends it a way to understand the activities and outputs for design collaborations. In the design field, the concept of suffixscapes has a potential to reframe collaborations by providing a way to understand how we communicate cultural information across a number of themed scapes and to uncover the detailed mechanisms that allow this to takes place.

Both suffixscapes and ANT can help explain the relationships between people and objects from cultural (suffixscapes) and social (ANT) perspectives. ANT provides a sophisticated network of relations for detailed study but a framework to understand the globalised exchange for design research is lacking. Suffixscapes provides the framework to understand cultural flows but without a detailed method to establish relations. Both approached lack a detailed account about how to engage in activity for studying cultural transfer at a practical level.

In an essay on the social life of design in his recent book, *The Future as Cultural Fact* Appadurai (2013) critiques Latour's actor network theory and the over reliance on the agency of devices that have lost the capacity of human sociability. He states:

> The primary problem with images of object agency, network and the device is not just that they tend to loose the soul of objects, in spite of their intentions to reanimate the object, but that they have no real grip on the deepest problem of objects, which is their capacity to generate contexts. The problem of contexts is one of the black holes of current social science, and this black hole opens new possibilities for thinking about design processes from a social and cultural point of view. (Appadurai, 2013, p. 258)

If the deepest problem of understanding objects is their capacity to generate context then the issues raised in chapter one refer to this through the collaborations of partners from separate locations and cultures and how this partnership can make new objects, what they can mean and how they can be located and understood in a cultural perspective. In conclusion the positive aspects of considering suffixscapes for understanding the issues raised from the case studies in chapter one lie in the framework's capacity to help

understand global cultural flow. Social and cultural perspectives could be investigated in a design process through the connection between objects and context by using suffixscapes as a canvass to record the interactions between collaborators. Challenges lie in understanding and developing a design method to investigate this and particularly how it engages with questions around the mechanisms by which cultural information is released from a local context.

2.4 Geographically Liberated Difference

A range of literature on culture and design was reviewed including research by Karen Fiss, Hazel Clark and others that describe how participants can engage and interact with a culture than is based outside of their physical locality or geography. The value in exploring this idea is to help further discussion by looking at examples and focussed studies to shed light on the issues of releasing and exchanging cultural information from a locality. It has developed through forming a critique of globalisation and its effect on a range of cultures via thinkers that include Karen Fiss (2009), Hazel Clark (2009), Kwame Appiah (2006), Benjamin Barber (2003) and Tyler Cowen (2002) from a number of disciplinary backgrounds including social science, design history, philosophy and economics. They have begun to explore the meaning and mechanisms of exchanging differences, and how exchanging those difference can be such a significant factor in shaping culture between groups of people in disparate locations. Importantly we need to understand what constitutes a geography, why differences are important in influencing cultural change, the agents that act to liberate differences from one culture to another, and the role that design can play.

Karen Fiss introduced a series of articles in *Design Issues* (2009) that explored the postcolonial and transnational design possibilities in a diverse range of locations ranging from Africa, Greece, Spain, Shanghai and Hong Kong. In her introduction essay she established the two contrasting approaches to globalisation:

> One of the major divides in studies of globalisation today is whether increased international trade is imposing cultural homogenization or, in fact, working to enrich and preserve culture through expanded access to the Internet and increased cross-cultural contact…the sharp rise in global trade creates more entrepreneurial opportunities for producers of art and culture by "liberating difference from geography," making culture less about identifying with a particular region or

> location…On the other hand, one also can argue that this deterritorializing of culture allows it to be "theme-parked," creating a type of cultural diversity that is merely a simulacrum, and that no longer has ties to any "authentic" origin. (Fiss, 2009, p. 3)

This is the researcher's discovery of the term 'liberating differences from geography' and the ideas collected in this body of research are furthermore referred to as 'Geographically Liberated Difference' as a signpost for the discussion that follows on a range of literature across several discipline and domains that explores the issues of cultural transfer in a globalised context and its relationship to place through object production.

Fiss's article cites Benjamin Barber and Tyler Cowen as diverse proponents of the cultural arguments for homogenisation verses the exploitation of Internet and other media to support and enrich cultures. In his book *McWorld versus Jihad*, Barber (2003) describes the polarised states of McWorldist corporations (for example McDonalds, Nike, Unilever, Coca Cola etc.) colonising the willing west and exploiting dysfunctional global regions with a vast array of seductive offerings. He contrasts this with fundamentalist, terrorist and anti-western forces lined up to face each other in the disproportionate use of 20th verses 21th century warfare techniques. These developments lead to an inevitable polarisation based on a range of oppositions from religion, race, ideology and the exploitation of natural resources in developing countries (Kaplan, 2000). This is a divisive view that projects transnational agents (forces of change moving freely between cultural and geographic regions) varying from the extreme opposites of Jihadist terrorist campaigns to Macworld advertising and marketing campaigns, both of which are seeking to maximise the impact of their strategies to gain global converts and power.

In a direct contrast Tyler Cowen's *Creative Destruction* (2002) sees a broad field of cultural interactions creating differences that can enhance or subtract from an existing context. In many ways this tallies with Appadurai's suffixscapes in its flexibility and non-linear cross-flows of information exchange. He carefully and successfully deconstructs accepted myths and wisdoms of prevailing ideas to expose the successes and benefits of increased differences (here it means influences that change another culture) arriving from other geographic locations and how these can support indigenous endangered cultures. Where there is loss in some areas, others have greater gains. He states that all cultures are hybrids and that their future survival is based on their ability to absorb and understand new enriching differences. The western liberal idea of 'museum cultures' preserved for

future study is roundly demolished. The assumption of global homogenisation where shopping streets across the world have the same fast food chains, clothing stores and mobile phone concessions is challenged by the volume, density and diversity of cultural interactions that are negotiated via each culture's value filtering system. It is argued that this scenario accelerates diversity rather than producing homogenisation.

Cowen writes:

> The benefits of cultural exchange usually have come from dynamic settings in great imbalance, rather than from calm or smoothly working environments...Does trade in cultural products support the artistic diversity of the world, or destroy it? Will the future bring artistic quality and innovation, or a homogenous culture of least common denominator? What will happen to cultural creativity as freedom of economic choice extends across the globe? (Cowen, 2002, p. 7)

From a similar direction the philosopher Kwame Appiah (2006) offers a viewpoint promoting cultural contamination as a necessary and present ingredient to evolve and sustain healthy cultures. He describes the concept of cultural contamination as a vital and necessary force of interaction and enrichment for future development. The worldviews of cultural conservators and cosmopolitans are explored through examples of Welsh bards in Llandudno, Akan dancers and the Huli of Papua New Guinea. He describes a particular observation from Ghana:

> On Kumasi's Wednesday festival day, I've seen visitors from England and the United States wince at what they regard as the intrusion of modernity on timeless, traditional rituals - more evidence, they think, of a pressure in the modern world toward uniformity. They react like the assistant on the film set who's supposed to check that the extras in a sword-and-sandals movie aren't wearing wristwatches. (Appiah, 2006, p. 2)

He goes on to describe the value of cultural contamination:

> Living cultures do not, in any case, evolve from purity into contamination; change is more a gradual transformation from one mixture to a new mixture, a process that usually takes place at some distance from rules and rulers, in the conversations that occur across cultural boundaries. (Appiah, 2006, p. 6)

Appiah contends that all cultures are hybrids by nature and that successful survival depends upon continued refreshment from external sources that helps cultural behaviours to develop and adapt to evolving situations. This contrasts with the conservative view of preserving cultures intact and attempting to reduce the external influences that are deemed to be harmful. In essence this view promotes the isolation of cultures from what are seen as contaminating influences that may dilute certain practices. The nostalgia for pristine cultures that are observed and controlled externally could be seen as both colonialist and undemocratic in limiting the choices and freedoms enjoyed by others. Appiah sees this approach as increasing the risk of cultural collapse and asymmetrical disconnection.

We can see two distinct discussions taking place here between Barber (and to a lesser extent Kaplan) highlighting the polar risks of cultural heterogenisation, of the 'winners' and 'losers'. The winners enjoy the privileges of democracy, free markets, and high-speed digital communications. The opposite is the homogenising effects of globalisation and high speed digital communications that risks making us all the same, or at least seem much more similar, undoing the differences that enable us to understand our relationships to each other and how we are situated in the world. However Cowen and Appiah's argument progresses this by in effect making an argument based on scales. They argue that the hybridity that ensures a healthy culture is accomplished through the myriad small differences that we exchange every day that nudge, alter and shift points of view. In effect this is a way forward and can leverage the power of design in its synthesising ability to operate in times of great (cultural) change, and in fact it is often *the* agent of change.

The following examples contextualise the discussions of cultural transfers in shifting complex and remote contexts to uncover more details of their key components. In *Back to the future, or forward? Hong Kong Design, Image and Branding* Hazel Clark (2009) describes how recent design developments have evolved using examples that explore the oppositional east meets west to new cultural design configurations that supplant national characteristics by producing designs that draw simultaneously on both local and global (glocal) influences as the result of hybrid design experiments. This type of activity can help maintain and support local craft traditions as the researcher experienced through the GoGlobal eArtisans Ahoma shoe example (Hall 2012). Clark goes on to observe that Asia is a key location for this activity with the cohabitation of eastern and western cultures

alongside enormous manufacturing growth in recent years, particularly in the Pearl River delta region.

Clark presents design examples from Harry Steiner, Vivienne Tam and Shanghai Tang. Steiner arrived in Honk Kong in the late 1960's and began to initiate a local graphic design flavour through a cross-cultural design method that Clark summarises as three stages of evolution from quotation (importing exotic images as decoration) to mimicry (copying another style in order to discover how it is done) and transformation (the assimilation of the external or exotic). Designers Kan Tai Keung and Alan Chan later developed personal graphic design languages that illustrates distinctive home grown transformations. Vivienne Tam was born in Canton with a Hong Kong education and now lives in New York with a manufacturing base in southern China. Her cultural transfers and global reach:

> [She] has assimilated references from Chinese culture and combined them with prevailing modern Western shapes, which make garments desirable in Hong Kong and in the global marketplace. Tam's design hybridity has become very successful commercially…The brand is stocked in more than a hundred retail outlets across the United States, including the flagship store in Manhattan, as well as at seven boutiques in Hong Kong, one in Shanghai…Her international following can be described as global, extending as it does to Europe, Canada, Brazil, Indonesia, Taiwan, Korea, Saudi Arabia, Singapore, Puerto Rico, and the Philippines; and including movie stars and celebrities…(Clark, 2009, p. 18)

Tam's example suggest that its both the movement of the designer as well as the cultural transfers that take place between her cultural influences and a broader global market that account for how differences from one place to another become engaged through designing. Retailer David Tang Wing-Cheung took another more direct emotional route:

> Shanghai Tang's image is both nostalgic and retro, referencing emotional longing for the past tinged with contemporary cynicism and detachment. The use of nostalgia and retro in this way in the retail sector parallels similar global brands, such as the British Paul Smith and American Ralph Lauren…Featuring clothing, gifts, and interior accessories, the designs reinvented utilitarian Chinese clothing and artifacts in expensive materials and bright colors such as gold, hot pink, lime green, and blazing red. Gifts and novelties were staple items, which parodied Chinese

> cultural signifiers and icons, for example, wristwatches depicting either Mao Tse-Tung or Deng Xiao-ping with one arm waving back and forth to the movement of the watch. (Clark, 2009, p. 19)

For Clark, a number of key factors emerge in the transformation of Hong Kong's design history: the development of cultural transfer evolutions from quotation and mimicry to transformation; global communications for sales and sourcing influences; and the decolonising cultural vacuum left behind when colonial powers depart resulting in very different political, cultural, governmental and geographical relationships. Hong Kong's recolonisation can be seen as an extreme example of the liberation of difference from geography using design as an agent of change as illustrated in the examples from Steiner, Tam and Tang (Clark, 2009). Much of this activity took place before the mass adoption of the Internet and was therefore inspired through analogue and physical communication means yet provides some important foresights of relevance to this research. The relatively small footprint of Hong Kong, a short timeframe for change along with its global trading links and intense local culture seemed to act as an accelerator in liberating difference from geography. Recalling Cowen: 'The benefits of cultural exchange usually have come from dynamic settings in great imbalance, rather than from calm or smoothly working environments' (Cowen, 2002, p. 7).

In this contemporary example of cultural transfer, issues of cultural equality and exoticising the work of collaborators emerge in the work of German artist Tobias Rehnberger (2012 a&b). He commissioned a bespoke automotive workshop in Thailand to exploit the phenomenon of remote cultural re-interpretation. Rehnberger sent sketches initially from memory of a range of cars including a Volkswagen Beetle, Mercedes C111 concept car prototype, Renault Alpine and McLaren F1 to the Thai workshop and requested a full size driveable interpretation of the cars in the images (Fig. 2.06). Subsequently the artist included additional newspaper cuttings and magazine articles but avoided measurements or technical data. The Renault Alpine was communicated via a telephone call with the specification that all the cars had to be built full-scale and driveable. The models chosen were relatively rare historic models and its possible that the workshop staff had never seen the cars in real life. Nevertheless Rehnberger's intention was to explore the idea of a 'mental photocopy' of his childhood recollections of these products, while at the same time recalling the tradition of hand making cars and celebrating the human

interventions that lead to different interpretations. The method of mental photocopying was achieved through re-drawing the models then sending them for construction in Thailand.

The re-interpreted cars at first glance look quite similar but a longer look begins to expose the differences. The VW Beetle's roofline, trim and wheel arches, the Mercedes bonnet width, the Alpine looks much improved as if it was a recent re-edition, while the McLaren is closer to the original and in some respects has cleaner simpler lines. It is tempting to contemplate the role of local cultural interpretation and form preferences in the completed autos but no record can be found which documents this. In many ways the key creative element of the project hinges on decisions made in Thailand by the prototyping workshop, how decisions were made on the foreshortened forms in the drawings, local materials and processes that limited form-making and structural possibilities and the personal and cultural interpretations of form. The lack of this information reinforces stereotypes of the supremacy of western form production while at the same time reducing the remote makers in Thailand by exposing them to being viewed as 'the exotic' and having less developed or naïve cultural interpretations. Essentially this could be viewed as an act of cultural imperialism.

Fig. 2.06 Tobias Rehnberger, reinterpreted cars produced in Thailand. The originals are on the right and the copies on the left. VW Beetle, Renault Alpine and McLaren F1

Rehnberger's process results in a unidirectional east-west and west-east analogue transferral of modifications resulting in cultural production. The artistic interpretations do not include accounts of local activity and the final designs were transported back to Europe for exhibition in high-end art galleries. Rehnberger's works could also be seen to function as critiques, parodying the perfection and visual control of western product image making and mass production.

It is clear from both examples whether its Steiner's graphical cross cultural method, Tam's 'quotation' of Chinese cultural motifs, Tang's nostalgic approach or Rehnberger's auto reproduction that design is a key ingredient in how we move influences from one location

to another and embody them in a project or an artefact. Design is essential to, and has a vast influence on the production and distribution of products across the globe. The relationship between design and how we negotiate influences is therefore important to consider as the mechanism by which making cultures actively influence each another. The media for geographically liberated differences are both *analogue* and *digital*. The term *analogue* has been used so far to reflect physical and spatial processes and locale-based activities whist the term *digital* is used to reflect information-based and remote communication activities, including advanced manufacturing and web-based technologies. In terms of the digital cultural phenomenon, the term analogue encompasses human or societal aspects, and digital as more information-based and transformative (Rabinovitz, 2004). The United Nations convention on the protection and promotion of cultural expressions includes the following statements particularly relevant to design and digital and analogue methods:

> Noting that while the processes of globalisation, which have been facilitated by the rapid development of information and communication technologies, afford unprecedented conditions for enhanced interaction between cultures, they also represent a challenge for cultural diversity, namely in view of risks of imbalances between rich and poor countries. (UNESCO, 2005, Annex V, p. 2)

The value that design can bring in addressing these imbalances can be engaged through the conscious shaping of cultural cross fertilisation to support artistic diversity as a heterogenising activity. It is clear that design inhabits a number of layers in geographically liberated difference from the detailed resolution of artefacts, the concepts for aesthetics and functions and systems-level creativity, through to the services that surround products and the global delivery and information systems that transmit the values of objects and physically move them from one place to another.

The author developed a journal paper (Hall & Barker, 2011) to collect the literary evidence described above as 'Geographically Liberated Difference' and explore the relationship and value of this concept to design practice. The paper suggested key elements of a mechanism for the untethering of artefacts from geography that was proposed from the literature and examples from Fiss and Clark. These are:

Liberation - the untethering of influences (differences) from geography

Mediator - the design processes acting on the differences

Transnationalism - the movement of cultural material across borders

Analogue-digital methods – the media use to communicate and exchange differences

Additionally, three interrelated layers of operation ranging from objects, cultural systems and creators are proposed. Specifically, in terms of design, geographically liberated difference is a facilitator of *liberation* in terms of the untethering or the deterritorialisation of objects, cultural systems, and creators:

1. Objects – artefacts that are relocated to a new geography where their influence increases diversity by communicating new functions, material techniques and cultural transfer.

2. Cultural systems – ways of behaving supported by products and their systems of use, distribution and manifestation of supporting services and experiences. These can be seen in movies, financial instruments and services, food and fashion retailing, technology, communications offerings and gaming.

3. Creators – traditionally by travelling to new locations to liberate their creativity from its origin via new experiences in new terrains. One of the original models for this includes the British "Grand Tour' where the sons and daughters of wealthy families travelled through post-renaissance Europe to experience new developments in arts, architecture, and culture. Digital creators can now travel and collaborate simultaneously across diverse geographies comparing, contrasting and hybridising their influences. Creators are untethered through physical and virtual travelling. (Hall & Barker, 2011, p. 512)

The purpose of suggesting the three interacting layers of operation lay in bridging the gap in understanding the role and potentials of design in this relationship. In order to explore and test this further, the outputs from the case studies are compared against the proposed key elements for liberating differences from geography in Table 2.03 below.

Case Study	Liberation	Mediators	Transnationalism	Analogue-digital
RSJ Bench	Influences to and from global sources	Diplomat designers	No, Local	Analogue
Palm	Technical development, digital data, physical making	Diplomat and clients	UK, Italy both ways	Analogue and Digital
Ahoma	Outgoing: local craft making and culture to global audience. Incoming: global influences via customisation model	Project organisers, western and Ghanaian designers, clients, artisans	Global both ways	Analogue and Digital
Ironman	Traditional bronze casting and seating typologies, attitudes towards difference	Diplomat	UK, Ghana one way	Analogue

Table 2.03 Comparison of mechanisms for untethering artefacts from geography in the case studies

A review of the table shows that there is a relationship between using digital and analogue media in reaching a global audience demonstrated in the Ahoma shoe design that also drew in a network of participants. Palm used digital technologies but not as a part of a shared creative process or customer engagement and Ironman was essentially an analogue project. Although this is a simple comparison of a small number of projects against the key elements of liberation, mediation, translocation and analogue and digital methods it appears that the combination of analogue and digital methods with a cross-cultural collaborative network of participants are worth pursuing further.

In terms of this research, design and geographically liberated difference contributes a key arc of connectivity that describes design influence and activity. Drawing on the literature, conference paper, case studies from chapter one, a diagram (Fig 2.07) has been proposed which explains geographically liberated difference in terms of a series of layers from traditional analogue trading via transporting physical objects to a philosophical understanding of the relationship of this concept to a future globalised design practice.

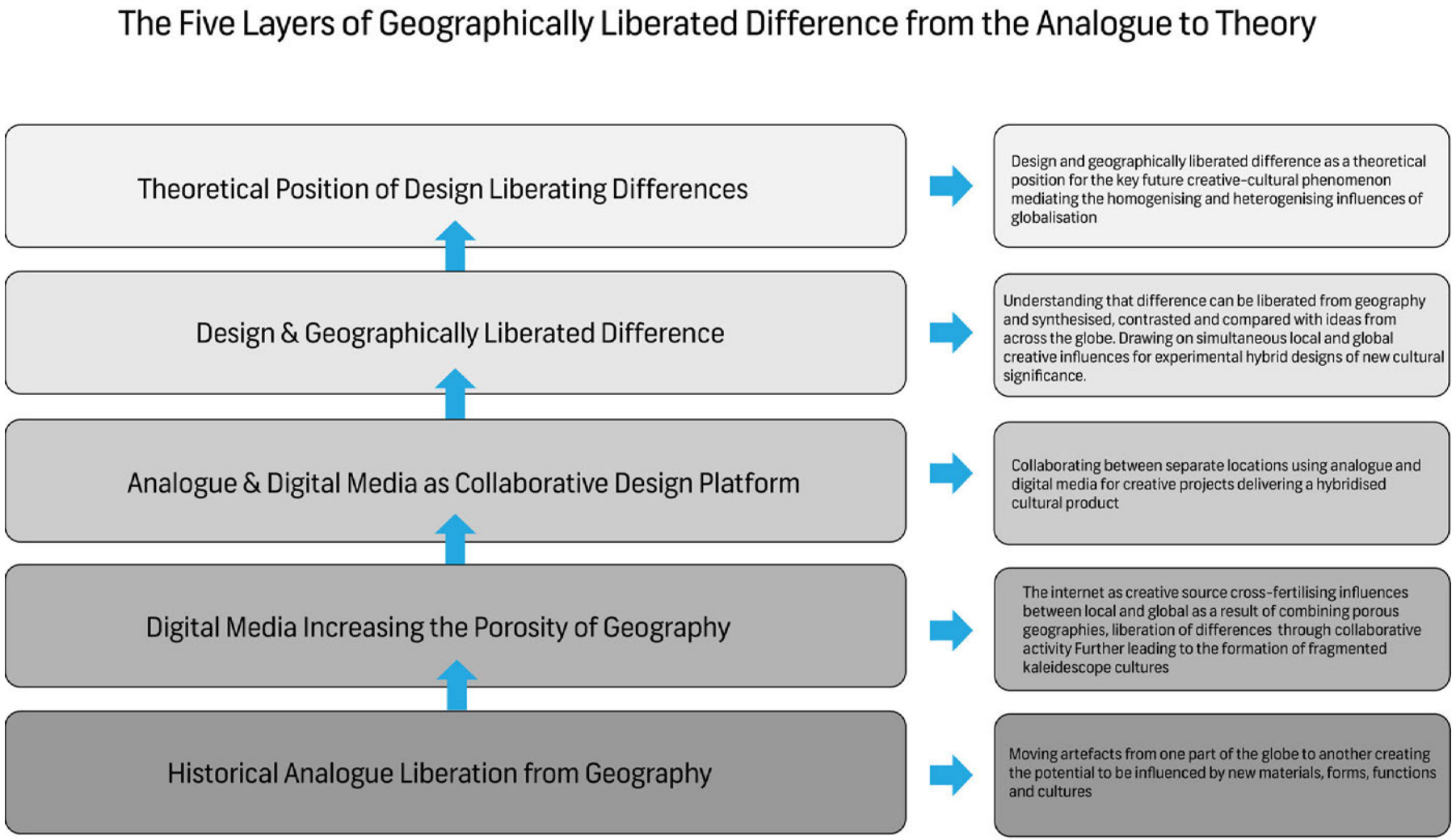


Fig. 2.07 The layers of geographically liberated difference

Fiss, Clark, Barber, Cowen and Appiah provide a backdrop for the conceptualisation of geographically liberated difference that has been presented here. The examples from Clark and Rehnberger indicated that design is a significant component of the activity of cultural transfer across geographies. The conference paper developed the idea of geographically liberated difference and its relationship with design by proposing the four key elements (liberation, mediation, transnationalism and analogue-digital) that operate across the three levels of objects, cultural systems and creators. The collecting together of this thinking under the banner of geographically liberated difference has enabled a proposition to be made that bridges the gap between Appadurai's suffixscapes and a potential way for designers to begin to understand how to engage with action on the ground.

2.5 Framing translocated making

This chapter began with reviewing literature on cultural transfer that provided some useful models for understanding how to extract material from another cultural group under study and to creatively embody these in a new design. The limitations of these studies when compared from the perspective of the issues raised in the case studies in chapter one is the lack of a framework from which to understand a model of cultural interaction on a global rather than a local scale. Moreover the people under the Moalosi and Lin studies are not actively collaborating in the design and making process so that they can benefit from and engage in the activity of artefact production. In addition, these models of cultural transfer do not consider what can happen when influences from other locations come into play in the production process.

ANT was researched as a network theory that studies the connections between humans and non-humans in global contexts to liberate new social understandings. This looked promising, but under further consideration its delimited nature due to the impartiality of ANT and lack of a comparative framework to understand cultural interactions remain as issues.

Appadurai's suffixscapes provide a way to understand cultural flows on a global scale and are not limited to a locality although they have very little evidence of being investigated in design research or used for applied research in the field. It is however an elementary framework presented by Appadurai and intended as a structure for making political arguments around the deterritorialisation of culture and signifies the issue, or as he calls it

the ‘black hole of social science’ (Appadurai, 2013, p. 258) in having great difficulty with contexts and the production of locality (Appadurai, 2009). Critically it positions disjunctive information flows in the sphere and connects their effects and consequences to Cowen’s creative destruction. In this respect it suggests the potential of design research to undertake these explorations.

Geographically liberated difference is the authors’ description for a range of literature that signposts the relationship between liberating differences from geography and initial explorations through a journal paper (Hall & Barker, 2011) that makes a claim that design is a core activity that needs further investigation. The example of Rehnbergers’s automotive collaboration in Thailand signifies difficulties and issues that can be faced with such collaborations but also the potential benefits of creating new types of object that can exist between cultures.

A central commonality runs through the theories of Appadurai’s suffixscapes and Latour’s ANT; it is to de-anthropocentrise our view of the world in order to allow new sophisticated and delimited understandings to enter our consciousness. However navigating this new delimited space is challenging for design and designers due to the apparent neutrality of networks and landscapes to human agency. Geographically liberated difference is an attempt to think through a structure that could to some degree re-anthropocentrise the model to accommodate human agency as the central focus of study while trying to retain the structural and conceptual neutrality of frameworks that avoid the classic issues of the centre-periphery model with its attendant post-colonial baggage.

Suffixscapes and geographically liberated difference have provided ideas that help to frame the case studies. The following chapter will consider how design methods can be used to explore these through practice based collaborative design projects conducted by the researcher with diverse cultures across separate locations.

3

Experimental Translocation

Reviewing the case studies in chapter one raised a number of issues and questions around what happens when designers and makers collaborate across locations and cultural groups to make new artefacts. Chapter two reviewed a range of theories in order to contextualise these and concluded that Appadurai's framework of suffixscapes provided a potentially useful model of understanding global cultural flows. The author's proposal of geographically liberated difference, through a combination of literature, examples and testing against case studies makes a case for the value that design can bring in researching cultural and design interactions that take place in field work.

One or more design methods will need to be deployed in order to engage a systematic process to research in action and assess the results in a way than answers the research questions in the context of the frameworks noted above. A range of practice based design methods that fall into the broad categories of action research and participatory design research will be considered. However an important consideration before selecting the most suitable methods is to identify a context for the project. The following section summarises a range of locations and cultural contexts familiar to the researcher with the goal of selecting the most suitable for this study.

3.1 Contexts

The researcher has experience through the GoGlobal projects and other academic and professional design collaborations of working in a range of different countries and diverse cultural groups on craft, mass production and academic design projects. Australia, Mali and a group of East Asian countries have been selected as potential locations to explore issues raised from the case studies. A range of criteria was used for selection including a significant cultural difference to the researchers own background to provide a contrast to enable influences to be recorded and analysed in the completed objects. The potential media available should allow for both analogue and digital means for exploring the issues identified in the case studies for the global sourcing of influences. Skills in using digital technologies could vary from very modest to expert level and a range across these would be preferable. The environment should contain a number of strong location based cultural craft and artisan making practices in order to test the exchange of cultural information. Other skilful semi-industrial processes could also be considered as a benchmark for comparison. A useful addition would be an educational partner for access to knowledge of local making practices as well as a network of connections. Student groups could also be

engaged in the research to test out new design approaches for the remote sourcing of influences.

3.1.1 Elcho Island

In August 2010 a field trip funded by the University of Technology Sydney (UTS) to North East Arnhemland was organised to visit the arts centre at Galiwinku on Elcho Island coordinated by Deon Teasdale. The aim of the visit was to assess possible collaboration formats between the local artists and the Design Architecture and Building (DAB) faculty in the University of Technology Sydney and as a potential location for the practice based element of this research. The arts centre coordinates activities for around 200 artists based on the island, many of whom have unique practices. Artworks from Elcho are in the Art Gallery of New South Wales collection and exhibited globally across Europe, the United States and Asia. The term artwork in used broadly and includes everything from bark paintings, to sculptures, woven baskets, carvings and other items. Several artists on the island discussed the motivation of capturing their cosmology and beliefs in new objects to record their knowledge for future generations. In collaboration with Koskela, a Sydney based design business has been successfully supporting local artists including basket weavers who make lamp shades and a project combining traditional icons into products. An example of which is the wooden stool with a carved owl inside illustrating cultural transfer from indigenous images onto a piece of furniture as shown in Fig. 3.01.

Figure 3.01 Owl stool photographed outside the Galiwinku arts centre on Elcho Island in the Arafura Sea, Arnhemland, Northern Territories, Australia.

Positive aspects for engaging in a collaborative project are the strength, variety and uniqueness of the local artists and the discussions with the arts centre coordinator who wanted to encourage more activity around enterprise and bringing in creative influences from the outside to offer a wider variety of objects to sell. He saw artefacts as a particularly underdeveloped area compared to paintings. In terms of this research project the analogue component was well represented in physical media but it was harder to see if the artists had use of the Internet or incorporated many external influences from outside visitors. During the visit it became clear that the Yolngu people have the most intact indigenous culture in Australia and are at risk as a viable community beyond the next 30 years or so due to a range of healthcare, economic and social factors. On the face of it this appeared to be a strong project location with an indigenous community developing new types of cultural artefacts, although a local educational partner had not been explored, the arts centre would be happy to facilitate a project. There is however a history of failed engagements and social projects in this area and intervention is a complex and a sensitive issue. It would be necessary to develop a mutually beneficial model of engagement and unfortunately the time required to develop partnerships and relations appears to be outside the scope of this research. In conclusion the learning from discussing this project

is the awareness that a context needs to be selected bearing in mind the sensitivity of engaging with another cultural group and the history of previous involvement.

3.1.2 Foroba Yelen

In October 2010 an opportunity arose to develop the Foroba Yelen project (social light in the local Bambara language) that aimed to design and make a number of portable solar lights for remote villagers in the Segou region of Mali. In September 2011 the researcher led five students and a member of staff who travelled to the remote villages of Bamassobougou and Segoala at Cinzana Gare at the Invitation of Boukary Konate, the son of the village chief. The aim was to conclude a one year design research project in a two week field trip by co-designing and building portable sustainable solar lighting with the help and collaboration of local villagers using facilities, skills and locally available materials in an sustainable enterprise model. From the outset it was assumed that this project would contribute to the doctoral research around the areas of communications platforms and technologies, engagement of collaborators and co-designers. The results were published as the conference paper, *Foroba Yelen: Portable Sustainable Solar Lighting for Remote Malian Villages* (Hall *et al.* 2012).

Mali is located in sub-Saharan Africa straddling the arid Sahel belt. It has very little forest and most of the population are centred around the Niger River inland delta where farming and irrigation is possible. Materials are therefore in short supply with much of the housing made using the traditional mud and straw construction process and the scarce wood supplies are often used for cultural artefacts including masks and musical instruments. Most of these are carved from single blocks with very little or no jointing. The research paper summarised the issues including an assumption that Mali would host a diverse range of craftsmen using local materials; to the difficulty of sourcing basic technology including drill bits and resorting to hammering a chisel to make holes in steel sections; through to issues with engaging different male and female groups in co-design activities. It was clear that unknown sensitivities and issues can be encountered when working with different cultures and the role of the designer is to be aware and to look for other ways to maintain the balance of keeping the collaboration on track whilst respecting the situations they encounter. Part of the research involved mapping the digital communications being used by the partners and this was valuable in comparing some basic communications platforms

like SMS, Facebook, Email, Phone and Skype to see which ones emerged at the primary communication format.

During a visit to Bamassoubougou a collection of wooden stools were observed in the village (Fig. 3.02). This led to the realisation that it was the original source for the pair of West African stools discussed during the earlier Ghanaian project (Chapter 1, Fig 1.13). The Lobe stools from Ghana had been the inspiration for the Ironmen stools discussed in chapter one and according to local knowledge a village in the area specialised in carving wooden stools.

Figure 3.02. Wooden stools from the Malian village of Bamassobougou.

This offered an interesting opportunity for a project location by using the researchers furniture design skills; cultural transfer potential and existing contacts and some plans began to be made. The lessons learnt from working in Mali as a project location involved the issue of cultural sensitivities in engaging with different groups, assumptions made about the materials and processes available. It also provided some useful insights into communication media, external expectations of making cultures and co-design approaches. An additional factor when considering a return for this project was the lack of connection with a local educational partner and a lack of knowledge about a wider group of crafts activities that could be engaged with. These are all important consideration to make sure that a variety of media is possible, that expectations and preconceptions are moderated and co-design methods are developed which suit the skills and experiences of

the collaborators throughout their making process. However in March 2012 a military coup took place in Mali not long after the group returned and foreign travel was not recommended therefore the possibility of a return looks unlikely in the near future.

3.1.3 East Asia

China, South Korea and Thailand were also considered as potential project locations with the researcher having conducted several design projects in those countries. China is currently the engine of global manufacture and has heavily invested in advanced digital manufacturing technologies. Collaborative design projects on post consumerism (2007) and Rural-Urban migration (2010) were developed with Tsinghua University in Beijing that provided useful insights in connection to this research (Hall & Childs *et al*, 2012). South Korea is also investing heavily in design and physical infrastructure to maintain its strong position as one of the lead consumer product innovators and manufacturers, and in 2012 a collaborative design project to create social and cultural city design solutions for Seoul (Hall & Jin-Nam, 2013) was conducted with the Korean Advanced Institute of Science and Technology (KAIST) in Daejeon. Thailand has a strong craft activity that is supported by the government as a way to encourage the maintenance of craft skills and develop new economic and market opportunities (Hall & Childs *et al*, 2012), this was also a strong contender.

The east Asian projects gave insights into some of the digital methods that may be useful however there were generally less geographically unique cultural craft making connections experienced by the researcher and exposure to internet and digital media was high, especially in Korea and it was decided not to pursue these further.

3.1.4 A Translocated Context

Elcho Island, Foroba Yelen and the east Asian projects provided valuable insights into issues of sensitive communities, communication media, co-design methods, preconceptions of material availability, impact of new technologies, manufacturing processes, craft traditions and exposure to digital media. In 2011, the GoGlobal project visited the Indian city of Ahmedabad with the aim of developing a collaborative 'Craftology' project with the National Institute of design (NID). The focus of this project was on using technology to enhance, but not supplant crafts processes. The research phase involved visiting a wide range of craftsmen and making communities alongside finding out about

the institute's history of supporting local crafts practices through its large network of connections. After considering the range of experiences and different contexts reviewed above and the requirements for testing the theories selected and described in the globalising frames, the National Institute of Design (NID) in Ahmedabad, India was selected as the project context. NID, Ahmedabad and the state of Gujarat have the full compliment of attributes that could be useful for the research including: an academic partner (NID) with a strong network of connections to craftsmen across the state, groups of students engaged in industrial design and crafts design projects, a history of working with research crafts skills, a range of making practices from very rare threatened unique skills through to high volume industrial production, a history of designers visiting for collaborations and projects going back to the 1950's and a range of other organisations and institutions supporting the exploration and enhancement of crafts activities. In addition the researcher has enough experience of this location in order to be confident in developing project proposals that would have some chance of being completed successfully and supported locally.

The diagram in Fig. 3.03 illustrates the network of local partners that can support the proposed experimental design project activity in Ahmedabad and the surrounding areas in Gujarat. The National Institute of Design is the key hub partner with local connections to many of the craft and maker networks in the area alongside expertise in engagement processes, relationships, cultures, ethics and knowledge of broader national governmental objectives. The geographical locations that offer opportunities in the Indian context are at NID (it is argued that this is a separate location within the city as an educational establishment with its own campus and culture), the crafts and making environment in the city and the remote making communities around the Rann of Katchchh (local Indian spelling is used here and elsewhere) visited in 2011 as part of the GoGlobal project described above.

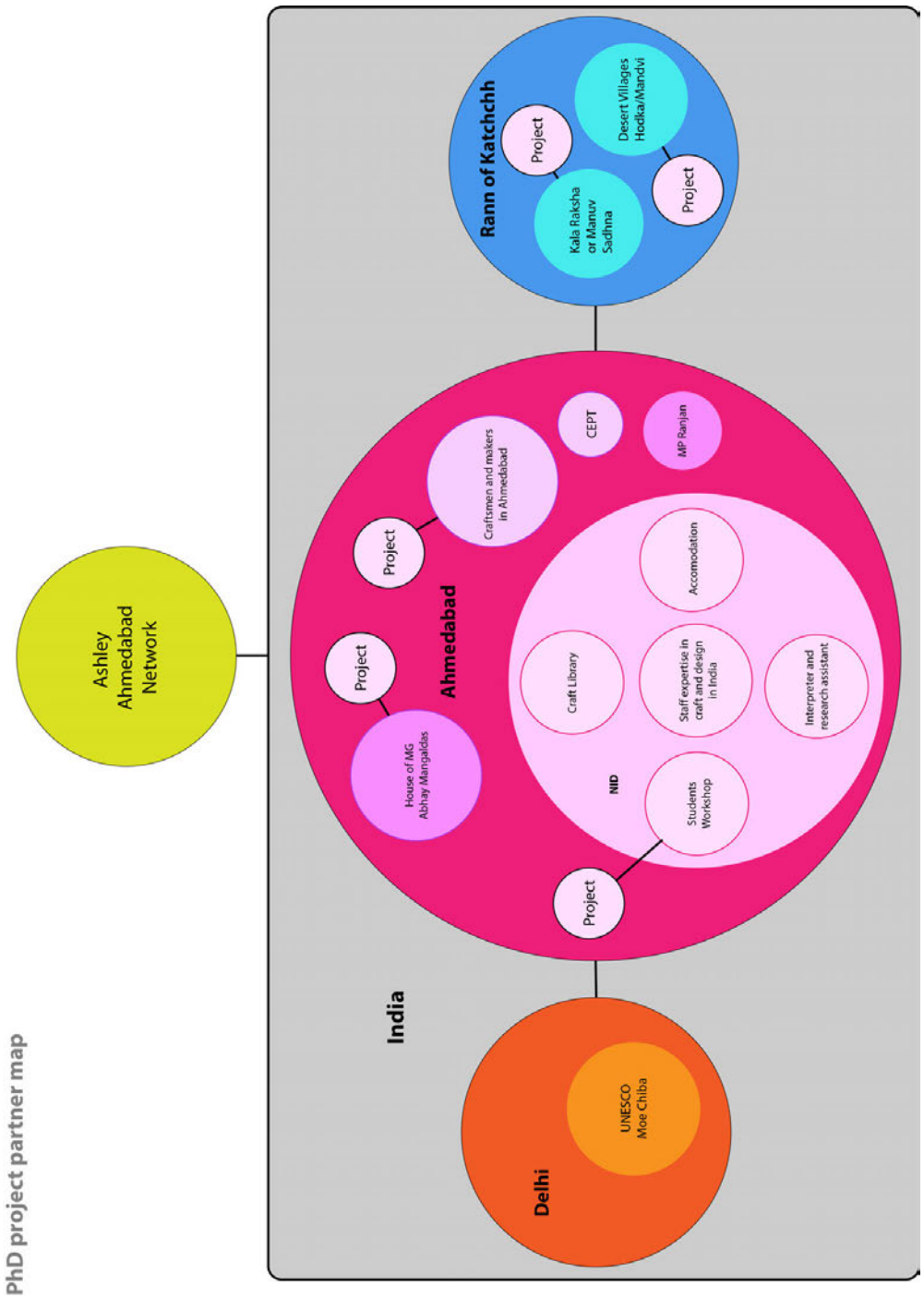


Figure 3.03 Map illustrating the range and relationship of potential project partners in Ahmedabad.

3.2 Artefact typology

An important consideration is the potential range of artefacts that could be the focus of projects in Ahmedabad and this needs some thought. In particular the central role of objects as the outputs of collaboration and in mediating differences as a vehicle for the craftsmen and the researcher to practice their skills. The product type needs to function on at least two levels. It needs to engage the stakeholders and collaborators through the

meaning and use of the product so that the value of the research can be understood and discussed. A second criterion involves the testability of the output against the goal of testing connections to the globalising frames and how it answers the research questions. It would be difficult to ask a collaborator to make an object they were very unfamiliar with as decisions around how the object was made could be adversely affected. However a product could also be selected to challenge the maker's techniques and use of materials as a way of enhancing the transfer of cultural differences. This type of approach could test for disjunctive communications and the creation of the imagined worlds described by Appadurai's scapes as part of the collaboration. An important consideration will be to see how far an object type can stray from its traditional typology through the interaction of the external and internal cultural differences with local makers and whether there is a cultural comfort zone for the object typology that can be tested. The role of the artefact in uncovering evidence and dialogue on this aspect could provide useful information for assessing how difference is liberated from geography through design practice.

Additional considerations are the skills and embedded knowledge of the researcher, and whether a range of objects can be made through a number of processes in order to make comparisons. Considering all of the variables from the researcher's personal skill set to the universality of output, communication, transference and mode of analysis and critique, a range of object types will be developed and tested through design practice using the situated knowledge described in chapter one. In order to explore a range of possibilities a mixed selection of predetermined and opportunistic product type opportunities will be explored.

3.3 Participating in design research

Selecting Ahmedabad and Gujarat as a project context and describing the considerations around the product type has articulated the location and the practical artefact requirements. The next section of the thesis bears that in mind and reviews a number of practice-based design methods including action research (AR) and participatory design research (PD) to evaluate their use in the Indian design projects. The aim of reviewing these methods is to look for a research model that can take into account the approach, positioning the author as both designer and researcher, the relationship with participants, co-designers and the appropriate tools, processes and field research techniques that can be deployed.

3.3.1 Action research

The exact origins of action research are unclear as many sources advocate a combination of planning, action analysis and re-planning phases (Adelman, 2006; Ahmed, 2009), however the organisational theories of psychologist Kurt Lewin are often cited as drawing together a coherent model developed through experimental AR in the field of Psychology as described in his paper *Action Research and Minority problems* (Lewin, 1946). It derives its history from information science and technology and not the design domain but it has a strong reflective component useful for this research. AR looks at organisational problems and describes a network based approach where participants are free to reflect and consider their requirements and opinions with the net effect that organisations are changed. A significant body of literature records a number of models and some of the more familiar ones have been described below.

Kemmis & McTaggert (1988) provide a recursive model to support the theory based on a series of reflective loops building from an initial plan through to developing successively refined plans Fig. 3.04.

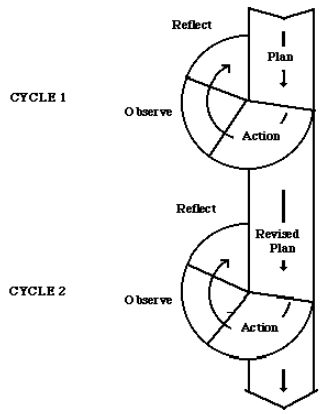


Fig. 3.04 Kemmis's recursive action research model

The model is linear and clearly shows the strong emphasis on reflection from the researcher followed by a series of actions including revised plans, actions and observations of the effect and so on in a series of recursive repetitions until the study is complete. They usefully describe some of the assumptions and misunderstandings in AR:

> Exaggerated assumptions about how empowerment might be achieved through action research. Confusions about the role of those helping others to learn how to conduct action research, the problem of facilitation, and the illusion of neutrality.

> The falsity of a supposed research–activism dualism, with research seen as dispassionate, informed, and rational and with activism seen as passionate, intuitive, and weakly theorized. Understatement of the role of the collective and how it might be conceptualized in conducting the research and in formulating action in the "project" and in its engagement with the "public sphere" in all facets of institutional and social life (Kemmis & McTaggart, 2007, p. 284)

The issues of facilitation are relevant to this research being in a collaborative format and in particular the problem of the research-activism contradiction between designing and observing and reporting the findings. The roles of the 'collective' or collaborative participatory group are a central concern of this research and efforts to explain the relationships of groups to the research will be made.

Hopkins (1985) (Fig.3.05) records a less linear variant on the action research model that enables recycling of actions and observation to take place. This is an improvement on the Kemmis model above in that it allows discarded information to be reused if it becomes valid again.

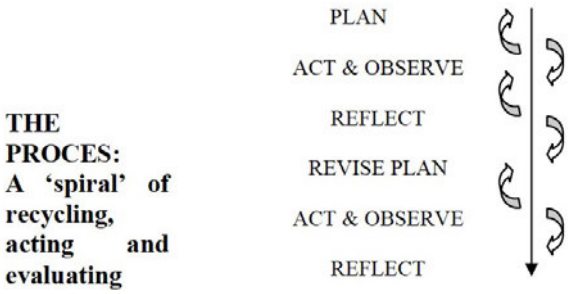


Fig. 3.05 Hopkins spiral non-linear variant

Susman (1983)(Fig.06) proposes a five stage sequential circular model with the additional specifying learning step. This model is presented as a closed loop and it's assumed that material circulates and that when applied there is little difference from the Kemmis 4 stage recursive model but with the additional learning stage.

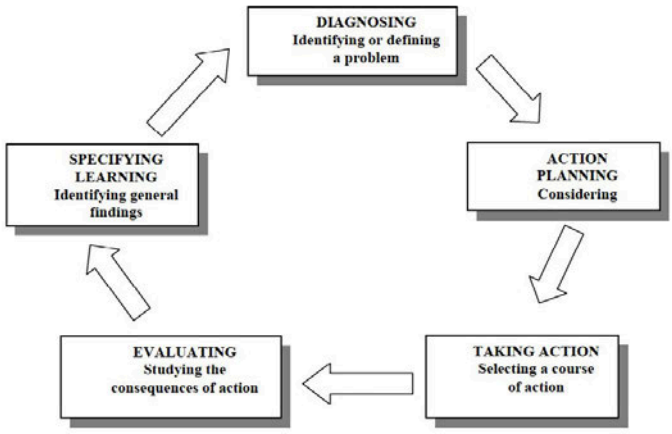


Fig. 3.06 Susman's circular model

Venable (2006)(Fig. 3.07) has contributed a four stage model driven by a theory building core at its centre with problem diagnosis, technology invention/design and technology evaluation, all of which are connected so it becomes a non-linear model connected in every possible way. This seems to defeat the logic for a method by proposing any number of combinations even if it is theory driven at its core. It also appears to presuppose that a theory proceeds an action.

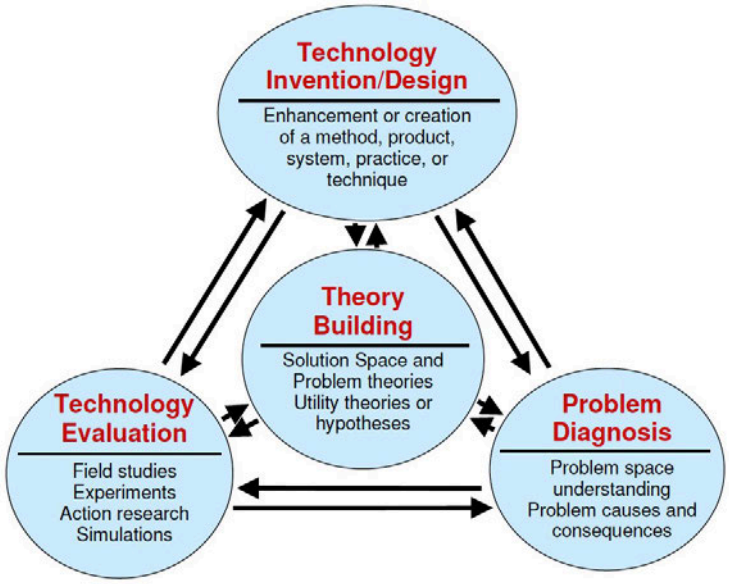


Fig. 3.07 Venable, theory building as core component

AR has been applied across a range of disciplines with a particular focus on organisational problems and addressing these through practical applications in the field. Both the reflective element and networked research approach would be a good fit with this research although the improvement of an organisation is not the motivation here. The

qualitative methods and tools of AR including interviews, shadowing, site visits, workshops etc. are familiar in the design field and can be applied in a structure to apply in researching through design. However a research method that more closely connects the researcher to artefacts and a close collaboration for making is also required.

3.3.2 Participatory design research

There is a significant body of literature covering participatory design (PD) across a diverse range of disciplines from design to human computer interaction, and information systems etc. including (Crabtree, 1998; Kensing & Blomberg, 1998; Sanders, 2002, Spinuzzi, 2005, Foth & Axup, 2006, Ivey, 2006; Juhani & Venable, 2009; Sanders *et al* 2010; Simonson & Robertson, 2013). Three descriptions of PD from technical communications, information systems and industrial design are reviewed here to describe some of the similarities, differences and challenges articulated across and within disciplines.

Spinuzzi (2005) claims that PD research originated in 1970-1980's Scandinavia from Marxist foundations in relation to the involvement of workers in shaping new computing technologies. From a technical communications research field he goes on to define participatory design research as:

> It attempts to examine the tacit, invisible aspects of human activity; assumes that these aspects can be productively and ethically examined through design partnerships with participants, partnerships in which researcher-designers and participants cooperatively design artefacts, workflow and work environments; and argues that this partnership must be conducted iteratively so that researcher-designers and participants can develop and refine their understandings of the activity. (Spinuzzi, 2005, p. 164)

This is a useful definition that fits the aims of positioning the researcher and participants in relation to each other for an ethical collaboration into making a new object. Iterative processes are highlighted in order to improve the refinements and understanding of activity. He agrees that participatory design methods research is still developing and recommends the following three basic stages:

> Stage 1: ...designers meet users and familiarise themselves...exploration includes the technologies used, but also workflow and work procedures...

> Stage 2: …designers and users employ various techniques to understand and envision the future workplace…this stage allows designers and users to clarify the users goals and values and agree on the desired outcome of the project…
>
> Stage 3: …designers and users iteratively shape technological artefacts to fit the workplace environment…prototyping can be conducted on site or in the lab…
>
> (Spinuzzi, 2005, p. 167)

These stages reflect a common logical approach that most designers would agree with and recognise, however Spinuzzi's stated goal reflects his disciplinary perspective in aiming to optimise workflow and in envisioning the future workplace. The goal of this research however is to observe and collaborate in the making of an artefact to study the communications and activities that can shed light on how differences are liberated from geography and are not concerned with a specific study of workflow or system optimisation.

He suggests three groups of methods designed to coincide with the three stages above that are summarised below:

> Stage 1: Initial exploration work - …involve examining technology on site…draws from ethnographic methods such as observations, interviews, walkthroughs, and organisational visits and examination of artefacts…although methods draw from ethnography, they are orientated towards design as well as description.
>
> Stage 2: Discovery process -…where researchers and users interact most heavily…typically involves group interactions. . discovery processes tended to be more interactive and iterative…Because of participatory design's orientation towards design, the goal is to cooperatively make meaning out of the work rather than simply describe it…Methods used during this stage include organisational games…role-playing games…organisational toolkits…future workshops…storyboarding…and workflow models.
>
> Stage 3: Prototyping – …involves a variety of techniques for iteratively shaping artefacts…techniques include mockups…paper prototyping…cooperative prototyping…among many others. Finally and just as importantly results are disseminated. (Spinuzzi, 2005, p. 168)

The methods for the exploration stage coincide well with techniques used for the case studies in chapter one and those that can be envisioned for the projects in India. However the methods in the discovery process stage reflect the disciplinary specificity of Spinuzzi and would be exchanged for industrial design processes of sketching, brainstorming, and collaborative discussions depending for the Indian design projects. Stage 2 could be described as the design or co-design stage. The prototyping stage is clear and familiar for use here. Spinuzzi provides a useful conclusion by defining two different approaches to understanding PD:

> If we understand participatory design as an *orientation*, we are tempted to articulate a few general principles and retrofit our existing techniques to accommodate them. But if we understand it as a *methodology*; we are able to draw on a coherent body of methods and techniques operating within a general research design under common methodological premises. (Spinuzzi, 2005, p. 171)

Two different interpretations are related here; the *orientation* approach that is a more open in outlook and the *methodology* approach that Spinuzzi is promoting as a rigorous and thorough approach based on principles from social science. Crabtree (1998) agrees that ethnography is an important approach for PD and states that it is becoming an increasingly widespread technique citing the proceedings of the biannual participatory design conference. He describes ethnography emerging as the favoured approach in that it aims to design systems that provide the best fit for the work at hand and provides a meta level definition …'ethnography' delineates little more than a distinction between quantitative and qualitative methods of social research' (Crabtree, 1998, p. 4).

He makes some observations on the limitations of PD when researchers interpret or translate activity rather than clearly report the details. Ethnography is described as a concise and accurate practice that does not involve interpretation or hypothesis. This argument contrasts with Kemmis & McTaggart's criticism in AR of 'the problem of facilitation, and the illusion of neutrality' (Kemmis & McTaggart, 2007, p. 284). Crabtree positions ethnography's role in PD as 'Ethnography's task is to develop commonly applicable means of discovering and linking 'what is really going on', why and how in ways that support the formulation of potential design solutions (Crabtree, 1998, p. 7).

The impression given by Crabtree is of a scientific non-interpretive approach that seeks to uncover as he puts it 'what is really going on' and to be precise in going back to reveal the

reality of a situation rather that distort a particular scenario by interpretation or projection of other desires. Given the context of an ethnographic focus in a software engineering environment this is not surprising. He concludes by saying:

> [P]articipatory design relies on obtaining an adequate understanding of the language-game of the use activity. Working in parallel with experimental techniques, that goal may in significant part be achieved on any occasion of design by attending 1) to the working division of labour and the membership categories employed by persons embedded there-in; and 2) to the categories members' use to make their activities intelligible both to each other and the inquirer alike. (Crabtree, 1998, p.11)

Elizabeth Sanders is an acknowledged leader in the field of participatory design and co-design. Through Make Tools she has promoted a detailed structure for researching through PD. Sanders *et al* (2010) cite the early research driven work of Greenbaum & Kyng (1991) and Schuler and Namioka (1993) and describe the development over the last 30 years away from ICT towards more diverse areas including industrial design, service design, space design and architecture and describe:

> PD today is an emerging design practice that involves different non-designers in various co-design activities through the design process...Thus an important challenge is to find appropriate ways to engaging and involving people in PD activity. (Sanders *et al*, 2010, p. 1)

They note the confusion that exists over the use of appropriate tools with a diversity of recommendations and unclear outlines. Sanders also proposes an ethnographically orientated model with a new broader research framework drawn from the global perspectives (they state Europe and the US though this very questionable as it does not include Asia or other non-western parts of the world) to enable an easier discussion of tool and technique selection for design research projects. They describe the level of application building from tools, toolkits, techniques, methods and approaches and this is addressed as a chart reproduced in Fig. 3.08 below that describes the form and purpose of the tools and techniques being used today.

TOOLS AND TECHNIQUES	PROBE	PRIME	UNDERSTAND	GENERATE
MAKING TANGIBLE THINGS				
2-D collages using visual and verbal triggers on backgrounds with timelines, circles, etc.	X	X	X	X
2-D mappings using visual and verbal components on patterned backgrounds		X	X	X
3-D mock-ups using e.g. foam, clay, Legos or Velcro-modeling			X	X
TALKING, TELLING AND EXPLAINING				
Diaries and daily logs through writing, drawing, blogs, photos, video, etc.	X	X	X	
Cards to organize, categorize and prioritize ideas. The cards may contain video snippets, incidents, signs, traces, moments, photos, domains, technologies, templates and *what if* provocations.			X	X
ACTING, ENACTING AND PLAYING				
Game boards and **game pieces and rules** for playing		X	X	X
Props and **black boxes**			X	X
Participatory envisioning and enactment by setting users in future situations				X
Improvisation				X
Acting out, skits and **play acting**			X	X

Fig. 3.08 Sanders tools and technique for participatory design

The framework is completed by a second chart that lists the potential applications of the tools and techniques in individual, group, face-to-face, and online studies (Fig. 3.09).

CURRENT APPLICATIONS OF THE TOOLS AND TECHNIQUES	INDIVIDUAL	GROUP	FACE-TO-FACE	ON-LINE
MAKING TANGIBLE THINGS				
2-D collages using visual and verbal triggers on backgrounds with timelines, circles, etc.	X	X	X	X
2-D mappings using visual and verbal components on patterned backgrounds	X	X	X	
3-D mock-ups using foam, clay, Legos or Velcro-modeling	X	X	X	
TALKING, TELLING AND EXPLAINING				
Stories and **storyboarding** through writing, drawing, blogs, wikis, photos, video, etc.	X	X	X	X
Diaries and daily logs through writing, drawing, blogs, photos, video, etc.	X		X	X
Cards to organize, categorize and prioritize ideas. The cards may contain video snippets, incidents, signs, traces, moments, photos, domains, technologies, templates and *what if* provocations.	X	X	X	
ACTING, ENACTING AND PLAYING				
Game boards and **game pieces and rules** for playing	X	X	X	
Props and **black boxes**	X	X	X	
Participatory envisioning and enactment by setting users in future situations	X	X	X	
Improvisation	X	X	X	

Fig. 3.09 Sanders application of tools and techniques

They conclude by recommending a method of applying the tools and techniques into a research design that is based on assessing the aims and objectives of the design project alongside the group size, in person, remote and stakeholder relationships. Selecting tools and technique combinations is left to the expertise and experience of the researcher. The online application is of particular interest here although it suggests 2D collage, storyboarding and diaries as appropriate tools. It's clear that these tools are suggested for co-design using the Internet rather than recording cultural information flowing between collaborators and this contrasts to the experiences of the design scenarios recorded in the

case studies. The tools and techniques in the first table however cover a useful range and these will be considered for the detailed design of the Indian design research projects.

We can conclude that participatory design research (PD) is an immersive process with the designer-researcher actively interacting with participants and guiding the direction of the physical outputs. Less focus is given to networking and interaction between the participants over longer periods of time. The designer-researcher is an active agent in the research and can bring into play both experiential and innate skills to guide the research as a design activity. The net result is that an artefact is changed or comes into being in a way that affects society. It has a strong build focus as an output.

It is clear from Spinuzzi, Crabtree and Sanders that an ethnographic approach is now commonplace in PD and that a significant number of researchers recommend its use. However, when compare to the aims of this research focus there appears to be a significant difference in term of the research motivation. To quote Crabtree the ethnographic approach aims to uncover 'what is really going on' (Crabtree, 1998, p. 7) and the method employed is to study the practices of the workers. Yet the focus of this research project is not on solving problems by workers, systems design or uncovering insights for mass-produced products or systems. The aim is to observe and participate in the exchange of cultural material from participants in diverse cultural locations to create a new object and compare the results with the globalising frameworks. The problem of the research beyond the practicalities is to design a number of formats that aim to record the communications and exchanges that allows their comparison to the theories and frameworks of suffixscapes and geographically liberated difference described at the end of chapter two.

3.3.3 Comparison

Action research and participatory research are both ways of acting as a researcher to investigate a particular set of exchanges and their relations between people and artefacts and systems. It has emerged from the analysis of action and participatory design methods analysed above that both approaches have some value for the research intention of conducting collaborative cross cultural projects in India. AR and PD research overlaps, as can be seen in the tile of Foth and Axup's (2006) paper 'Participatory Design and Action Research: Identical Twins or Synergetic Pair?' in which they discuss the merits of a

participatory design verses an action based research approach for cross-disciplinary practice. The research compared two different scenarios of a device for mobile information sharing (MIS) and a study of social networks for urban residents.
The MIS study was aimed at independent travellers and twelve foam prototypes were made and given to backpackers travelling across Australia. After their return a research workshop elicited feedback on the devices and eleven issues for improvement were identified. The social networks study was conducted over three years and involved residents in a study researching the facilitation of social networks to enhance neighbourhood identity. The findings indicated that younger users who were new to the area used the network to make friends and older participants used the network to maintain existing relationships. The collective interaction methods for the MIS study were labelled as targeted research while the networked interaction approach was labelled as immersive.

The collective interaction model was undertaken as part of a participatory design method and allowed the creative and intuitive experience of the facilitators to guide the course of the research. The networked interaction approach used for the social networks study took place over a longer period of time and allowed the subjects of the research to interact and reflect on the type of service that was successful. Its outputs provided results that supported interaction and infrastructure level solutions. The methods used were applied to two very different scales of project with participatory design focussed at an artefact level and action research at systems interaction level. However these are also the two related scales being considered for this design research, of an artefact level investigation that takes place between the design and making collaborators and communications for transferral of cultural information that takes place on global scales. Foth and Axup concluded:

> [W]e think PD and AR frameworks have a similar interest in participation, but different strategies for doing so and with different intent. If an action research framework was added to the MIS study, the scope would increase significantly and the intent and direction would change. (Foth & Axup, 2005, p.3)

They report on the proposal of adding an AR framework to a PD research project 'the nature of social interaction and the individuality of issues faced by them are factors which make it difficult to add an AR framework to this PD study' (Foth & Axup, 2005, p.3).

Yet when considering the value of adding a PD component to the AR work they report a more positive value:

> The AR aspect of the [social networks] study would compliment the PD work. AR ensures that any potential shifts in communication habits, interactions patterns and power relationships associated with the rollout and uptake of new design solutions is adequately captured...
> (Foth & Axup, 2005, p.3)

In the MIS and social network study, the researcher was physically close to the group and able to mediate the process of design research through practice. The location and activity of the designer-researcher in an immersive participatory design process will need careful consideration in order to be able to describe the results whilst also being embedded in the process. One strategy is to design a range of workshop projects that can site the researcher at varying distances to the collaborative creative work.

Cole *et al.* (2005) compare action research and design research models as proactive methods from an information science perspective. The analysis is used to cross-compare the exemplars from each approach with the criterion of the other in order to highlight differences. Action research is also described in this research in terms of organisations and interactions within a clear social setting. Cole *et al*. conclude that the design research model can add what they describe as 'build' activity to enhance action research while action research can add a powerful reflective element to design research. These are illustrated as linear models of progressive research. Cole *et al*. therefore, also recommends the combining of action research and design research methods and provides suggested improvements to both models.

There is a great deal of literature on action research, participatory design research and related areas including design research and design science research. While some authors claim that for instance PD research has unique qualities, others claim large amounts of commonality between the AR and PD leading to confusion and complexity in how these

terms are used and referred to within and across disciplines. Another feature of the literature is the effort in defining the positioning of these methods in relation to each other and in relation to the disciplines within which they are being researched. In fact a common aim is to make attempts to define for example design science research in terms of information systems (Juhani, 2009) or participatory design research in terms of human computer interaction (Spinuzzi, 2005), or to make comparisons between AR and design science research (Juhani & Venable, 2009).

In much of the literature reviewed more attention was paid to definitions and describing the research methods in terms of its relations to disciplines than in providing specific structure, tools, methods and techniques recommended for field work that is directly relevant to the focus of this research although Spinuzzi (2006) and Sanders (2010) makes some useful recommendations for PD. It seems that much of this translation for designing a research toolset is left to the designer-researcher to make a logical case for the study at hand.

3.3.4 Selection and unanswered questions

AR and PD both have features that are valuable for this research. AR contributes the study of the system whilst PD has an artefact focus with a strong build element. An ethnographic approach is now widely evident in PD methods yet as described above, the focus of this research is not to 'solve' a particular set of contextual problems via extracting working patterns and then designing a better product or system. The research motivation for this project is investigative and will require elements of both AR and PD to actively engage at an artefact and systems level.

The research methods for the field work in Ahmedabad will need to fuse the strong build quality of PD to enhance and study action and interaction through making artefacts and incorporate the reflective element of AR that are well suited to organisations in a social-cultural setting. The combinations of these two elements are suggested by Cole in order to further strengthen the design research model and will be deployed and tested here. It will be important to leave space in the combined AR/PD research method to engage with and record the activity of the globalising frames of suffixscapes and geographically liberated difference in exploring translocated making with an experimental approach to the design

projects. A combination of tools and techniques will be made which combine AR/PD methods. These will be deployed and reflected upon in the post-project analysis.

Ethnographic tools are discussed in some of the AR/PD literature but with little emphasis on how they are compared against design issues and deployed as techniques in the field. The Sanders PD charts are useful here in at least offering an overview of some options. As there is some ambiguity and overlap in the AR/PD models, a rationale for the selection of tools, toolboxes, techniques, methods and the role and positioning of the researcher is driven by the issues raised in chapter one and the frameworks that have been selected for testing from chapter two.

The researcher-designer will engage through a number of research projects that place the researcher internally and externally to the projects, acting as both a facilitator designing and observing the research and designing through the research as a participant and building in opportunities for reflection. There are however a couple of unanswered questions. The first concerns experimentation, this is largely absent in the AR and PD literature (it is not included as one of the Sanders tools for example) as a potential research tool and there is a need to explore this further. The second question goes back to Kemmis & McTaggart and the limitation of PD research and the dangers of how to combine neutrality referred to as 'The falsity of a supposed research–activism dualism' (Kemmis & McTaggart, 2007, p. 284). How can a researcher position themselves internally and externally to a set of cultural transfer design experiments and be able to analyse the result so that it draws on a perspective greater than the cultural background of the researcher? These questions will need to be answered before the final set of Indian research projects can be formulated.

3.4 Experimentation

The following section begins with a discussion of experimentation in industrial design and concludes by reviewing how it can be deployed in the Indian design research projects.

We often presume that the experiment is a natural part of a designer's day-to-day activity and that the approach is well understood. It is a key component of Industrial design activity and is frequently deployed in order to reveal new creative possibilities. This investigation led to the authoring of a journal paper on *Experimental Design: Design Experimentation*

(Hall, 2011) discussing the relationship between design and science. It proposed a new approach of experimentation as a whole design approach rather than a standardised tool that is deployed inside an otherwise traditional design practice model. The elements that could contribute valuable tools or methods to a collaborative cross-cultural experimental set of research projects are summarised here.

The phrase 'experiment' is used widely in industrial design and yet it was surprising to review industrial design literature to find very few discussions of the strategic role of experimentation in creativity and as a total design methodology. Examples were found however in engineering design where the application of scientific methods to technical problem solving was the focus (Anthony *et al.* 2003, Tanco *et al.* 2007).

Scientific and design experimentation are discussed in the paper to compare the way that scientists and designers experiment in fundamentally different ways. Scientists have been encouraged to build on one another's knowledge and findings to evolve their discipline. This has created an environment where experiments are peer reviewed and are required to be repeatable in order to be valid. Experimental design (Galison, 1987) ensures that a trajectory is plotted along which verification metrics can be established. Scientists know both where they are going and what they are looking for as a necessity before proceeding. The process is convergent. Thomas Kuhn explains that:

> Under normal conditions the research scientist is not an innovator but a solver of puzzles, and the puzzles upon which he concentrates are just those which he believes can be both stated and solved within the existing scientific tradition. (Kuhn, 1962, p. 144)

While Gallison provides an example that contextualises the value of this approach and how it can lead to breakthroughs:

> In his 1962 work, *The Structure of Scientific Revolutions*, Thomas Kuhn assailed the universal adjudicating power of experiments, and therefore their independence from theory. Instead of arguing that that observation must precede theory, Kuhn contended that theory has to precede observation...As long as the celestial object later called Uranus was considered to be a star, Kuhn observes, its motion was not noticed. Only when astronomers threw its identity in question could people "see" it move. (Galison, 1987, p.8)

Scientific experiments comprise a number of stages from theory, to hypothesis, to experiment design, equipment, data, analysis and conclusion in a regular linear format. In contrast, industrial design experimentation begins with a motivation that can be captured via a hypothesis but will rarely describe the rigour and a linear definition of the scientific equivalent. Industrial design experimental stages could be presented as: hypothesis, experimental phases, narrative, data interpretation and exploitation of findings running in parallel, and often in a non-linear model. Designers use a variety of experimental tools that vary from abstract associations through to more controlled processes that can include the following: abstraction, abduction, subduction, concept generation, brainstorming, free association and role play, for example using de Bono's six hats (De Bono, 1999). Scientists know what they are looking for when they conduct experiments with a clear method, designers experiment in situations when the path is unclear.

More recently Hans Georg Rheinberger in what has been described as one of the most profound works in the philosophy of science in decades challenges Kuhn to offer an alternative viewpoint to the classic theory driven experiment model in *A History of Epistemic Things* (1997) which he describes through a revaluation of the work of synthesising proteins in the test tube. Rheinberger develops a profound piece of scientific philosophy where he establishes the experimental laboratory as both the theory and experiment working in conjunction to create what he calls 'epistemic things.' The case study takes place at the Harvard University Collis P. Huntington memorial Boston General Hospital between 1945 and 1965. The epistemic things are created by the objects scientists manipulate but also how they are placed in the culture and thought patterns of the laboratory. Rheinberger draws on Derrida's differénce to explain the experimental laboratory as a place that generates differences. He makes a clear distinction between reproducing and replicating an experiment, between a repeat of the process to look for differences as opposed to reproduction of the results. The lab is seen as a place to produce differences, each one adding to knowledge and informing the complex experimental system where material and instruments are the objects of manipulation. Rheinberger goes on to question how the experimental system deploys its epistemic power away from the conventional scientific ideas of representing the invisible as visible, and 'explaining the world.' Of how it can escape the binary conditions of empiricism and rationalism and instead represent results 'as' representations of something rather than 'of' something. He gives an example of seeing the actor Bruno Ganz the night before playing his part and as

seeing someone ‘as’, a representation we buy into that Ganz is playing his part yet knowing he is not ‘of’ that part. He describes a layered process of representation that becomes more concrete as it develops.

It is tempting to compare the production of epistemic things to Sennett’s proposition of thinking through making (Sennett, 2008) as a parallel and equal form of thinking through making artefacts. The parallels between this new piece of scientific thinking and design thinking are clear. In terms of representation we could compare the concretising layering of scientific findings to the collaborative development of an artefact that becomes more real as it progresses from a conversation, to a drawing, model, pattern and a finished object.

Creativity and experimentation are often considered to be core elements of the industrial design process. The diagram in Fig. 3.10 (Hall, 2011, p.17) examines this and positions experimentation in the industrial design field by illustrating the increasing levels of creativity and risk associated with industrial output ranging from imitation to experimentation. We see that a large amount is comprised of the reproductions of essential commodity items including nails, screws, bricks, bolts and other universal artefacts. Further up the scale products start to become differentiated in order to have some market appeal. Iteration ensures continual incremental improvements are made to enable increased performance and to keep pace with functional and technological developments. Innovation launches ‘new to the world’ products, while experimentation sits at the very frontier of industrial output by proposing ‘future’ offerings. From this we can see that experimentation explores the cutting edge of design, but underneath this is a significant shift in methods from imitation through to experimentation.

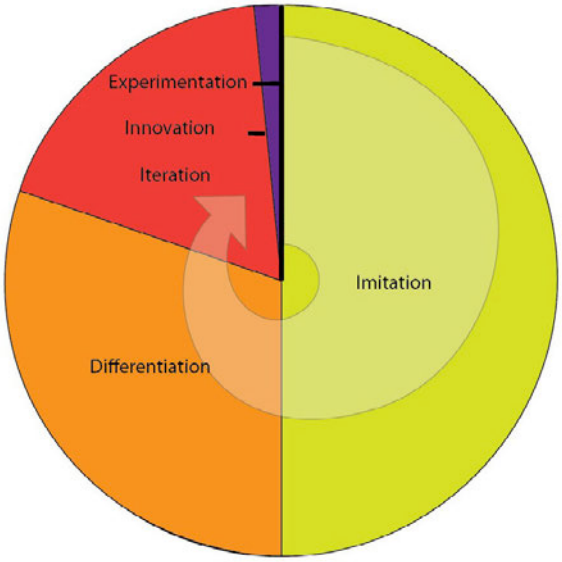


Figure 3.10 Experimentation, how the design world is made

Conventional design methods succeed by problematizing a scenario. We identify the problem within the context and deploy the most suitable methods from the selection on offer. Researching the issues of the cultural exchanges that take place between participants, exploring translocated making as a design practice and how it can be understood in terms of ideas of cultural transfer and global influence are questions of investigation for furthering knowledge of what really takes place in the field. The research will be experimental in the sense that a conventional design problem (outside of tools and techniques and other logistical elements) has not been identified as an issue that people are facing in the field. It has been articulated in how a framework needs to be found and tested in order to understand the exchange of influences that takes place when sharing cultural activities. Based on the experience of leading an experimental design strand on the IDE masters programme and the issues in industrial design raised above, a new model of design experimentation was proposed in Fig. 3.11 (Hall, 2011, p. 21). Its aim is to visualise how a series of design experiments can lead to the exploration of a hypothesis. The value to this research is in the exploration of the research questions recorded at the end of chapter one and how a series of experimental design research projects (represented by 'X's in the diagram) can explore the scope of the hypothesis (represented by the - - - - lines) while delivering data and outputs recorded as a parallel stream (arrows). The final conclusions will be recorded in chapter five and six.

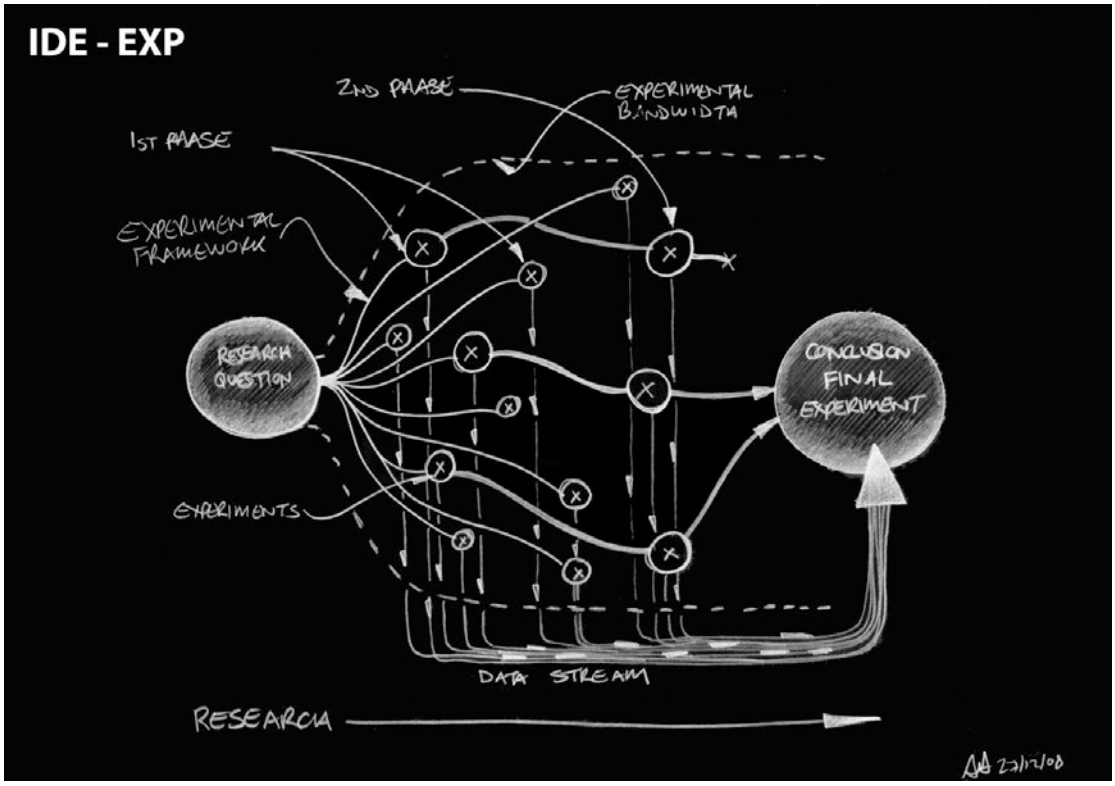


Figure. 3.11 Experimental Design process diagram by the author

The value to this research is in positioning experimentation in design terms as an epistemic activity where the experiment is both the theory and the practice. In terms of the AR/PD model, experimental design will be selected as the design approach to purse the practice based projects in India.

3.5 Positioning the researcher

Returning to the questions asked at the end of section 3.4, the Indian projects will be conducted with collaborative partners where the researcher will be situated both internally and externally in terms of design practice, while continuously acting in the role of designer-facilitator for the research. The cultural positioning of the researcher and his response to the material being recorded, how it is recorder and the design of the formats for recording and collaboration all require some consideration from both the researcher and cultural design collaboration perspectives.

The emerging discipline of visual culture has developed new approaches for appreciating and 'talking about' artefacts made by different cultures. Irit Rogoff in *The Visual Culture Reader* (Rogoff, 2002) situates the emerging discipline in relation to its antecedents and describes a number of critical influences including Derrida's philosophical

poststructuralist linguistic critical theory in *Writing and Différénce* (Derrida, 1978). Derrida's writes about how previous structuralist coding's based on the opposition of conceptual binary pairs (e.g. church and state or life and death) are freed via the mobilisation of the signifier which in turn enables other media including sounds, spaces and images to become part of the critical discourse. The aim is to delimit the critic from their background in order to have a clear vision to articulate new positions on the visual world. For instance in relation to this research a conventional structuralist interpretation could revolve around the negative differentiation of the liberator-liberated or analogue-digital conceptual pairs as a means of critical analysis. Rogoff explains:

> Instead what we have begun to uncover is the free play of the signifier, a freedom to understand meaning in relation to images, sounds or spaces not necessarily perceived to operate in a direct, causal or epistemic relation to either their context or to one another. (Rogoff, 2002, p. 15)

This description appears similar to the process of liberating differences from geography described through Fiss and Clarke's articles in that mobilising the signifier enables new differences to be read in the same way that liberating differences from geography enables new meaning to be understood. In relation to Appadurai it supports the notion of the disjunctive nature of communication across suffixscapes in that meaning is freed from its contextual (geographic in this interpretation) interrelationship with other media forms as well as having the freedom to operate across diverse media. This opens up the possibility to envision meanings held between locations in the practical examples of digital files and the conceptual model of making shifting from the individual designer, manufacturer and location into a fluid transitional state. Rogoff's analysis poses a 'field of vision' interpretation of Derrida's différénce that liberates the discipline to deterritorialise knowledge by opening up the possibility of new critical interpretations. She asks two key questions in relation to image and interpretation 'What are the visual codes by which some are allowed to look, others to hazard a peek, and still others are forbidden to look altogether?' And 'Can we actually participate in the pleasure and identify with the images produced by culturally specific groups to which we do not belong?' (Rogoff, 2002, p. 16).

These are essential challenges in the milieu of geographically liberated difference. Rogoff extends her questions into a call for understanding how we use images and media to shape our fantasies to carry narratives in a similar form to Appadurai's use of the term 'imagined

worlds'. The unframing or deconstruction of conventional comparative analysis in the visual culture discipline has opened up new ways to free knowledge from structuralist and colonialist perspectives and offers not only new subtle models of description but makes a space for situated knowledge to become part of the dialogue. Sturken & Cartwright (2001) describe the value of extending looking practices into non-western areas and the reception of remote images:

> There has been a large quantity of research conducted about looking practices and the meanings produced on the basis of particular sorts of images. Less research of this sort has been conducted on subjective experience and audience reception in regions outside the industrialized West. Discussions of the global often address how images are transmitted, but not how they are received and used. This dynamic will change as more research is done on the specific concerns and responses of non-Western audiences. For the moment, most research about global media and imaging practices tends to focus on populations and countries, not communities and localities. (Sturken & Cartwright, 2001, p. 316)

A critical element in visual culture is spectatorship in the field of vision, and its relationship to the reading of space. This is crucial in order to place the critic in relation to the media space (or mediascape in Appadurai's suffixscapes). In order to be able to expand the depth and level of analysis and critique, concepts of spectatorship have been developed in an attempt to remove as many preconditions, cultural biases, developmental and gender orientations as possible to uncover new meanings (Rogoff, 2002). A central contribution to the de-colonisation of space is offered by a reframing of Lefebvre's *Production of Space*:

> What happens in space lends a miraculous quality of thought, which becomes incarnate by means of a *design*. The design serves as a mediator - itself of great fidelity – between the mental activity (invention) and the social activity (realization); and is deployed in space. The illusion of transparency goes hand in hand with a view of space as innocent, as free of traps or secret places. (Lefebvre, 1973, p. 27-28)

Material culture offers the potential to bring to this investigation a way of positioning the researcher in relation to the cultural project so that the outputs of the research can be

considered in ways that frees them from some of the automatic assumptions that are brought by the researcher's cultural background . The field of vision functions successfully as a post-colonial critical method but it is *knowledge of*, something that exists and has happened, it is not *knowledge for* (Glanville, 2005), something new that can inform and motivate us to shape new things into existence. It is not clear how to approach this way of thinking when designing in action either through an AR of PD approach rather than observing it in the results of others. This returns us to the issues described by Kemmis & McTaggart in 3.3.3 of the researcher-activist, or in this case the cultural researcher-designer. The approach appears to serve well as a post-analytical tool of criticism in visual culture yet its value in a proactive design tool is open to question and will be considered as a part of the research analysis. Consequently the field of vision is interpreted within this research as a position rather than a method and an attempt will be made to employ this perspective to the results of the Indian projects to help find a way to analyse and describe results in a way that recognises the impossibility of being an impartial observer when at the same time acting in the field.

Before concluding this section a note should be made regarding a common influence that runs through the literature of the theorists that have been reviewed. Appadurai, Rheinberger and Rogoff cite Derrida's concept of differénce (1978) and the freeing of the signifier as a significant influence in their thinking. The concept of difference understood through this research is that of cultural differences and while it is recognised that there may be some significance to an in-depth discussion on post-structuralist analysis and interpretation of the results, the focus of this research remains in uncovering the activities that take place when differences are liberated from cultural influences that come from separate geographies rather than a philosophical study of difference in its own right.

3.6 Ethics

The experience of the researcher in a range of projects that deal with cultural sensitivity and craft projects in a number of countries has provided some experience into appropriate behaviours and engagement policies. Australia, China, Ghana, India, Japan, Korea, Mali and Thailand, and have all provided a wide range of situations where engaging through exchanging cultural differences promoted design activity. However each project uncovers new challenges and situations requiring sensitivity. For example the Foroba Yelen project (Hall *et al*, 2012) gave very good insights into working in an emerging economy and some

of the ethical and cultural considerations that will form part of the project work. Issues that arose and could be of value to consider here are:

1. The impact of introducing a new technology could have on the standards of living and quality of life. The solar lights immediately changed village life improving cultural, farming, education and social connection. These are powerful changes and consideration of introducing these needs to be made even though these were made at the request of the Malian village councils.

2. Introducing technologies that cannot be supported and maintained locally or that are withdrawn at a later date leading to disenfranchised local populations can cause significant issues.

3. Post project support in allowing new knowledge and experiences gained through collaborations needs to be built upon leading to long-term sustainability.

4. Assumptions of co-design and ability levels amongst project partners. The dangers of assuming too much for partners to engage at a suitable level.

5. Locally relevant design features that may well be the opposite of those that are desirable in western markets.

Points four and five are particularly relevant to this research and will be taken into account when selecting research tools. In particular, issues of cultural sensitivity, colonial and post-colonial attitudes and behaviours need to be addresses through the research. In poorer regions craftsmen can feel an obligation to work hard for a visitor, even to their own detriment. The cultural reaction of saying no or negotiating heavily the response to a request so that it can be achieved with satisfactory results can sometimes be difficult and visitors can lack the cultural sensitivities or miss signs that participants are not willing to take part or are uncomfortable with some aspects of a request and may feel obliged. Alongside knowledge of best practices, the answer lies in discussing the cultural etiquette and sensitivities. In the Indian projects NID academics and local guides will be consulted alongside taking the time to listen and consider responses.

The craft makers in Ahmedabad and Katchchh will be paid for their work covering both labour and materials. As the new designs will be unfamiliar the time and rate will be negotiated and checks will be made that any materials or processes that expose a higher level of risk above and beyond everyday practice will be identified and avoided. The

intellectual property rights will reside with the joint parties and local makers will be free to use any outputs from the projects for their own development. Due to the cultural sensitivities of embedded knowledge and recognition, all craftsmen and students will be named and credited (with their consent) for the skills and knowledge they have shared in this research collaboration.

3.7 Designing research

Drawing together the issues and research questions from chapter one, the theories and frameworks from chapter two and the AR & PD methods described above has provided a strong indication of the practical requirements for designing a series of practice based research projects that can achieve the following aims. These are to:

- Position the researcher both inside and outside the design activity as a participant and observer using AR/PD methods

- Deploy experimental and non-anticipatory design tools for the project design approach

- Work with several crafts and participants with a range of cultural exposure levels to compare results

- Assess a field-tested AR/PD hybrid method for a cultural collaboration across geographies

- Develop the researchers design practice through research and build in a capacity to reflect on the results

- Provide outputs, material, insights and evidence that can be compared to the suffixscapes framework and the idea of geographically liberated difference

A series of three projects has been developed with these criteria in mind and is illustrated in Fig. 3.12. The diagram shows the projects and the three structural elements of the agency, influence and collaboration of the partners. It illustrates how comparisons can be made between different translocating agents, influences and makers.

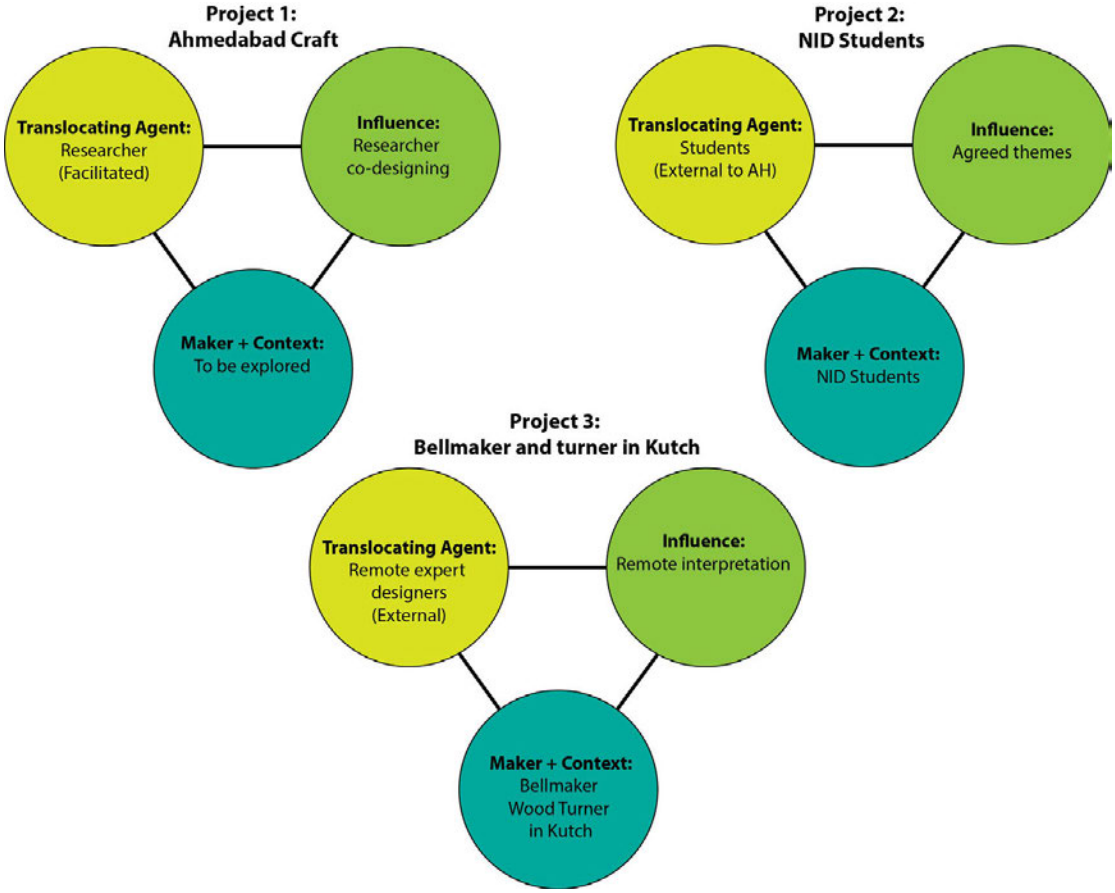


Figure 3.12 The three projects showing core elements of the translocating agent, influence (difference) the maker and context.

Project one is deliberately left open to allow the researcher to explore the best opportunity for design and making collaborations in the city of Ahmedabad upon arrival. This will follow an embedded researching through design model. The second project is a workshop at NID using design students to explore a translocated design method. In this activity the researcher's role is to facilitate and to design the research. The third project is based in the Rann of Katchchh in the village of Nirona where collaborations with two local craftsmen is planned. They will be observed interpreting and making designs that have been kept secret from the researcher until the design packages are opened on site. The designer will be an external observer and facilitating an exchange through the model of designing research. The translocated making projects in India are:

Project 1: Craftsmen in Ahmedabad

The aim is to visit a wide number of craft makers in Ahmedabad to search for an opportunity for a collaboration that positions the researcher as the translocating agent. Familiar and new materials and processes may be the reason for choosing a collaborator alongside the opportunity to experience a design activity that plays

out across a globalising series of theoretical frames. The translocated element in this experimental workshop revolves around the introduction of external creative inspirations and artefact typologies and the absorption of local differences and how they are developed as a co-design activity with the craft makers. This necessitates that the researcher is embedded in the research to creatively facilitate the design process without any previously defined product type or detailed materials or processes. The experimentation involves designing and making on site and 'in action' using remote cultural influences.

Project 2: Translocated making workshop at NID in Ahmedabad

A translocated making workshop will be conducted with students at NID with the aim of introducing the idea of translocated making through developing chameleon characters. The workshop will be in three one-week stages. Week one involves developing multi-cultural creative chameleon characters from Internet sources. The idea of chameleon characters was developed to test the idea of these as agents that can create an imagined world, an important element of Appadurai's suffixscapes. Students will be encouraged to search for a global array of creative influences and to assemble these as an image based character with physical and psychological attributes. Week two involves understanding and describing how the elements of the character thinks and to design and make a simple artefact. The final week will involve making the object. The aim of this workshop is to explore through a design research workshop how experienced Internet users can adopt fragments of external creative influences and apply these to an object type they are familiar with making. Interviews with the participants will then uncover their experiences and reflections. It is anticipated that translocation will take place via the design students sourcing remote cultural material from the Internet in order to develop chameleon characters that they will 'inhabit' in the design phase. Experimentation takes place in the design of the workshop and the open ended non-prescriptive format involved in creating the characters. One or two short sessions at the beginning of the workshop will be used in order to randomise the cultural selection and avoid using habitual resources.

Project 3: Copper bell maker and wood turner in Nirona, Rann of Katchchh

The aim of the third workshop is to work with two remote craft makers who have limited contact with the Internet and explore their reactions to working with a design imported from a remote cultural source. The copper Bell maker is based on the edge of the white salt desert at Nirona in the Rann of Katchchh and makes sets of bells from a forge located at his home in the centre of the small town. The bells appear to be developed from those traditionally used on local animals, mainly goats and cattle. The wood turner is located nearby and uses a bow-lathe while sitting on the floor to produce chair and table legs alongside smaller artefacts like spoons. The aim is to collaborate through exploring influences that are difficult to source locally but have a relevance to the materials, forms and possible cultural hybridising. In order to remove the researcher from the experiment and observe the neutral interpretation of remotely communicated material, designs will be sources externally and kept secret from the researcher. Two expert designers with experience of international design collaborations will be recruited and shown images of the making processes and briefed to create the secret designs. The research value will be in observing the decisions made and interview the makers at various stages in the process. Upon returning to the UK, the designers will be interviewed for their responses. It is expected that translocation will be facilitated by material from the two remote design experts submitting ideas for the 'blind' making collaborations. The agency of the researcher is in exploring and recording their development. The experimentation takes place in removing designers from steering the making process and the interpretation of the design concepts, which one is selected, materials, finishes, details and functions that are used and inferred. The copper bellmaker and wooden lac turner were previously visited during the GoGlobal project in 2011 and their workplaces are shown in Fig. 3.13 and Fig 3.14.

Figure 3.13 The wood turner using his bow-lathe in Nirona, Rann of Katchchh

Figure 3.14 The copper bellmaker in Nirona, Rann of Katchchh

Three project have been described above, however it is envisaged that more than one collaboration may be initiated in each to afford some redundancy in the case of logistical or other issues preventing their completion, or if this is not a concern then to allow more comparison between outputs. Organising and analysing the final results of the design research projects will be discussed in the following section.

3.8 Extraction and analysis

The Indian translocated making projects will deliver a range of data capturing processes and outputs though a number of research tools including: three dimensional objects made

in collaboration with the craft makers, test samples, materials and processes, templates, moulds, patterns to test three dimensional ideas, drawings, sketches and diagrams, recorded interviews, questionnaires, filmed activities, written reflections and notes.

The method of analysis will be qualitative and broadly explore the activities, thoughts and practices of the researcher and craft makers in the liberation of difference from geography, mutually valuable exchanges with advanced digital making and their perception of the evolving nature of the future of their craft. The project matrix in Fig 3.15 creates a structure that compares the research questions from chapter one to the projects, research methods and a series of analysis questions drawn from the research questions and globalising frames. The aim is to use this as a guide to analysing the outputs.

Translocated Making research project planning matrix - Questions, methods and outputs

Workshops	Question 1	Question 2	Question 3	Activities	Output 1	Output 2	Analysis
							Q4.How has positioning the researcher enabled the recording and analysis of cross cultural material?
							Q3. How has the researcher's practice been influenced by the design research project, what are the reflections?
							Q2. How have the AR and PD design research methods combined in practice and can their influence in guiding the research be identified ?
							Q1. Can the suffixscapes framework or the concept of geographically liberated difference be used to undertand ideas of cultural trasnsfer across remote locations ?
Project 1: With crafstsmen located in the city of Ahmedabad. They have some access to digital technology and potentially some knowledge of digital design and exposure to global design issues and infleunces.	What are the detailed analogue and digital exchanges that take place between participants in a collaborative cross cultural design and making project and can they provide a new way of understanding the activities taking place?	Can translocated making be explored as a method of design practice to experiment with new collaborative design formats and make objects with new properties that test cultural influence?	How can the processes described in translocated making be understood through comparing them to ideas of cultural transfer and global influence?	Artefact co-created between the researcher and craftsmen sharing digital influences introduced. Influence from digital online sources and artefact created with local technologies.	Participatory Design. Artefacts made via the projects with photographs of the meetings, making, drawings of the designs, moulds, rigs, tools used to make and interviews with participants and reflections from the researcher	Action Research reflections on a systemic level from researcher and participants captured through daily notes, drawings, camera,	Capture results from the projects and summarise an overview for the seminar with the physical outputs.
Project 2: Postgraduate students at the National Institute of Design in Ahmedabad. Students have a high degree of education, exposure to digital technologies including rapid prototyping and are knowledgeable about global design issues.				Artefact made by 4-5 students in NID in a workshop run in masterclass style by the researcher using chameleon characters. Influence from digital online sources and artefact created with local technologies.			
Project 3: Conducted with makers and craftsmen in the remote desert region at the Rann of Kutch. Copper bellmakers and wood turners. They have poor access to education, digital technologies and enterprise.				Artefact made by craftsman with designs introduced from remote designer. Influence from digital online sources and artefact created with local technologies.			
NID Seminar: Seminar to conclude the project with staff and interested parties at NID to disseminate the findings of the project work to gauge reaction and value.				Run a concluding seminar at NID to gauge the results of the making process and get feedback from expert staff and tutors.			

Figure 3.15 Matrix describing the detailed project partners, activities, outputs and analysis methods

It is recognised that some of the tools from the AR and PD methods in the project matrix overlap as they record information applicable to both methods. Analysis in each of the projects will be made by comparing the evidence drawn from interviews with collaborators, the artefact qualities, notes from observations of the project activity, films and photographs of contemporaneous activity. In the example of the copper bellmaking this would include the craftsman, remote London based designer, secondary parties related to the research and notes, photographs and observation by the researcher of the activity and outputs. The PD and AR hybrid method will be engaged for artefact and systemic design input through researching in the city of Ahmedabad and designing research in the Rann of Katchchh and the NID translocated making workshop.

The results will be analysed to search for observations that will test to see if the frameworks of suffixscapes and geographically liberated difference can add knowledge and understanding to the activities under study and support discussing the relationships of these ideas under the translocated making umbrella. Experimentation is conducted via the non-anticipatory nature of the collaborations and with its largest focus in the Ahmedabad craft projects and the approach of avoiding the problematization of the design engagement. Practice based design reflections on how the process affects and changes the researchers design approach will also be part of the output and compared to the issues raised in the case studies.

4

Ahmedabad: A translocated context

A translocated context records a series of collaborative design research projects in India. The chapter begins by describing the context for translocated opportunities by building on the history of innovative architectural projects and educational initiatives at the National Institute of Design in Ahmedabad and the network of craftsmen and makers working across the state of Gujarat. The projects combine design research and participatory methods via two types of engagement for researching externally and internally within design projects so that evidence from observational and personal experience can be compared. The two type of engagement are designing research where the researcher facilitates and produces the projects and researching through design where the researcher is an embedded part of the design process. The research is recorded by following a format of describing the local context and craft processes, relating the research activities and evidence gathering that takes place, describing the final output and analysing the result from the researcher and collaborator's perspectives. Research outputs are supported through key interviews, drawings and photographs with a comprehensive record in the appendix.

The city of Ahmedabad and the Indian state of Gujarat have a number of unique factors making it an ideal location for the project elements of this design research. These factors combine in a sophisticated mix of globalised networks and deep historical making cultures produced as a result of several waves of cultural influence from the Indus civilisation, Alexander the great, the colonisations of the British Raj and others alongside the cultural-political independence movements of Mahatma Ghandi in the early twentieth century.

Ahmedabad was once considered the Manchester of the east due to its large-scale textiles industries. However the industrialisation of British textiles increased competition with local hand made produce and this was one of the factors that led to the Ghandists revolt and subsequently led to full Indian independence. Part of Ghandi's legacy involved Khadi, now considered to be a process of hand making textiles that deliberately includes human intervention and faults as an insurance against lower quality machine manufacture. The original meaning of Khadi however was much more connected with a cultural view of making as community and culture. Making described and delineated a group of people who would collaborate socially and industrially for production. It would be a mistake to consider this production as wholly industrial in its flavour however. Khadi was as much about a form of cultural identity and a way of living, a way of being rather than a western concept of trade or exchange. Craft as both culture and community continues to define

Gujarat with its wide variety of making cultures, however new developments in communication technologies and the influence of globalisation is driving change (Angharad, 2006; Appiah, 2006; Barber, 2003; Cowen, 2002; Kaplan, 2000).

The highly influential India Report written by Charles and Ray Eames (1958) followed a request from the Indian government to the Ford Foundation to provide support for exploring the future of design in India (NID, 2013). The Eames report describes the challenge for India's evolution from a tradition orientated society rich in handicrafts, where decisions have specific reactions to a communications based society requiring new responses achieved through design. It is framed as a shift in type, not degree on a global rather than a countrywide scale. India is credited with three advantages in this transformation: the ability to learn from the experiences of other modernising countries, clear goals for food, shelter, population and distribution and finally the most important in regard to this thesis: "a tradition and a philosophy familiar with the meaning of creative destruction" (Eames, 1958, p. 7). It is a surprisingly early articulation of the globalisation and cultural challenges more widely recognised towards the end of the twentieth century as described earlier in this thesis by Appiah (2006), Barber (2003), Cowen (2002), and later on articulated in its link with geography by Fiss (2009) and Clarke (2009).

The National Institute of Design (NID) was established following the report and has developed itself as a hub in a large network covering a diverse range of people and relationships. It is a contemporary example of an institution that facilitates the liberation of differences within and outside of its localised geographies to a global network of academics, designers, craftsmen and manufacturers. Four significant groups are active in this relationship ranging from pioneering mid twentieth century architects to a network of traditional craftsmen and makers, NGO's, academics and scholars. The following section will give background historical context to the development of NID. These have been gathered here from conversations with NID staff and in particular professors M.P. Ranjan and P. Nahar (Appendix H1, elements recorded in the translocated diary) while a new book on NID's history is scheduled for publication in 2013.

The 1950-1960's saw the establishment of a culture of world-class modernist design projects and educational initiatives by leading practitioners and thinkers. NID and the Sarabhai family were involved in commissioning leading architects of the day for a number of the following projects: Le Corbusier's Sarabhai House (1951), Villa Shodhan (1951),

Saskar Kendra Museum (1951) and ATMA House (Textile Mill Owners Building, 1951); Frank Lloyd Wright's plans and Influence on Gautam Sarabhai who worked in his offices, Buckminster Fuller's visit to NID (Appendix H1, translocated diary, 7th December entry) and the now partially collapsed Calico dome (1962) in the old city, Louis Khan's Indian Institute of management (1962-74); B.V. Doshi's Tagor Hall (1963-5), Institute of Indology (1952-63), CEPT Campus (1972) and Amdavad Ni Gufa (1990); Charles Correa's Mahatma Ghandi Memorial Museum at the Sabarmati Ashram (1963) and Bimal Patel's (HCP) new IIM Campus (2010) (Lang, 2002) as illustrated in Fig 4.01. These ground breaking projects cemented Ahmedabad's reputation for leading architecture and design thinking in India and new initiatives, collaborations and design companies continue to emerge from NID's graduates and network.

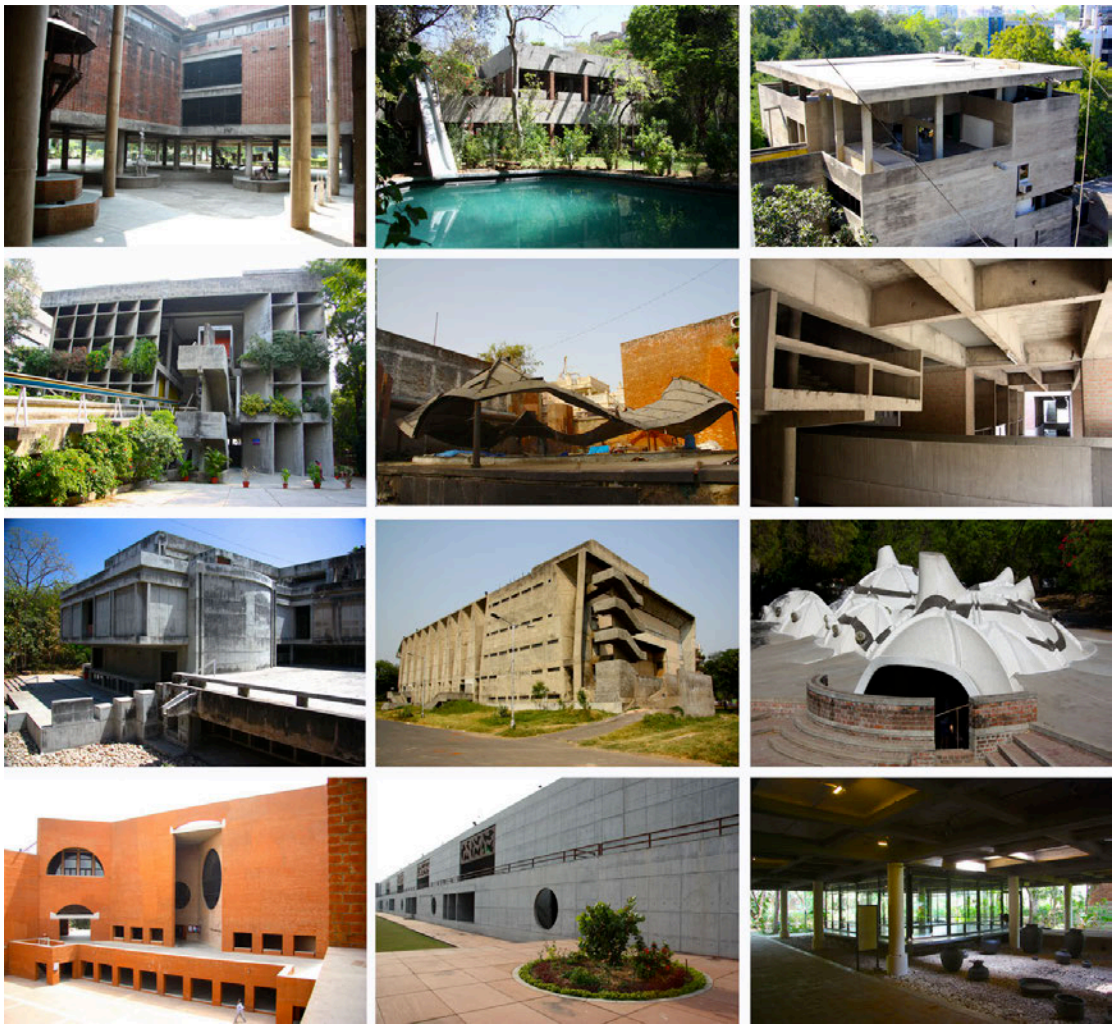


Fig. 4.01 Ahmedabad's modernist architecture, from top left: Le Corbusier's Saskar Kendra city museum, Sarabhai House, Shodhan Villa, Textile Mill owners building; Fuller's collapsed Calico dome; BV Doshi's CEPT Campus, Museum of Indology, Tagor Hall and Amdvad Ni Gufa (with Hussein); Louis Khan's Indian Institute of Management; Bimal Patel's New IIM campus and the National Institute of Design

However, Lang (2002) contends that the introduction of such strong external elements contributed to delaying the intellectual independence of a modernist Indian architecture away from the imposition of Brutalist concrete structures and a search for abstract purity over the real conditions necessary for successful local solutions. A counterargument is contained in the widely recognised and successful buildings of the Ahmedabad based architect B.V. Doshi who was an assistant to Khan, and Bimal Patel who was influenced in the same tradition. Ahmedabad and NID have a history concerned with relations and influences shared between different cultures of design and architecture that make it a compelling context to initiate collaborative design projects.

Alongside the modernist architecture lies a backdrop of centuries of architectural achievement through many fine constructions including the Adalaj step well built in 1499 by Mohammed Begda for Queen Rani Roopba, the Jain temple and the Sarkhej Rosa Mosque completed between 1451 and 1458 by Sultan Qutubuddin Ahmed Shah II and compared by Le Corbusier to the Acropolis in Athens (Fig. 4.02).

Fig. 4.02 Adelaj step well, the Jain temple and Sarkhej Rosa

Institutional development from NID's outreach programme and CEPT's Design and Innovation Craft Resource Centre run by Professor MP Ranjan have been instrumental in developing craft initiatives. During previous visits to Ahmedabad in 2010-2011 aimed at developing and undertaking the GoGlobal project, visits to a range of organisations and institutions provided experience of the local crafts activities that were taking place. A number of NGO's and Institutions have grown up to support craftsmen and makers in order to preserve important signifiers of culture, support local structures and uplift people from poverty. Kala Raksha (2013), Gramshree (2013), Manav Sadhna (2013) and Khamir (2013) are all closely connected to the institution with faculty knowledge sharing, student internships, exhibitions and symposiums feeding knowledge back and forth.

The library at NID is an important resource of Indian crafts and making traditions with catalogued reports going back several decades from student and staff projects exploring and documenting the crafts in the Katchchh region and across the whole of India. Each individual new location is revisited every 5 years to chart the changes and developments that have taken place. Significant academic and practice-based projects range from the encyclopaedic mapping of India's crafts by Ranjan & Ranjan (2007) through to the redesign of public transport in Mumbai and other cities by Professor Praveen Nahar and the Industrial design faculty. A number of leading designers and educators have visited NID in the past including visionary Architect and design innovator Buckminster Fuller, furniture designer George Nakashima who was resident for a while, the pioneering design researcher Bruce Archer and furniture and industrial designer Jasper Morrison (Ranjan, 2013).

Contemporary activities, conferences, symposiums, staff exchanges and projects continue to bring in global connections from academics and visiting designers who contribute to what is in effect a contemporary example of the network of globalised cultural flows and differences exchanged across geographies. The institution's reach extends from local craftsmen and NGO's to countrywide design initiatives and the globalised network of collaborators and contributors. NID is far more than a modernisation project through design, it sits across a sophisticated landscape of deeply rooted local craft traditions, contemporary national high technology and service design projects and globalised cultural flows and exchanges of design ideas. The opportunity to engage with NID is interesting to consider not only for links to craftsmen and makers but also for immersion in an institution with such a rich globalised network of cultural connections.

Fig. 4.03 The environmental context of the Rann of Katchchh, Gujarat

Gujarati's are famous traders making up a disproportional percentage of the Indian diaspora as reflected in the state's mix of industries, trade and shipping. Against this backdrop exists a wide range of deeply rooted traditional craft and making cultures. In the

last census, India's artisan population conservatively numbered 68.86 Lakhs or 6,886,000 people (Indiamart News, 2013) engaged in small-scale making and crafts activities, many of whom are employed in textiles.

The influence of digital technologies is already being felt with craftsmen using the Internet to source remote influences and begin emerging relationships with remote clients. A number of unique and endangered local global crafts reside in this area ranging from the double Ecutt weavers of Patan to the semi nomadic lacquered wood tuners of Nirona described later in the chapter. According to information supplied during discussions with NGOs and other agencies artisans and craftsmen's fortunes vary widely from those with global demand for high quality produce through to others struggling to emerge from poverty and a subsistence economy. The general reluctance of younger generations to embrace craftsmanship as a way of life is a big issue for elders who fear that their cultural identity will be damaged. Further complexities lie in geographical issues of water shortages, the risk of earthquakes in the west, industrialisation and rural urban migration patterns.

Ahmedabad and Gujarat is a rich source for absorbing and projecting influences into geography ranging from diverse traditional and contemporary making cultures from craft to the industrial scale. The richness of these conditions from traditional crafts, Ghandists influence, modernist projects, educational institutions, NGO's, political development and contemporary economic, technological and cultural acceleration provides a rich landscape for potential design innovation. Deep cultures of making, experimental thinking, technological mediations and the combination of analogue and rapidly emerging digital media will be investigated and compared against the globalising frames in this chapter.

The field research proposes to engage with several groups of people in order to investigate the different ways that translocated making can be explored and experienced in the context of geographically liberating differences. In the first set of projects, two groups of craftsmen in a remote area on the edge of the Rann of Katchchh desert offer the opportunity to observe the reception of remote information for making an artefact that will test their creative interpretation and making skills on a new product type. The second set of projects take place in the city of Ahmedabad offering the opportunity to work with more industrialised producers in a range from 'one-man-band' to large scale facilities with altogether different channels for receiving differences in how they practice. NID is the final location; working with some of India's most highly trained designers who are open to

creative thinking, adept at using sophisticated technologies and confident in exploring new creative paradigms. The selection of three different areas is designed to take advantage of the diversity in scale, materials, communications, tradition and production urbanisation that is present in Gujarat today.

In order to facilitate with translation and transport arrangements Isha Pimpalkhare was engaged to assist with the design research projects. Pimpalkhare is a textiles student at NID on a recess between her studies and was a connection made via the previous visit to India. She was motivated to assist in finding out more about design research, to see more diverse forms of making in Ahmedabad and to visit the Rann of Katchchh for the first time. At the initial meeting an introduction was given to the research project background, theoretical position, the structure for the practice based project, translation, recording, ethics and research permissions forms. The researcher was invited to be a visiting research fellow at NID for the duration of the research phase in November and December 2012.

In the following chapter the findings from each project will be compared against each other and used to research potential connections to the globalising frames to explore evidence and arguments supporting a theory to practice connection.

4.1 Introducing the research in context

The research methods selected for the project phase have been described in detail in chapter three and the relationship between the methods and the context is an important element that will be introduced here. The six research projects are structured in three groups, a pair of projects in the Rann of Katchchh, three projects in Ahmedabad, and a workshop in NID.

Setting up a complex series of projects in advance and in detail in any remote location is challenging and India is no exception in this case. Difficulties with reliable communications, transports infrastructures and identifying suitable craft makers would all be significant hurdles to overcome. It was expected that significant issues would be encountered and therefore some redundancy was build in with the assumption that several projects would fail or be incomplete. The challenging context of working in India was also a project benefit in that communications and transport difficulties in remote areas has reduced the exposure to external sources of designs ideas and at least in part offers a more diverse making and cultural difference from that of the design researcher's home background.

The Katchchh projects would examine what would happen when an external set of ideas were introduced to craft makers in a remote area, what their response to the ideas were, how easy or difficult the process of facilitating the making of a single prototype design would be and what types of differences would be encountered by the makers when problem solving without the support of a designer onsite or within easy communication. The challenges included a practice-based research process that was new for the researcher, locating the craftsmen, working in a remote location, language and cultural differences could all be factors influencing an outcome. Selecting a designing research process for the remote location aimed to enhance the objectivity of the researcher against an unfamiliar backdrop and enable more significant differences and external reflections to come to the surface.

In contrast, the city of Ahmedabad would be the location for an unspecified number of making projects in undecided product types where the researcher would actively collaborate in the design and making process. These projects would draw on the researchers innate skills of advanced design and making. The two significant differences would be arriving without any concrete designs plans or ideas of what could be made. A non-anticipatory design approach was in direct contrast to the researchers existing design method that was highly planned and coordinated. A second aspect revolved around the reflection in action process of designing and somehow enabling a mental space to become available to step back and observe oneself from a distance. A number of different media and personal positions would need to be experimented with alongside the project development in order to succeed. The output was expected to be an embedded experience of using existing skills sets to actively experience the process of translocated making as a design researcher.

The Katchchh and Ahmedabad projects are intended to be comparisons of the internal and external observation of designing with differences through translocated making in a remote and city context offering the opportunity to reflect on the outcomes. The Translocated workshop at NID aims to explore the potential of translocated making as an upfront creative design approach and to see if its possible to make a successful new design persona sourced from remote material.

It is hoped that exploring three projects that each have a different angle on the experience, design and outputs will flesh out the actions, evidence and reflections that can be

compared to the case studies in chapter one and the theories and globalising frames in chapter two. Discussions in chapter five will therefore draw on the evidence described here.

4.2 Designing research: Luhar lamp

The Luhar lamp is the first of two projects exploring an experimental designing research approach. In chapter 2 Rehnberger's fine art experiments were discussed with the one-way translocation of aesthetic automotive design data between Germany and a workshop in Thailand. His methods were to use reduced and redrawn media in order to open up the space for misinterpretation and new possibilities. The remote Thai interpretation process that creates these differences is not described as part of the project nor articulated as part of the artwork, and yet this is the locus for the transnational cultural exchange that takes place. The Luhar lamp adopts a similar process of introducing remote drawings to a new location but contrasts in that the study of the processes, outcome, human interactions and differences become the focus of the exchange. Alongside notes, interviews, drawing and photographs, the finished artefact may well contain traces of evidence for translocated making. Established and emerging design research methods will seek to uncover the moments during which reception and interpretation of remote influences can be understood in terms of geographically liberated difference.

Research design centred on the objective of observing the receipt, interpretation and making of an artefact conceived in a remote geography. The activity would also serve as a platform to investigate evidence for existing exchanges of information and therefore differences from other locations that affected the craft making projects.

4.2.1 Context: Copper bellmaker in Nirona, Katchchh

Located in the extreme west of India, the Rann of Katchchh borders the gulf of Arabia to the west and Pakistan to the Northwest. Subject to waves of Muslim influence from Arabia alongside diverse Indian religious and tribal influences, local craftsmen have developed unique and hybrid crafts, a number of which originated from Sindh province.

A large earthquake in 1819 measuring at 8.2 on the Richter scale radically changed the geography of Katchchh. Alongside a tsunami that flooded the entire Rann desert, a section of land 80km long and 2 metres high raised up as a result of the seismic movement. The upheaval reversed the flow of the local Puram River and began a slow process of

desertification in the once pastoral landscape surrounding Nirona and Zura on the southern edge of the desert. Local people describe how the 'forest' of the surrounding area has now been reduced to low trees and shrubs. The increasing aridity of the region has also reduced the reliance on a pastoral life of livestock and affected local craftsmen and their trades. The copper bellmakers originally made bells for the lead cow, goat or camel in every herd. Subtlely engineered over generations, the bells are made from a base material of recycled iron sheet and then coated with a non-ferrous alloy of copper, brass and zinc. Finally they are tuned to such a degree that locals claim the reverberations can be heard up to 15 or 20km away across the forest. With a slightly different note to each bell, both livestock and herders are able to locate lead animals across a vast landscape.

The visit to Nirona was conducted with the assistance of staff at NID and Mera Goradia, the director of Khamir; an NGO based approximately 10km outside of Bhuj, the capital city of Katchchh state. Khamir's role is to market and sell local craft products through their showroom near Bhuj, online and though trade fairs and exhibitions. They also offer tailored excursions to visitors and buyers interested in purchasing and observing the local crafts.

Dipesh Buch is an employee of Khamir tasked with gaining knowledge of all the craft families dispersed over the large area and helping to introduce new materials and techniques that could help them in sustaining their practices. He was employed by the researcher both as a guide and facilitator to collect the final designs from local collaborators and to forward them on to Ahmedabad. Buch was interviewed on design, influence and development in the area (Appendix K8) where he has been active in sourcing new design influences from the Internet as a result of his interactions with artisans, clients and buyers and has acted as an agent to encourage the development of new designs, techniques and markets for local craftsmen. A fluid system of feedback has been developed with more successful makers exhibiting their work and receiving training in technical workshops and being introduced to foreign buyers. He felt that the Internet and digital media was a valuable resource for market understanding and generating new designs but pointed out that traditional designs dominate sales and demand, mainly as a result of the existence of the tradition in the first place. He gave an example where a smart thinking tie-dye artisan can made a modern Dupatta in one week instead of the traditional garment which takes four weeks and yet can earn the same Rs. 3,500 income. However he reinforced his view that modern designs have a very limited market.

A 4wd and driver was hired and after showing Buch a couple of photographs, including one showing the copper bellsmith working, it proved easy to confirm that the village of Nirona was indeed the location of the previous visit.

4.2.2 Research design

In order to be an impartial observer, a design research method was developed by introducing the bellmakers craft process to an expert London based designer who would develop concepts for a product that aimed to challenge and extend the making skills and typologies familiar to the copper bellmaker into new areas in order to experimentally test the agency of design in a geographically remote context to explore how new differences could emerge.

Cairn Young is a furniture and product designer with over twenty years of design and making experience. His practice centres around a combination of digital and analogue design and making skills and his work has been produced by cutting edge Italian and German clients including: Driade, Sawaya & Moroni, Rosenthal, WMF and Koziol with several pieces of his ceramics work on display in the Victoria and Albert Museum in London. His work is renowned for its high levels of aesthetic control, knowledge and exploitation of materials and manufacturing processes. His areas of material expertise lies in metal tableware as evidenced in his work for WMF and Sawaya & Moroni, ceramics for Rosenthal and moulded polymer designs for Koziol (Fig. 4.04).

Fig. 4.04 A selection of Cairn Young's design work for Rosenthal, Koziol and Sawaya & Moroni

The briefing process began with a phone call requesting an experimental design research collaboration that was followed up by emailing Young a set of images illustrating the Husen family's bellmaking process. He then asked a few questions regarding the abilities of the bellmakers along with the scale and type of objects they were familiar with making. The key creative aim of producing a new design that would respect the making processes and materials but include the difference of testing a new product type was discussed. An important aspect was to test the introduction of new typologies of products and forms into the bellmakers practice as a way to open up cultural differences. Formats of communication and decisions including product type, scale and techniques were discussed and these were left to Young's discretion. A compressed computer file was emailed to the researcher, decompressed, printed and sealed into an envelope by a third party for transportation to India. It was imperative that the designs were kept confidential from the researcher and sealed in an envelop in order to preserve the clean communication of the new designs without any foresight or anticipatory communication, planning for eventualities, clarifications, problem solving, technique explanations or other

pre-presentation activities which would reduce the opportunity for clear unbiased observations. All of the communications between the researcher and Young in the setup were conducted remotely, either by email or telephone call.

4.2.3 Conducting research

After a 400km overnight sleeper coach journey from Ahmedabad across Gujarat to the outskirts of Bhuj, an early morning transfer by 4wd was made to Nirona about an hour north towards the salt desert. Umar Husen and his family work in a small compound around 10m square in the western part of the village. The entire production of copper bells takes place here and involves nearly all members of the family. An electrically powered fan heats a small forge in the corner where iron is shaped and the bell's final coating is applied. The entire compound and family life is organised around the production of copper bells. Accession from apprentice to master bellmaker takes many years, yet the source of new craftsmen in the family line is threatened by the allure of city life through rural-urban migration and more contemporary trades.

Copper bellmaking has developed into a sophisticated craft form with bells transformed from workaday livestock location beacons to high value craft outputs as a result of the changing geography and lifestyles. Bells are now being produced in large sizes of up to 30cm high and with a hybrid coating process that uses a combination of zinc, copper and brass alongside experiments in new surface decorations designed to appeal to an increasingly external market.

Luhar Umar Husen (Luhar means Ironsmith) (Fig. 4.05) hails from six generation of copper bellsmiths located approximately 40km south of the great salt desert in the Rann of Katchchh. During the visit he showcased his process that consisted of cutting sections of iron sheet, hammering the sheets into a bell cap, making a bell loop and clapper holder and then finally forming the bell body. The parts are all formed in a shallow sand pit with a forged steel stave and hammer as the main tools. Various sizes of steel rings are used to form concave dished forms. Once the bell cap and body are finished, hammering a lip over the body connects it to the cap and the bell ring is pushed through a slot pierced in the cap and fixed inside. The bell is then tuned to its unique note by hammering a shallow indented rim into the bottom edge of the bell and testing it with a wooden clapper in place. The clapper is removed and the bell is then coated in liquid slip (local river clay mixed with water) and rolled in a mix of zinc, copper, brass powder and borax. The brass comes from

Jumnagar and is the recycled filings from other making processes and from refurbishing old bells while the zinc and borax comes from the local market. The bell is then encased in a clay chapatti approx. 5mm thick and is placed in a furnace for 5-10 minutes and removed where the clay is chipped off and the unique multi-metal coated surface for which the bells are prized is exposed. The borax likely functions as a flux to inhibit the presence of oxygen when the bells are placed in the furnace.

Fig. 4.05 Luhar Umar Husen beating the cap for a copper bell

Fig. 4.06 Making the indented rim to tune the bell

Fig. 4.07 Iron bell, clay chapatti covering and the final copper coated bell

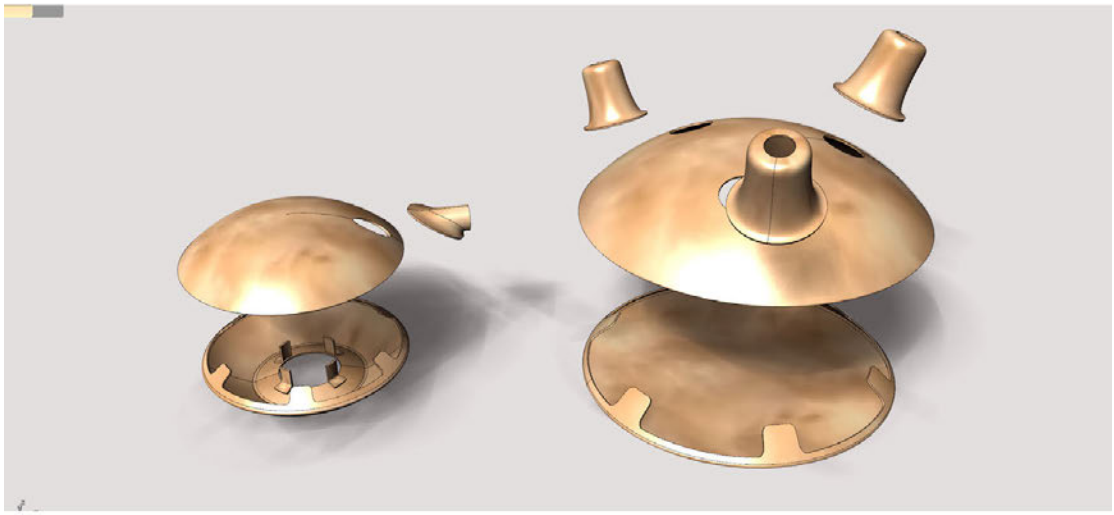
The coating process is however variable and sometimes the bell coatings are one sided. In another copper bellmakers compound in the adjacent village of Zura the researcher was asked to comment on the likely cause of this and speculated that from his experience it may have been gravitational or capillary forces which allowed the metal to pool at the lower side of the bell or possibly temperature variations caused by uneven firing. A reasonably consistent surface quality is important for quality control when exporting and

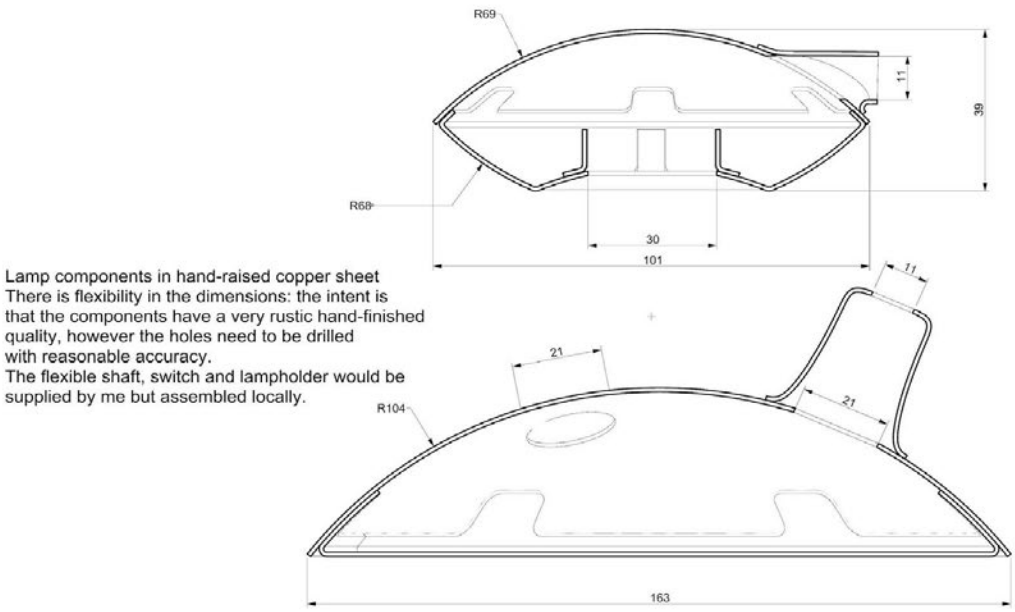
again advice was sought from the researcher from a western retail perspective on the surfaces qualities.

Although there are small herds of livestock surviving in the new climate, Umar and his family mainly sell bells to Khamir and the occasional visitor and tourist who venture to see the white salt desert.

After an initial conversation and demonstration of bellmaking the research project was described to Husen and his opinion sought on its feasibility with the goal of observing the interpretation of remotely generated designs. The aims were communicated to him via Pimpalkhare and Buch's translations (all conversations were translated into Hindi from English and occasionally a local dialect) and the sealed envelope with Young's designs (Fig. 4.08 below and Appendix B4) were opened (Appendix B3). The envelope contained a series of 3D computer renderings of an assembled table lamp designed to be made using Husen's bellmaking techniques and communicated via an exploded view of the components and a sectional side elevation. Husen was quiet at first and carefully studied the designs for some time. He took a few minutes to look through the various views and technical elevations appearing to think through the material process and techniques that he would need to deploy to make the designs and after a while he began asking detailed questions. The questions were received and discussed by the researcher but a complete avoidance was made in providing answers and the issues were debated and reflected back for his decision. He eventually satisfied himself that the design was feasible and quickly agreed to have a go at make the lamp guessing that it would take 3 or 4 days to complete. Two main questions emerged around the units of measurement that were being used and these were confirmed as millimetres and a tape measure was uses to roughly size-out some of the components. Husen stated that the gooseneck, a component widely used for mass-produced adjustable lamps would be difficult to source locally and he therefore suggested that he might be able to find something similar in one of the local markets that would perform the same function. A fair price was negotiated for the construction of two lamps that would be shipped down to Ahmedabad on the overnight bus from Bhuj by the end of the next week. Staying at Nirona to observe the whole making process was considered but this would impact on the other projects running in parallel and a large amount of time would be spent waiting around. In addition this would put undue pressure on Husen to rush the work and so it was decided to return to Ahmedabad the next day following the next visit to the wooden lac turner who was also based in Nirona. The key

research aim of observing the receipt and interpretation of the remote difference had been set in place.





Lamp components in hand-raised copper sheet
There is flexibility in the dimensions: the intent is that the components have a very rustic hand-finished quality, however the holes need to be drilled with reasonable accuracy.
The flexible shaft, switch and lampholder would be supplied by me but assembled locally.

Fig. 4.08 Cairn Young's 3d rendered cad files and dimensioned section of the copper lamp

The researcher's initial impression was surprise at such a contemporary design being offered to Husen but quickly it could be seen that the design proposals responded well to the processes of the copper bellmaker and was conceived or at least allowed a fair degree of flexibility of interpretation of details, forms and scales. Some of the components looked quite complex for the bellmaker as some were deeply drawn forms, asymmetrical or needed tabs for the top and base connections.

Husen was interviewed, signed the ethics forms and four traditionally constructed bells were purchased from him as a record of his trade and skills. In discussing his connections with external influences he described using the Internet via the help of Dipesh Bhai, a local expert on craft families from the Khamir NGO and the researcher's guide (Dipesh is called Bhai as a mark of respect, meaning big brother, his family name is Buch) to find some new designs of candlesticks and had made these himself. Part of Buch's role at Khamir is to encourage the production of new designs and he experiments directly from the craftsmen himself.

Husen recounted a previous collaboration in which he had made a bell that was commissioned after a Swedish customer approached him during a visit and asked him to fabricate a new design with a wind chime at the base of a cord under the clapper. On finishing the design Husen realised that the Swedish chime design was too small to catch wind properly so he made a few modifications to enlarging the chime for a greater surface area that resulted in a more successful design (Fig. 4.09). This process differs from that of the researcher in that the Swedish customer was available to provide support remotely and the most significant difference in this research is the new product type and complexity of the designs proposed.

Husen's Nephew Farukh Husen has a laptop and a blog promoting the copper bellmaking art and they hope that is will promote the craft and bring new customers. On yet another design he had also used the local leatherworkers to make simple straps to hold the loops and add a further level of design difference. During our discussions he presented a new design he had been working on. It was an array of four bells increasing in size with a central wooden clapper that was inspired by seeing the spinning tops (themselves inspired from seeing stone spinning tops from another source as described later on) made by the wooden lacquer turners in the other part of the village (see 4.3.4 below).

Fig. 4.09 Left to right: The bells with wind chime design from Sweden, the four bells with a central clapper inspired by the turned wooden top and the candlestick inspired from a design sourced from the internet.

The interview revealed a number of useful observations and experiences by Husen and illustrated the emerging use of a number of different techniques and influences being adopted by a highly capable craftsman seeking to expand his skills and open up new economic opportunities. A key element in all the conversations was the maintenance of bellmaking not only as an occupation or means of income generation, but primarily as a marker of cultural authenticity. A summary of the evidence showing how influences have moved across geographies in Husen's craft practice is given below:

Local liberation: gaining influence from seeing wooden tops made by the lacquered wood turner and using these as a central clapper for a new design with an array of four bells.

Digital inspiration: the sourcing of images from the Internet for a small candlestick design that was then adapted for production using the bellmakers techniques. This is evidence of a remote one-way difference.

Remote collaboration: a Swedish designer sent a sketch for a small bell with a long clapper that would act as a wind chime. The design was not wholly successful and Umar refined the design with a larger clapper. An example of emerging translocated making and collaborative differences liberated from geography.

Based on previous experiences by the researcher, a particular approach was taken for interviewing during the field visits. Expensive western technology and recording equipment can tend to have a dominating presence and formalise situations reducing the offhand comments and insights that are often useful in gathering evidence of the activity

taking place. The researcher therefore made a deliberate decision to use informal unstructured interviewing techniques using hand written notes and one camera kept in an unobtrusive position to record still photographs and a phone for short pieces of film recording important making techniques. Questions were based loosely on the translated predefined list while thoughts and findings were written up every day in the translocated diary (Appendix H1). Craftsmen often work or sit low on the ground and attention was taken to sit at a similar level to maintain a sense of evenness during conversations.

4.2.4 Research output Luhar lamp

Fig. 4.10 The final copper lamp made by Luhar Umar Husen in Nirona H35cm W30cm D18cm

Within a week the completed lamp (Appendix B) was received in Ahmedabad and a couple of days later Husen was contacted via mobile phone by the researcher with Pimpalkhare translating for a follow-up interview on his experiences and opinions after the completion of the lamp (Appendix K6). Husen described how he enjoyed the opportunity of making something new and the challenge inherent in the process of crafting the components and assembling the final light. There was little difference in the normal cutting and hammering techniques that he conventionally used. He described how he normally plans to change the design of a product to fit his techniques rather than the other way around. His main

criticisms was that the surface finishing was not up to his usual standards and this can be seen in some of the darker patches where the iron sheet shows through the thinner non-ferrous coating. He managed to tackle the complex industrial gooseneck component by using two brass rods inside a loose spring that gave the general impression of a handmade gooseneck. Husen suggested that a future model could have an adjustable spring of some kind. The two brass rods can be bent into shape but they will eventually break due to metal fatigue. Luhar was the first electrical light he had made and after seeing other lamps for sale in the local market he now wants to make his own versions. He showed the lamp to his father, a master copper bellmaker who also wanted to try making one and show it to other people for their opinion. Husen was asked how he viewed emerging digital communications in relation to copper bellmaking and what kind of influences he could imagine taking place in the future that could affect his craft, either positive or negative. He thought about this for some time but found it difficult to provide a clear example.

A first impression is that the Luhar lamp has some curious and unusual aesthetic properties (Fig. 4.10). From a western perspective the form has references to early science fiction and 1950's designs although the proportions are more contemporary and exaggerated while the hand-crafted forms and complex beaten surfaces leaves no doubt that this is a handmade product. The two overriding qualities are those of a future design made in the past, or a design from the past made in an alternative future. The closest comparison comes from the steampunk movement initiated from a range of sources including the novels of Bruce Sterling and William Gibson, most notably The Difference Engine (1992) which imagines an alternative past history following the successful completion of Thomas Babbage's difference engine and its radical influences on Victorian Britain and the industrial revolution. Figure 4.11 highlights the main differences from the original design and suggest the type of electrical fittings which will be use to complete the design. The final results were shown to a number of academics at NID and shared with the students from the translocated making workshop discussed later in this chapter. The first impression by many was the past-future features brought about by the unusual combination of mass- production stylised forms and hand-made aesthetics, while one visiting academic referred to its 'Metropolis' quality (Appendix H1, translocated diary, December 8th entry).

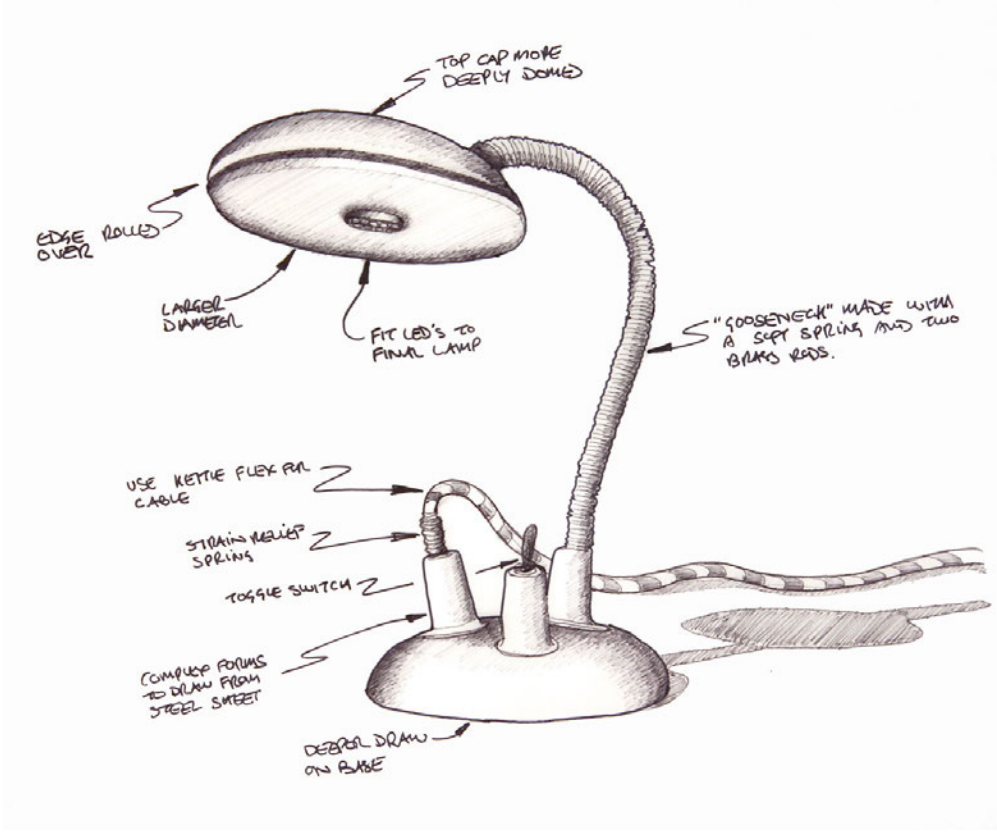


Fig. 4.11 Luhar Lamp analysis

When a comparison is made to the technical drawings and renderings, Husen has modified some of the details and proportions away from the original. Usually these are exaggerated as can be seen in the top dome of the lampshade that appears significantly enhanced in its depth.

After returning to London, a semi structured interview (transcription in Appendix K4) based on a series of predefined questions (Appendix K3) was arranged with designer Cairn Young in his south London studio at Clements Yard to discuss the design process and discover his reactions to the completed Nirona Lamp. The initial conversation began by recounting the design process and asking how it differed from ones he had previously used:

> Well it's very different because I think the whole exercise was to try and channel the design into something that was realistically feasible, given the guy's skill set, and even looking at the images of his work that you showed me that he'd already been making. They were very specific, very repetitive elements, and very few of them in fact, although the techniques seemed to be elastic enough to be able to incorporate these things.

When asked about how he saw the creative opportunities in the copper bellmaking art he replied:

> The number of pieces (variety of products) that he makes is small, so quite quickly I could get a grasp of what he can do. Actually looking at the drawings now, it looks like this might have been, I think, quite a stretch for him.

He followed by relating how he though he would engage with a craft maker of that type and followed through with a description of how he selected a product type that would test and extend Husen's making skills:

> I guess it's all about managing expectations and understanding that you've got somebody who's got a real...what's the word? It's a traditional craft. Those types of crafts often are very inflexible in general. So my expectations were not high when it came to getting him to do new things, but quite high when it comes to trying to achieve something within his skill set.
>
> I think the shapes that he was producing in his bells immediately brought to mind lampshades and lamp holders. So then taking that as a starting point and then looking around to try and find ways to apply things that he was familiar with as elements in his shapes.

Young's experiences of working on previous collaborative projects in different countries, and in particular his experiences with production situations and the difficulties of understanding cultural obligations were discussed:

> One instance where a very, very complex design proposal was offered to a cutlery company and it was completely beyond their capabilities, but it didn't stop them throwing huge amounts of energy into it for a year and a half, wasting their time and everybody else's time...where you're putting them under an obligation by offering them projects, because...there's a responsibility on you or the designer to make sure that you're doing stuff that's properly targeted.

The Luhar lamp was presented for the first time and Young was asked for his immediate impressions:

> He made a neck for it as well, brilliant! That's awesome. That is absolutely awesome. It's got all of the flavours that I was hoping for. So it looks slightly machine made,

> but it looks…what's the word…steam punk and he's done a really impressive job of raising (the edge of the dished base and shade). He's adapted the shapes, they fold over like a mushroom shape, so he's taken quite a lot of licence, which in this instance is fine. I think it'd be interesting to know why he did it, perhaps he had some forms that he could use to bash these things over to get these shapes. Because this looks like a simple set of shapes to produce.

When asked to describe the most surprising feature:

> It's too big, because with the new modern, miniaturised light sources, it's slightly, comically too big, so it needs to be reduced again. But the form I think is great. I love the patination of the metal. It's very nice of him to try and make this (indicated the 'gooseneck' lamp stem).

The unusual features of the visual language were discussed to try and find out to what extent Young had deliberately anticipated the makers interpretation and his understanding of the potential for differences to emerge:

> Absolutely, that was completely the intention to try and produce something or get something that would ordinarily be produced in a very high tech way. A table lamp is typically industrially mass-produced and to try and have some of the same formal flavours of something that would be normally fabricated in that way, but made by hand deliberately and that steam punk thing was really what I was after. Yes it's like a retro version of the future, absolutely, a 1950s flying saucer or something.

This was followed up by asking about the landscapes of cultural material between different groups of people and how designers can use making collaborations to explore opportunities for exchange. Young was asked to describe what he felt was familiar and unfamiliar for him in the lamp:

> Let's see. I hadn't been aware of this tradition of working in India and it was interesting just to be introduced to that. As a tradition in its own right and I'm not completely sure, if I'm honest with you, about the question that you've asked. But it's an interesting exercise to try and find overlaps between what we would consider to be a commercially acceptable product and then these traditional craft skills. There's cultural significances to the bells, which I'm unaware of I'm sure, they

> seem to have ceremonial and significant forms for the purposes that they were used for.

The concept of creative destruction and the challenges of cultural homogenisation and heterogenisation was explored in relation to the roles and responsibilities of designers:

> Well maybe it's a good reason to try and keep some of these handicrafts going because those are a few of the things that potentially less employers buy (into) the homogenising of cultural values. I think if a designer can adapt their expectations to incorporate craft techniques, that's a good way to keep these things alive. It's more in the world of mass-produced items, consumer electronics and things like that, it's becoming a big grey soup of indistinguishable products. That's going to happen, it's well advanced and there's nothing we can do to stop that, so it does make a very good argument of looking for ways to keep these traditions going.

The question of collaborative relationships emerged and how designers can explore processes for craftsmen and makers in threatened situations to engage with wider opportunities and negotiate an equitable exchange of ideas and making. Especially in view of avoiding the disproportionate contamination of crafts and at the same time avoiding patronising relationships:

> It's a tricky one, because what you're looking for is a kind of entrepreneurial opportunity. You're looking to apply somebody's skills in a market that they're just not exposed to. So basically the designer is interpreting the needs of a business middle man and...what's the word...it's an interstitial opportunity and I don't know about the permanence of that. You've got, perhaps, a limited time scale for when that space opens up and you can operate in it and then the tendency is for more economically profitable techniques to supplant craft skills. Do you create an artificial protection for craft skills? Why not? I mean it's people's livelihoods, people's traditions and I absolutely support that. The strategy of how you manage it on a larger scale becomes a political conversation and that's much more involved. But from a designer's point of view, why not support it if you can, absolutely.

The framing of the relationship as an interstitial opportunity confirms the connections of things that could be enacted across Appadurai's ethno and ideoscapes and facilitated through interactions across financescapes, mediascapes and technoscapes. The

comments around interpreting the needs of business and economically profitable activity demonstrate the dominance of the financescape in influencing the transition of vulnerable craft communities. Yet the interstitial moment offers something that could be akin to a disjunctive moment, a brief period in time when the correct political decision (for example the protection of cultures through geographical indicators as discussed later in 4.3.5) could overturn the dominance of the financescape in shaping potential futures. The media, techno and ideoscapes could be taken advantage of to prioritise the ethnoscape.

4.2.5 Luhar lamp findings

The copper bellmaker project describes evidence of a number of existing situations where cultural material is exchanged on several levels blending both digital and analogue methods from the local liberation of gaining influence from seeing wooden tops, to the digital inspiration of the sourcing of images from the Internet of a small candlestick through to the remote collaboration with a Swedish designer for a new bell design. This last experience acted as a prototype of working with remotely designed objects with the Luhar lamp being a more ambitious undertaking. The examples uncovered from this single source display the complexity of layering and scales from the remote to the global and indicate that craftsmen in this context are exposed to a range of cultural material exchanges from sources near and far.

In term of observing the remote collaboration, Husen was enthusiastic about trying new designs yet the agency for this came from a personal connection via the researcher and swapping physical media, even though the original information format was digital. The implication is that information received in an email or other remote digital media would be more likely to fail, not as a result of the media or information but because of the lack of reciprocal effort given to the researcher. In effect the problem of the web is the lack of demonstrable effort on behalf of the external person. How is one able to show effort, commitment and trust from a remote location, things which are easy and quick to assess at first hand. Presence is emerging as a key ingredient for success in the process irrespective of where the designs originate. The sense of presence and its physical reassurance along with the ability to use the subtle person to person skills that are reduced and formalised by digital media seem to come into play. In addition this suggests that consideration should be given to the value and penetration of media for collaborative making and the levels of trust and commitment that can be demonstrated. Even though Husen had previous

remote collaboration experience, the Luhar lamp was composed of many more pieces than his existing fare and some of the parts were difficult to fabricate and at least as complex as anything involved in making the copper bells, if not more so. The challenge also arose in connecting all the parts and leaving room for wiring and other components yet to be fitted. The removed observational position of the researcher meant that Husen made the technical decisions himself and the value of presence therefore was not to offer technical support, refine details or make design decisions. Presence is about the local reassurance to act.

Husen was surprisingly efficient and successful in making the lamp, especially considering that the assembly and some of the components appeared more complex that any items he has in his current collection. When checking the dimensions it can be seen that the lamp head has increased from 101mm in Young's drawings to approximately 175mm in the final design. A possible explanation for the discrepancy in dimensioning was that Young's dimensioning (Fig. 4.08) was based on a standard manufacturing procedure where the CAD model would normally be sent to a client to use for any extra measurements required. In this case the dimensioned section is used as a 'control' to check that the model has been imported at the right scale. Some of the dimensions needed to fabricate a component without this technology are missing and so its possible that Husen made up his own mind about these. When compared to the drawings its clear that he has created a rolled edge on the base and lamp head in order to hold the base and lampholder plates and that this has contributed in part to the 'inflated' quality of the forms via the top dome being much deeper and the lampholder disk much shallower, features that have contributed to the overall impression. The most powerful feature lay in how the visual impact appeared to be so magnified in real life from that of the renderings. It appeared that this was much more that the transition from paper to a final three-dimensional form and that Husen had contributed a certain amount of improvisation and interpretation, not only to components but also to the impression of the entire assembly.

In terms of artefact qualities the final design was very successful in generating a unique product form that reinforced the value of such cultural collaborations and the innovative consequences of these activities. The production of a future-past steampunk aesthetic can be seen as an unintended consequence of the design research but also evidence of the serendipity of differences and communications shared across remote geographies producing a quality of newness. In reference to Cowen (2002), an unintentional creative

destruction is taking place that brings together combinations of cultural influences through design and craft activities. The collision of handmade and mass-production aesthetics has produced a sophisticated reading that leads to the view that we can exchange cultural differences across geographies via the mediation of analogue and digital methods. However another reading can be seen to take place, in a sense there is an impression that the lamp may be an image of a design, a kind of simulation rather than a real product. An unintended consequence of the shared space for exchanging differences is that the final design has been created across cultural divides, between worlds and in that case belongs between worlds where it is not completely comfortable with its cultural persona in the studio of a London designer or the workshop of a copper bellmaker.

When questioned about his design motivation Young clearly stated his intention to test a mass produced design concept in a craft production scenario and expected some kind of translation to take place. Nevertheless he was surprised at the increased proportions, sophistication of the sheet forming techniques and the quality of the patination on the surface.

Cultural transfer exchanges influences that often challenge preconceptions, the status quo, ways of doing things and systems of belief. The chain of swapping differences began with Young's attempt at understand a remote making process through photographs and guessing at the context behind these images in order to gauge the design potential enough to propose a new design that would provoke a challenge. The process of forming the bell components and the surface plating process in particular were more difficult to describe and appreciate from a distance. The challenge had to be significant enough to provoke a difference but not so difficult that it would seem to be unachievable or require a disproportionate effort. Husen's challenge was in attempting the fabrication of a whole new product form that would require new types of shaping and new types of connections. Although the forms had a general similarity to ones he had produced before, the need to incorporate electrical components brought with it a new demand of allowing for parts to be assembled at a later date. The challenge for the researcher was to remain neutral and act as a facilitator encouraging Husen to make all the decisions and rebuffing internal desires to own, maximise and refine the project.

Evidence can also be seen of interactions that could be viewed in terms of the globalising frames discussed in chapter two. Appadurai's theory of global suffixscapes could enframe

the project activities through the ideoscapes shared by the designer and bellmaker and facilitated by the researcher, in particular the way that the concept of an electric lamp is conveyed from a context in which they are plentiful to one in which they are rarer. The ethnoscape describes the cross-cultural influences transmitted via the mediascape of photographs and computer models as can be seen in the highly industrialised computer renderings verses the hand-crafted material finishes and hand beaten sheet Iron forms. The technoscape could be viewed as all the physical and digital technologies that enable the project collaboration from the PC and software of the designer to the copper bellmaking technology in Katchchh and the laptop, mobile and photographic technology of the researcher. In particular the contrasting transmission of computer renderings from the UK to India and the return of a hand made copper lamp from India to the UK. Appadurai makes a call in his paper *Disjuncture and Difference in the Global Cultural Economy* (Appadurai, 1990) for field studies to explore the existence and activity of suffixscapes and it would appear that here there is emerging evidence observed in this design research activity that supports giving more significance to this theory. Observing this process demonstrated that suffixscapes could be identified in design activity as it took place in real time and that sophisticated relationships between the scapes become apparent in economic questions in the financescape and a potential structuring of the suffixscapes in relation to design activity. This question will be explored further in chapter 5.

4.3 Designing research: Nirona stool

The Nirona stool is the second of two projects located in the village of Nirona and generally deploys the same design research methods as the Luhar lamp. Two projects were conceived in order to offer an element of redundancy in the event that it was not possible to complete one of the projects and in the event of a successful completion they could both be compared for differences and similarities in their findings. The Nirona stool project was initiated on the same day following the visit to Umar Husen to begin the Luhar lamp collaboration.

4.3.1 Context: Wooden lacquer turner in Nirona, Katchchh

Bhavik Bhavchaya is a member of the Wadi Kohlis, a semi nomadic clan of Meghwals and Meghirs living on the edge of the white Rann of Katchchh salt desert. The family originated from Pakistan over the nearby border and have practised their craft for at least seven generations having lived around Nirona for over half a century. His father is a master 'lac'

(short for lacquer) wood turner, described as such by his skill in making new patterns and colour combinations while his son at seven years old is already an accomplished craftsman making sellable pieces. The wider regional context remains the same and has been adequately described above.

Bhavchaya recounted the story of their early years in the area where a family member would turn and finish a single bed leg, then take it to the market to be sold, returning home having bought food to survive the day with the profit from sales. This was a daily occurrence from which they had slowly developed until today where they live in a settled area on the edge of the village with several masonry buildings with concrete porches where turning is organised and practiced around an informal communal square. The wood for turning is mainly sourced from the local forest and lacquers and dyes are also sourced locally.

The lacquered wood or 'Lac' turning as its locally known is conducted on an ingeniously simple lathe made of two metal rods and operated while sitting on the floor. Both feet are used to hold a tool rest while the right hand is used to bow the lathe and provide power while the left hand holds the tool chisel (Fig. 4.12). Due to the reciprocal nature of rotation switching back and forth, the operator needs to coordinate bowing with the tool being moved back and forth from the work as it may only be cut and polished in one direction of rotation. Bhavchaya's production output ranged from table legs, chapatti rolling pins, 'boxes for secrets' and wooden spoons (Fig. 4.14).

According to Bhavchaya, the main skill in his craft involves the application and working of the unique lacquer finish applied to the wooden pieces. Although the practice also exists in Sindh province, the variety practiced and developed in Katchchh has evolved to produce unique decorative marbled finishes.

Fig. 4.12 Bhavik Bhavchaya demonstrating woodturning on his hand bowed lathe

The lacquering process takes place as follows. Once an item has been turned, small blocks of vegetable dyes are pressed against the piece as its being turned. This created a solid body of colour. Rubbing the dye onto a second piece of wood and working it back and forth achieves a series of stripes. This is repeated with various colours to produce a set of

parallel lines of colour around the circumference. A small amount of lacquer is then deposited onto a coarse cloth and the work piece is spun. The lacquer is then pushed onto the dyes as the piece is rotated, a process that polishes the surface to a gloss effect and drags the dyes over each other to produce the unique marbling effect. The skill and coordination is quite complex and involves equal spacing of the marbled stripes, uniform dragging across the surface area and coordination by introducing the lacquer dipper rag only onto the forward rotation of the spindle and removing it for backwards rotation. Figure 4.12 and 4.13 illustrates some of the stages in the process while figure 4.14 and 4.15 shows the diverse range of marbled patterns the Bhavchaya family have produced and the exacting quality and skill of the patterning.

The provenance of these techniques remains obscure, although for certain they have been subject to influences from various quarters and are themselves very good examples of how knowledge has evolved as it has moved from place to place over generations of slow iterative evolution.

Fig. 4.13 Lacquering stages: applying vegetable dye to the wood, polishing the dye in with a lacquer close up detail showing lacquers 'blurring' with the dragging of the cloth.

Fig. 4.14 The range of turned forms crafted by Bhavchaya and his family. Left to right, Chapatti rolling pins,' boxes of secrets', candlesticks and wooden spoons.

Fig. 4.15 A small sample of the diverse range of marbled patterns created by Bhavchaya and his family

4.3.2 Research design

The research design for the lacquered wood turning project centred on the objective of observing the receipt and the interpretation and making of an artefact conceived in a remote location. The activity would serve as a platform to investigate evidence for exchanges of information and therefore differences from other locations that affected the making of turned wooden utensils and other small items.

The impartial design observation process was adopted again by introducing the lacquer craft techniques via photographs and a physical sample of a spoon to an expert London based furniture designer who be commissioned to design a product that would challenge the making skills of the lacquered wood turner.

Matthew Kavanagh has been the design and business partner of Ashley Hall at Diplomat since 1999 and has been an active collaborator on a large number of international design projects with commercial partners in diverse locations including Italy, Holland, Belgium, Germany, Australia, Japan, and the USA. The Diplomat design process is highly collaborative to the extent where the originator of a concept is often completely obscured through the swapping of design concepts, models and developed in a recursive process during the design activity. An element of research interest in this project is to observe how a familiar design partner's concepts are understood and interpreted in a remote context.

In accordance with the copper bellmaker project, designs were kept confidential from the researcher and sealed in an envelope in order to preserve the clean communication of the new designs without the possibility of prejudice or anticipation.

4.3.3 Conducting research

Bhavik Bhavchaya was based in his home about 200m from Umar Husen on the western edge of Nirona. After an initial welcome conversation and explanation of the research project an envelope was opened and he was shown the two stool designs sketches Kavanagh had prepared (Fig 4.16 below and Appendix C1 and C2). Bhavchaya immediately began asking questions and the same process was adopted whereby the researcher reflected questions back to Bhavchaya. First impressions of the researcher was that Kavanagh's design sketches were very clear and suited the lacquer makers skills and material processes used by Bhavchaya although there was minimal detail in the drawings. Kavanagh had stated that he deliberately kept the technical detailing low to allow maximum flexibility and local interpretation. Upon seeing the design for the first time Bhavchaya immediately stated that he was very happy to make the legs but could not carve the top as drawn by Kavanagh and suggested that a local carpenter he knew could be employed to make this component.

During the subsequent interview Bhavchaya made an important point when asked about remote collaborations via the Internet. He made it clear that his involvement in the research was motivated to reciprocate the effort the researcher had made in visiting him to conduct a collaboration. He was also keen to try out new product types and to showcase his skills. He said his answer would have been a 'No' if we had not arrived in person to ask him and he seemed to appreciate the demonstration of effort (Appendix H1, translocated diary, November 24th entry).

Fig. 4.16 Matthew Kavanagh's wooden stool design sketches

Some discussion followed around which of the two designs to select and he eventually chose the more sculpted 'pebble' top design over the round stool. Bhavchaya seemed to choose this option as he felt that his own carving skills for the seat component would compromise the design. The need for a local subcontractor or collaborator for elements was always a possibility and raised some concerns about the value that each maker would put in, how they would coordinate and the agency of design and transfer, especially as the top was arguably the most complex part to make. A second alternative was also suggested where a chopping board for chapattis could be used for the round stool top. Although this would be under the full control of Bhavchaya it was clear that he was unhappy with the timber and form quality this would provide and put forward using the carpenter as a

solution instead. The most difficult aspect of making the seat component would involve using a much larger block of wood and having to carve away a significant amount of mass in order to produce the tapering leg connections under the seat. Although important aesthetically these would test the carving skills, increase the production time and require accurate angular fixing of the legs in order to maintain a well-balanced set of forms. The indentations on the legs shown at the bottom of the sketch were also discussed and Bhavchaya asked if these were necessary. He decided not to include them in the final design and it can now be seen looking at the marbling process that a more complex surface would interrupt the design and make this more difficult to combine with the indented surface. During the conversations all the detail decisions were referred to the craftsman and very little if any influence came from the researcher. In general it was a fairly straightforward task to avoid intervening in design decision and nearly all were reflection back to Bhavchaya who seemed happy to be given the trust and role reflecting his craft skills.

During a more general discussion and interview, Bhavchaya mentioned the fact that he had not used any Internet resources to influence his work and did not have any online access. He was however very happy to try out new ideas and showed one of the 'box of secrets from the desert' he had made. The function was a little difficult to discern but seemed to involve storing secret objects or written texts. His father was a master craftsman whose role was defined as being able to produce new designs though these were mainly confined to patterning experiments based around contrasting colours rather than physical product forms. He did however recount the story of seeing a stone spinning top and how he remade a wooden version using his lathe. Serendipity suggests that this may in fact be the same wooden top that Husen used for his four-bell design described above, evidence again of an analogue creative difference being locally shared.

On returning to Khamir on the outskirts of Bhuj a meeting was arranged with the carpenter Yunas Bhai for a long conversation driven by his need for specification on how to make the stool top. At a crucial point it became clear that the carpenter had in mind changing or had misread the design and was proposing 'tombstone' dimensions for the small stool at 50mm thick and 450mm wide. This threw up a conundrum that Bhavchaya understood the design very easily and the carpenter less so and an on the spot decision was made to subtly remind him of the proportions of Kavanagh's original sketch that if read proportionally

would indicate a seat around 320mm wide. This corrected the situation with Yunas recognising the difference quickly. The misunderstanding was an easy one to make as Kavanagh had only used one dimension overall for the seat height at 350mm. Yunas also suggested reversing the making process so the legs would now be made first and then fitted to the stool. An interesting observation revolves around the desire for specification from the carpenter verses Bhavchaya's crafts interpretation skills. The meeting concluded with Yunas requesting the confirmation of dimensions and suggesting that he could not produce the fluted leg connections to the wooden top. He did not seem to be comfortable in making these and seemed to think that he could not charge enough to make his effort worthwhile. He left having decided to use Kavanagh's dimensions of 3cm thick and to carve the seat without the fluted legs from Bubblewood (a local name for a hardwood grown in the area).

The incoming material was communicated via Kavanagh's design sketches, themselves the result of a significant career of working in remote commercial making collaborations, along with the researcher's facilitation. Agency was supported through digital media for communications in setting up the visit and recording the results along with analogue drawings and the experience of working with people from different cultures and the subtleties of how to explain clear objectives and leave time and space for people to feel comfortable and ask questions.

4.3.4 Nirona stool research output

Fig. 4.17 The Nirona stool H34cm W35cm D21cm

Bhavchaya was very pleased with the final stool (Fig. 4.17 and Appendix C) and thought that it would appeal to visiting tourists and add to his repertoire of designs. The colours were an unusual new combination for him and he was pleased with their selection and the outcome. He commented that he would not use the stool at home as he did not consider it a domestic necessity and a bed was more important (houses in Gujarat generally do not have chairs or stools, people either sit on the floor or on bed-couches) but he would make a second copy with the aim of testing its popularity to passing customers. He did think the final design was quite heavy and intended to develop an improved version with a lighter construction, possibly demountable so that it could be transported more easily (this could be an influence from the Wadi Kohlis semi-nomadic past). While the proportions were very different to those he was used to, he had not seen or made anything like it before but would like to continue making objects for people outside of India.

Yunas Bhai was also very pleased with the final design and considered it strong and sturdy (Appendix K9). He would be happy to have one at home and it reminded him of the splayed legged milking stools with flat tops that his father and grandfather had been making for generations. The new technique he used in its construction was to develop a jig to drill the leg holes in a consistent angle. He also enthusiastically confirmed his interest in working with more people outside of India.

The Nirona Stool forms an impressive result, a mix of contemporised organic forms with the undeniably strong marbling techniques crafted by Bhavchaya's turned legs. The separation of top from legs works well although it has added a slightly componentised feel to the final design. As with the Luhar lamp there is an impression of mixed aesthetics yet in the stool they seem to be more easily separated into the various components and the marbling appears more as an addition than the integral copper surfacing of the lamp. The legs are a larger diameter than most of the other turned pieces and give a larger surface area to the patterning, which is more easily appreciated. The decision not to carve the conical connections between the underside of the stool and the legs has reduced the complexity of the object and in some ways increased the impression that it is locally made. The inclusion of the conical connectors would very likely have increased the sense of an external design impact, the reception of difference from a remote geography.

Following the return of the Nirona stool to London a semi structured interview (transcription in Appendix K2) based on a series of predefined questions (Appendix K1) was arranged with designer Matthew Kavanagh to discuss his thinking during the generation of the initial ideas and to discover his impressions of the final design. When asked about allowing creative space for interpretation by Bhavchaya he described his thinking thus:

> I left a little bit of space for interpretation in the design in the hope that they would see from the sketches what my idea was and leave enough room to improve on the areas that would overlap into their skill se...so I used sketching instead of technical drawings so that I could give a visual impression of what it was meant to look like as a finished object, and enough detail in terms of scale, proportions, and end up actually with just a single dimension height, so that they can make choices about what was possible in their skill set.

The response illustrates his experience of working with makers and how the collaborative process of designing and making can be mediated by an open set of instructions that leave room for interpretation. When questioned about the source of this experience he replied: 'I guess that's a learned process of working in factories where you try to play to their strengths and harvest what they do well and include it in the design process.'

The willingness to cede creative agency to another individual can be a challenge for many designers and Kavanagh explained how he viewed this aspect of the project and where his experience emanated from:

> In a way in resonates with me – I think a lot of designers will find that quite difficult to do but I think, having worked in a design partnership [with the researcher] where we do that quite a lot, back and forward with the creative ideas, there's already an ability to let go of some of the control issues, and also from the experience of working with factories you get the best out of an overall project when you can really leverage the things they know that you don't...In this particular exercise it is more of a position of trust in that you are trusting to let go of that and enter a collaborative area in some of the creative process.

The interview developed on to a more reflective mode concerning the more significant questions of how differences are mediated across geographies through design activity and the roles and expectations of the designer and the maker:

> In all making situations, there is a skill set that is honed by the nature of the fact that they're doing this job and are still doing it and making a living from it and have skills in it. As a designer you have an appreciation of a large number of manufacturing techniques through the years but there's always more knowledge in the hands of the people doing the making…I wanted to have a design that could maintain the use of the preciousness of that design and be a useful object.

A particular example of how Bhavchaya's skills were liberated by the opportunity to interpret differently the sketch of the leg details provided a valuable piece of evidence indicating the point of liberating differences from a remote geography through the creative envelope made available by Kavanagh:

> And this is where the spindle guy's [Bhavchaya] obviously come into his own and taken complete control of what that pattern is, and I quite like that actually as I never would have drawn that section in the middle. I mean by contrast the way I drew that with stripes, it doesn't do justice to what he was good at, and actually I was being indicative and quite straightforward hoping that he would then turn a job like that and he obviously has.

Kavanagh enjoyed the project and whilst nevertheless being aware that the relationships and imperatives vary when compared to a commercial project he agreed that the research had insights that in the longer term could be incorporated into industrialised practices. The finished stool was then presented to Kavanagh who gave his first impression:

> Well, proportionally it's really perfect. I think it's a very stable stool, it seems to be roughly about the same height as what I suggested so it's quite a low perching stool. It's the right shape for your arse. You know it kind of, it's not too bowed, and it's not too curved and its not too small. I think that works really nicely actually. And it's very soft, it's got that chunkiness to it to give it real value and it's got enough of a radius to make it…I can imagine it's hand-carved isn't it. It's not machined?

The quality of the bull-nosed edge was a particular area of design focus for Kavanagh and he described the relationship between his own ideas and the finished design:

> ...there's a little bit of a hint of a flat on the outside but it's generally bull-nosed all the way round. You read it as a fairly kind of chunky sufficiently radiused edge. What I was really hoping that I wouldn't get, and I didn't, is like a mean radius running round a kind of you know a piece of flat timber...

The relationship between the seat and the legs were another key design feature that he recognized was a large making challenge:

> ...he hasn't got the blend which obviously would have been a carving challenge, and a little bit of shakiness [referring to the filled split in the grain on the underside sometimes caused by damage during the felling of a tree]...I mean you don't see it when you're sitting upright but the join of the legs to the seat itself is a little bit untidy...You never really kind of fully anticipate what the other person's going to add to it, and you know the legs, is that a surprise to me? I understood that this blend might go because I know that's the half of the cost of doing it, it's a very wasteful piece of wood. And then you have to hand carve the blend to meet the diameter of the legs and it reveals the connection's quite difficult to resolve. The legs, you know, angle and lengthwise all connect with the joints. I kind of was expecting that not to go well. But I didn't expect the legs to look the way they are, so that's kind of a rewarding process.

When asked to describe the most surprising aspect of the design he replied:

> That it actually looks closer to what I was imagining than I thought actually. For some reason I was kind of fearing the worst and hoping for the best...Well I just thought the proportions would be further out that maybe the top might be flat... Because people make value judgements based on their own experiences and as a designer you attach value to details of design, and as a maker you attach a different value set, and people with different cultures attach different value sets.
>
> ...Its a level of skill, I mean this is actually very, very beautiful and I've never seen it anywhere else. I've never seen something of that kind created in the way that he's done. And it's not something as a manufacturing process, that I know inside out...

Kavanagh discussed the level of decoration and finishing on the legs with high praise and added:

> I don't think I could have contributed to that process, as an element of design, that decorative detail isn't something that I could add value to really, so giving him the free reign with that is probably the most likely to give the best results. And then it's a sliding scale towards like form mongering and carving and your knowledge of manufacturing and scaling it down from machines...

When returning to the subject of the creative envelope for interpretation offered to Bhavchaya and what had been learnt from the design experiment that he would improve next time he described how:

> I would have a better understanding of where his areas of comfort and skills are and I would not be more prescriptive but I would present it in a way that is easier to read in those ways so that he can relate...to a bit more now. I would probably push...try and emphasise that side of it, so that I can still work in a way he feels comfortable and can add value to it. But not be prescriptive because I think clearly with this bit I couldn't have told him how to do that...

In conclusion the earlier theme of design control was reopened and developed to discuss its future benefit to creative economies and the relationship to intellectual property rights and ownership came into play:

> You know it's almost like you can park your ego as well, which is another thing. I don't think too many people do.
>
> ...if you move towards crowd sourcing and you know as a means of making stuff, which seems to be the future in a lot of ways, it doesn't leave room for ownership. You know there isn't ownership that's left because there's too many people claiming part of that. I think ownership is one of those things that perhaps is an old fashioned notion in the terms of it's a means of being remunerated for your work. If there was a different model then ownership perhaps wouldn't have the value that it's attached to at the moment.

It was clear that the experience provided a rich set of insights and evidence describing the exact point of handover from a design intention with deliberate spaces for interpretation and misinterpretation for the maker and how these resulted in design differences in the final stool.

4.3.5 Nirona stool findings

Unlike Husen who was actively pursuing external inspirations, Bhavchaya's influences and incoming differences are more local. A notable example was the translation of a stone spinning top into a turned wooden design that could be produced with the lacquered and marbled effect. The definition of a master craftsman as someone who experiments with different colour combinations demonstrated a modest relationship with difference and developing new designs. It could be argued the craft itself is understood as the surface covering of lacquer only, the turned wooden body acting as the ground upon which the lacquer is applied and worked, similar to how an artist applies paint to the canvas. Bhavchaya interpreted the drawings quite literally adding the lacquered legs as suggested. In fact all the lacquering is carried out on turned wooden surfaces even though the opportunity arises in some of the designs to work these up onto flat areas like the spoons. As a result the aesthetic is a little more disjointed as the result of two different makers collaborating and the very specialised nature of the lac craft.

Bhavchaya was much better at interpreting Kavanagh's design sketches than Yunas who seemed to struggle to appreciate proportions of the stool and imposed his own view (until corrected) that the stool was too small to be a chair. With further discussion and reference back to the drawings he eventually revised his understanding of the dimensions.

The desire and pressure for makers to engage with new differences from external sources in order to develop their practice and economic future was a recurring point in many conversations and is a significant aspect of this research. In his interview (Appendix K9) Buch conjectured that the market for modern interpretations was limited and that authenticity and the link to an originating geography were valuable attributes. An interesting Indian strategy for protecting geographically embodied knowledge came to light whilst attending the 'Make it Real' craft seminar held during the stay at NID. Geographic indicators or GI's can be applied for by groups of craftsmen based in a particular geography (Geographical Indicators Registry, 2013). If granted the craftsmen have legal rights to be the sole traders and can claim a certain craft for themselves. It has proven difficult to establish the legitimacy of some claims as groups of people have moved from various locations for a variety or reasons ranging from partition to the economic, religious and developmental. Once granted the GI cannot be sold or passed on in any way and although they have now been granted some craftsmen complain that they have not

seen any value from the initiative yet and this may be due to the fact that the brand values of those crafts have not yet reached a sufficient level where legal protection confers financial value. Ravindran and Mathew (2009) report on a case study where GI status was conferred on Darjeeling tea after companies based in countries as far afield as Kenya, Sri Lanka and Nepal had been passing off local produce as the Indian premium brand.

In terms of the bigger picture and the globalising frames it was clear during the process of engagement and making that Appadurai's suffixscapes, most notably the mediascape, technoscape and ideoscape were playing similar roles to the Luhar lamp collaboration. This manifested itself in the way that drawings were exchanged through the mediascape to produce artefacts that had significance on the ideoscape. The identification of evidence for suffixscapes as a result of the process came to light through the making process however Bhavchaya, even though he lives only a few hundred meters away, had no contact with the internet and had not made any external collaborations with designers before and so the process was new to him. The financescape retains a similar significance in its relationship to facilitating the material exchange and the risks and opportunities of craft development as reported in Young's comments.

In concert with the Luhar project the exchange of differences began with Kavanagh attempting to understand a remote making process through photographs and guessing at the context behind these images in order to understand the design potential enough to propose a new design that could provoke a challenge. The challenge had to be significant enough to open the potential for differences to emerge, but not so difficult that it would seem unachievable or require a disproportionate effort. A particular question arose in how to gauge the variety and size of timber that was locally available. The local forest only had small section poor quality timber available yet the shipyards at Mandvi approximately 50km away seen on an earlier visit has section 30-40cm in section and several meters in length. Bhavchaya's ability to work on something larger than a spoon was also part of the discussion as was the absence of any evidence for woodworking tools that might allow a larger section to be worked. The challenge for the researcher remained the same in remaining neutral and acting as a facilitator by encouraging Bhavchaya to make all the decisions with the further compound complexity of Yunas making the stool seat.

Fig. 4.18 below summarises the main structural and aesthetic design differences that emerged in the Nirona stool from the collaboration between Kavanagh and Bhavchaya.

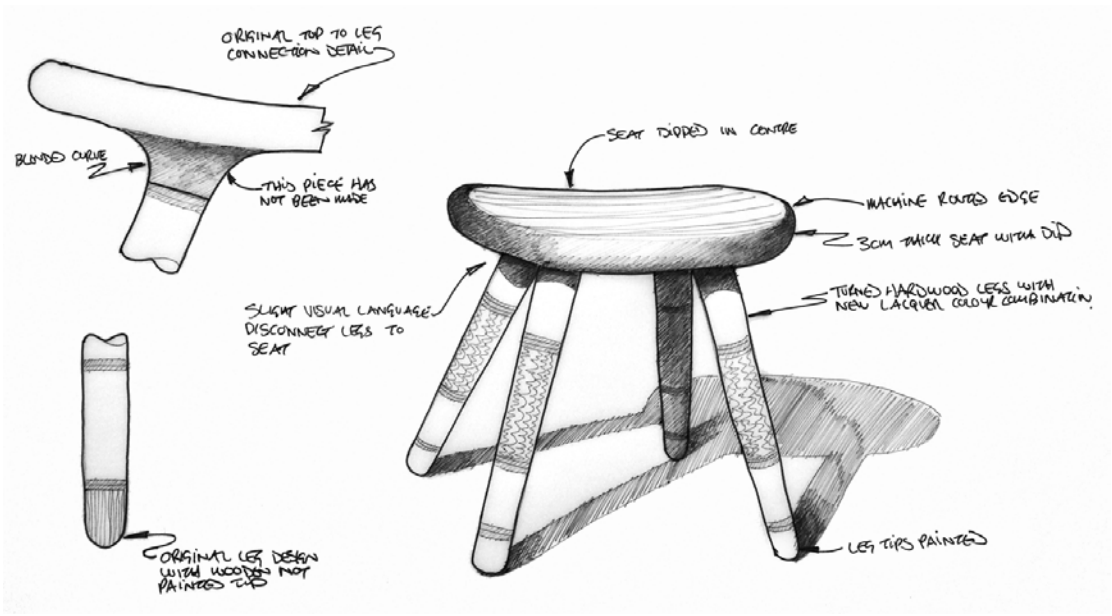


Fig. 4.18 Nirona stool analysis

Both the Luhar lamp and Nirona stool have proven successful in testing the idea of geographically liberated difference as both a creative design motivation and a design method in the context of generating and exchanging remote differences. When comparing the lamp and stool it is interesting to observe that the Nirona stool does not appear to embody the 'between' nature of the Luhar lamp, it can be seen and accepted as an object in both of the worlds that led to its development. The disjunctive visual elements of past/future and exaggerated forms giving the impression of an illustration rather than a design are not so visible. The two following projects extend the creativity to the researcher through designing in practice. A note should be made here that although the projects overlapped, the Luhar and Nirona projects were completed in the first half of the Indian field visit while the next two were completed in the latter half. This was valuable as observations from the first two could feed into the second set of research projects.

4.4 Researching through design: Copperking bronze stool

The Copperking stool is the first in a pair of practice based design projects following the method of researching through design activity. The aims are to explore through personal design insights evidence of geographically liberated difference as an active component of a design process, and to use the opportunity of a research project to reflect on personal practices. Ultimately this research project was to re-connect and extend themes of

cultural transfer and inspirations that were initiated in Ghana and developed further in the Ironmen stool projects in London.

4.4.1 Context: All-Win foundry Ahmedabad

Initial research was activated through using a network of personal connections made on previous visits to explore the diverse making environments of Ahmedabad to see which ones could be developed in the design research. The crafts processes varied from single makers working alongside the busy city roads to established businesses of artisans in the densely populated old city with networks of suppliers and associated trades through to large industrial-commercial facilities on the outer edges of the city. These included a number of foundries with expertise in Aluminium, Stainless steel and Bronze. An exploration around the area of Manek Chowk, the huge sprawling market of hundreds of stalls, shops and businesses uncovered slotted furniture makers, copper utensil makers, basketry and birdcage making (Fig. 4.19 & Appendix D). The decision of which craft to use revolved around the material qualities, a good connection to the owner and the emergence of a design concept that would extend existing skills and product typologies without being an abstract imposition.

Fig. 4.19 Crafts and making processes in Ahmedabad. From top left: slotted furniture making near Manek Chowk, Stainless steel lost was casting at Essbee foundry near Sikandar market, basket weaving near Manek Chowk, birdcage making on Mirzapur Road and papier mache craft at the Ghandi Ashram.

Both the birdcage makers and Copper utensil makers were considered with the birdcage making eventually being rejected due to anticipated structural challenges and the strong aesthetic connection with cages. The copper utensils making was explored further, however a family issue had reduced the interest in taking on new projects at that time.

Further afield a visit was made to the large industrial Essbee foundry located near the Sikandar market on the south-western side of the city (Appendix F1). This facility was producing investment (lost wax) cast stainless steel industrial components in large volumes. Conversations were initiated with the owner but it quickly became clear that this form of casting was too industrialised, involving steel tools and a large lead-times plus the additional reservation of their being less artisanal opportunities for exchanging differences in such a streamlined operation. The process however is impressive and the central image in the top row of Figure 4.19 shows half a metric ton of molten stainless steel being poured into the pre-heated ceramic moulds. Two smaller foundries in the north of the city were visited and the second seemed to have the ideal combination of scale, expertise demonstrated in their sample castings, opportunity for engagement to share differences and an enthusiastic owner.

Omprakash Kothari has owned All-Win foundry for twenty-nine years. The foundry originated when his family's business of supplying engineering components required greater flexibility and faster supply rates and they began their own foundry based on by using the Docra casting process. They have now evolved to specialise in sand casting aluminium and copper alloys with the occasional piece of investment casting. Casting capacity is significant, with exhaust fans over a metre wide, large pump machine parts and small vehicle chassis being produced. Kothari was keen to show off his skills and agreed to the project on the grounds that it allowed him to show off Indian sand casting expertise. He was also very interested in the challenge of the project having not worked with the combination of pattern type and product function before, he was curious to try it out. As part of a later conversation, Kothari decided to show his 'impossible casting'. This is a series of three nested hollow spheres, the larger two with a small opening in their surfaces (Fig. 4.20). The impossibility of the casting revolves around the fact that each of the three different metals melts each other: Lead (330c), aluminium (650c) and bronze (1000c). The inner ball being made from lead compounds the difficulty. The solution lay in the

delicate process of patternmaking, coating each sphere in a thin layer of sand before casting round it and then dousing the casting in water 10 seconds after it had been poured in order to reduce the heat. He held this up quite rightly as proof of his master casting credentials.

Fig. 4.20 Omprakash Kothari's 'Impossible casting' in Bronze, Aluminium and Lead

A significant difference in making culture, scale and motivation exists between All-win and the bellmakers and lac turners in Katchchh. The Katchchh craftsmen are motivated to make in order to embody their cultural history and identity as much as for economic gain or employment. The driver to make comes from their own desires, choosing and timing, and the practice is supported and continued inter-generationally through family groups. In contrast All-Win manufactures at a small industrial scale and the motivation is largely economic. However the level of skill in the foundry is of an equally high standard although different in nature and the complexity of the making culture and interdependency of tasks are many times greater.

After the visit to All-win it was decided to consider the idea of making a series of stools to unite the wooden stool being made by Bhavchaya, extend the Ironmen range of stools alongside the universal appeal of seating as a testing ground for materials, structures, cultural material, new functions and design experiments.

4.4.2 Research design

A key aim of the research design was to limit the amount of anticipatory creative planning and to initiate design ideas, product typologies, select materials and processed based on the opportunities gained from the network of city craftsmen rather than impose an external set of creative desires generated from afar. That having been said, a general background desire to challenge an existing expertise within the context of reflective practice existed and to this end a notional idea to somehow revisit the Ghanaian stools and cast Iron stool projects from London as a third phase iteration. The underlying aim was to reconnect the design influence, making and collaboration at a local level rather than the remote process that was originally adopted. In many ways this was seeking to access the embedded knowledge of an expert group of makers and to see how much this collaboration could influence the final design. A decision was made to use the most minimal communication materials in order to allow the largest operating space for making and to access individual's expertise and to give it space to flourish. This was in a direct contrast to the researchers earlier career where the absolute control of form and its faithful execution by manufacturers became the driving force.

The research approach for the All-Win stool project was 'researching through design' where the researcher was embedded in the project as the main creative agent and self-reflecting on activity and findings throughout the project. Space for reflection was made via the process for writing an 11,000 word daily diary (Appendix H1) alongside photographs and interviews. The interviews were mainly informal and captured through note taking, a method selected due to the background noise in the foundry and the need to maintain a minimally invasive presence. The following section 4.3.3 is written in the first person in order to capture the subtlety of self-reflection and enable a more personally descriptive language. The combined action research (Hopkins, 1985; Kemmis & McTaggert, 1988; Hopkins, 1985; Susman, 1983; Venable, 2006) and participatory design methods (Crabtree, 1998; Sanders *et al*, 2010; Spinuzzi, 2005) researched in the previous chapter indicated a number of appropriate design tools and an ethnographic approach (Sanders *et al*, 2010). First person accounts are used here in order to accurately reflect the inter-personal experiences of researching through design and to enable a comparison to the external position of the researcher in the Nirona projects.

4.4.3 Conducting research

Following the visit to All-win, I began to generate a number of design sketches that sought to extend and develop the stool designs that I had initiated in the Ghana and London cultural-geographic transfers that are described as a case study in chapter one. This brought a valuable synergy to the project by allowing some useful comparisons to be made across a range of stools in terms of materials, crafts, locations and design research approaches. It also leveraged my expertise in furniture design and provided a new framework to explore how I could reflect on designing outside of the commercial scenario of mark-ups, export paperwork, market suitability, minimum orders and positioning the work against my back catalogue and projected future works. In the background for some time there has been the sense that the most interesting phase of designing is the relationships with making and factories and that this was always something that was efficiently managed but that could be explored further.

My design research intention lay in exploring how cultural difference could be liberated from geography by using the inspirational context of the Indian environment and crafts skills in combination with an evolution of the Ironmen stools. In order to try and gain the most from the local environment and the best possible range of influences I decided to employ what I have begun to describe as a non-anticipatory design approach by deliberately not producing any sketches or even thinking very much about the types of objects that I would make. Creating a delicate balance was necessary to avoid designing with remote clichéd motifs and caricatured references. The aim was to liberate difference supported by the original African stool forms, casting metal as a one-shot production process, the typology combination that originated in London and fusing all of these with a design embodied through hand carved patterns that would somehow invoke elements of a local cultural transfer. Exactly what these elements were, how overt or covert they were in the creative process would remain an open question.

Initially I discussed two different design and casting processes with Kothari, the first was the same used for the Ironman stools and involved the evaporative-pattern casting method where a master would be carved from polystyrene foam, embedded in sand, then molten metal would be poured in to evaporate the pattern. The second process involved designing a frame, then asking the foundry to fill in the details in a filigree style pattern of their own choosing. This design could be made by the lost wax process and involve making

a hand carved master or could be traditionally sand cast with a loose pattern made of wood or a bonded particle board. After discussing the second option in more detail I realised that we would need to use an external patternmaker and that he could only work from a fixed drawing so the opportunity of designing a more open and interpretive process where we could exchange differences would be lost and this route was abandoned.

As I began to develop sketches I realised that overt cultural motifs would inevitably be unsuitable and yet I felt that the new bronze stool designs should in some subtle way embody local influences. The transition in my own practice over the last ten years has been from highly abstract sources of form generation to a more recent approach of being influenced by local conditions. In generating the combination of sketches and design approaches for the stool, an idea of how and what to balance from local influences with my own creative vision became the most significant design factor. Inevitably the final solution is a synthesis of these dual sets of influences where the exact boundaries and locations are fuzzy and ill defined.

Drawings developed through reconceptualising the basic forms of the stool from the relatively simple African solid geometries to a starting point drawn from the human forms and touch points as places from which to grow shapes and functions. This led to the concave seat pan shape in the centre of the stool and another new feature comes from lifting the Iron stools and realising that the rough textures underneath are very uncomfortable to hold. To solve this problem I designed the surface of the stool ends to wrap around the underside and provide a smoother connection with hands holds for when the stool is lifted. The visual language shifted from the essential African geometries that were themselves relics of the hand cut process of the wooden stool originals that were made from one piece of timber without jointing, a feature of West African stools. This feature was inherited and made its way into the Ironmen. Shifting the context again delimited the design to allow new influences from the traditional Indian culture of non-ferrous metal Docra casting, temple gods, copper and bronze utensils began to make their influence felt in the softening and harmonising of an overall form. The constructed geometries of the Iron stools blended into a mono-form where the legs, seat and new functions were combined into a single unity that could further exploit the freedoms of the casting process. The legacy of forms inherited from woodcarving was left behind in the transition.

A series of sketches (Appendix F3) were generated culminating in the final set of designs that have been illustrated in Fig 4.21. Alternative concepts considered along the way included producing a more experimental centre 'brace' for the legs as can be seen in sketch in the lower half of Fig. 4.21. Although it was very tempting to take a greater risk with the leg structure - and this would have been attempted if it has been possible to make two stools - in the end I settled on a simpler solution. This was partly as a result of a less risky casing process due to how the molten metal would flow through the cavities to maximise the chances of a successful cast. The mould is poured through the legs so a complex structure could slow the metal down and produce a 'cold shut' where the molten bronze solidifies before it reaches the end of the cavity or the turbulence of the heavy metal flowing through complex chambers erodes the wall textures spoiling the cast. In addition the difficulty of visually developing the underside form as a refined carving may have taken two or three attempts.

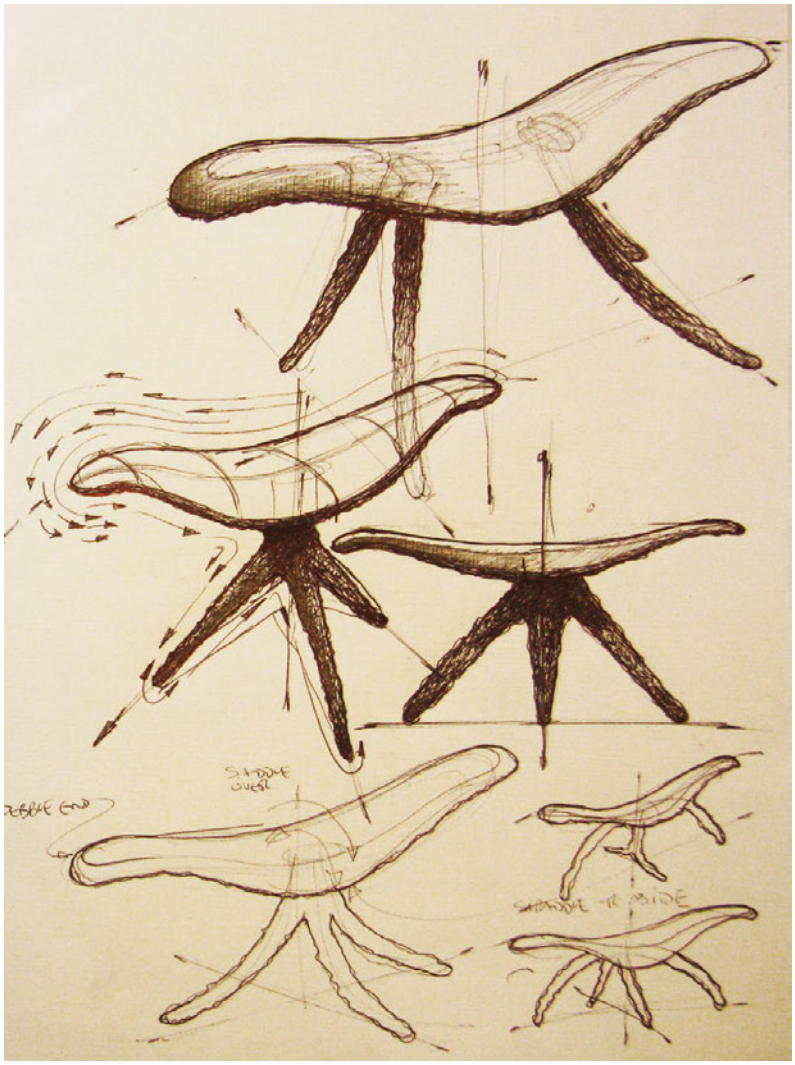


Fig. 4.21 Bronze stool sketches

Once I had selected a final design (below in Fig. 4.22), a visit to a local foam supplier enabled the sourcing of a polystyrene block (locally called Thermacore) so that a master form for evaporative-pattern casting could be made.

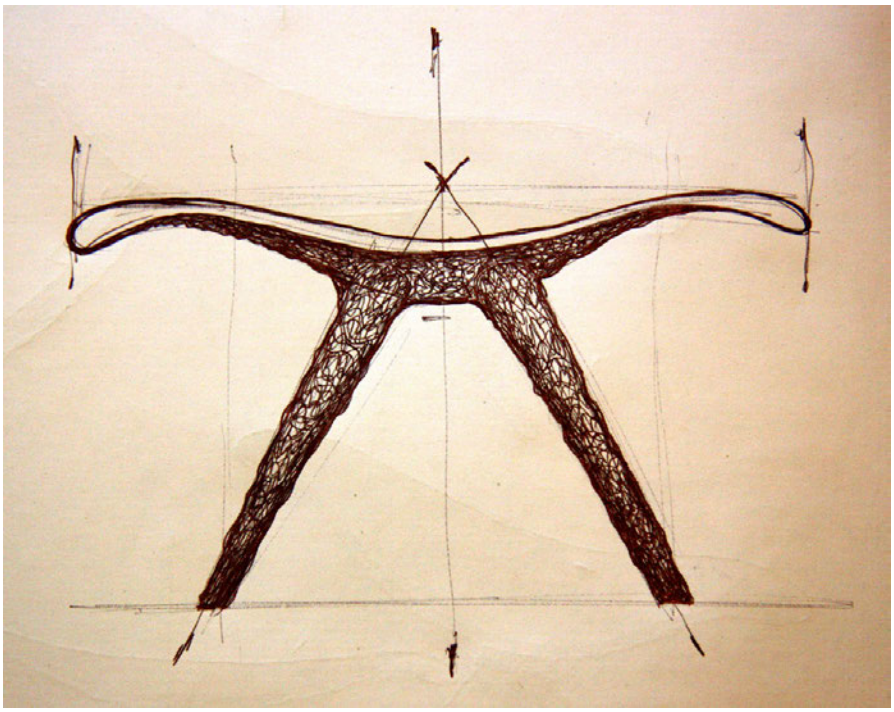


Fig. 4.22 Stool elevation

Carving a foam master needs patterns and templates to make sure the carving is symmetrical. At Diplomat we developed a fast and flexible solution by drawing one half of an elevation, then pushing the tip of a pencil through it to transmit the design to the foam, then turning over the pattern to repeat again for the mirror half. Full size forms were then drawn up as freehand elevations so that the shape and details could be refined and intuitively scaled by hand. For an experienced designer, seat forms, human comfort and appropriate proportions can be 'felt' through drawings in a way that is impossible through CAD modelling. The generation of human scale and ergonomic human forms by hand at full human scale provides the most direct connections between designer and sitter. Figure 4.23 illustrates the full size sections that are drawn as half elevations and overlapped. It's a relatively unusual approach and follows original production drawings that I had seen and been influenced by while a student at the RCA produced by the Scandinavian designers including Hans Wegner. Overlapping the elevations brings them together and enhances the perception and interrelation for three-dimensional forms. A secondary value lies in using an efficiently sized piece of paper, as chairs tend to be large.

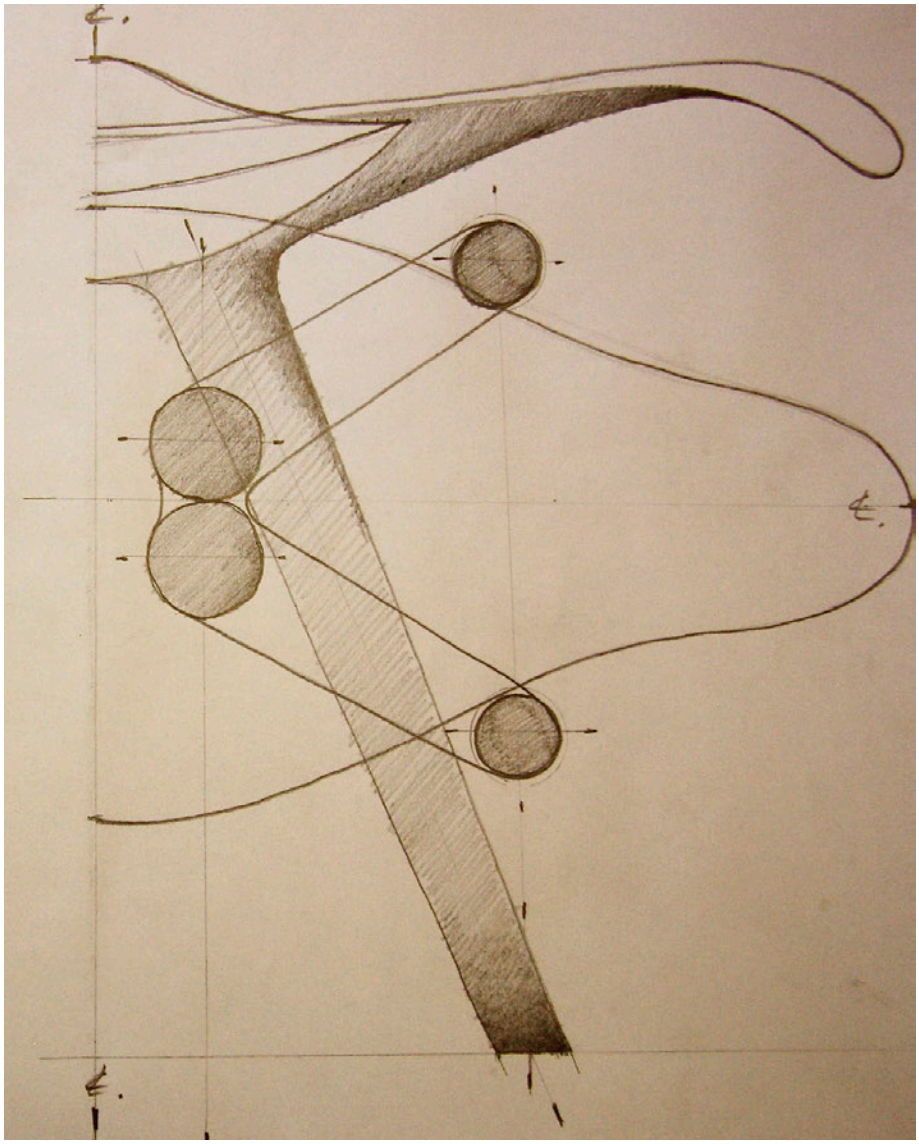


Fig. 4.23 Bronze stool full size elevations: plan, side and end elevations

Elevations were then traced off and placed onto a block of Thermacore so that holes could be punched through with a pencil to transfer the design onto three sides. The pattern was bandsawn into a rough profile (Fig 4.24 top) and then carved and sanded by hand into the final pattern. Great care must be taken, as the Thermacore is very fragile in thin section and easily crushed or snapped if abused. An exciting and challenging aspect of this type of making is the risk involved. If mistakes are made in the carving or foundry casting process then the pattern will be lost and the process lasting a couple of days will have to be repeated. Another challenge involved in casting is to mentally work out the three-dimensional flows of the metal as the casting takes place and to ensure than minimum channel widths are respected and incorporated into the design.

Fig. 4.24 Thermacore master

A final stage involves thinning and refining the pattern form so that the metal content can be brought down to the bare minimum while still being ‘castable’, not only to reduce cost but the practicality of the stool. The estimate for the stool was around 8kg yet the final design even after the mass reduction tipped the scales weighing in at just under 10kg.

Fig. 4.25 All-Win sand casting

Once the pattern and a test piece were taken to All-Win, Kothari immediately set forth to pack the test piece I had brought along into a mould to attempted a test cast (Appendix F5 shows the result). This all took place within 30 minutes of arriving and the process is documented in Fig. 4.2.5 that shows the Thermacore test piece being packed in sand inside the casting flask. The cope and drag forming the casting box is assembled and the crucible then charges the casting bucket and the mould is poured. Kothari suggested that he would try out a new idea to seal the top surface of the Thermacore on the full pattern to give a better casting quality and reduce the potential for porosity. He was concerned that the Thermacore which is made from bonded 6mm polystyrene spheres would trap sand in the surface and this would prevent the bronze from making a solid surface or drop into the mould and make an unwanted cavity elsewhere. The test piece was found to be successful

so a price was agreed for casting and polishing and the piece was scheduled for casting in the next few days.

Observing the foundrymen going about their jobs exposed very different work practices to those seen in the UK. Ahmedabad regularly reaches temperatures of 45 degrees centigrade in the summer and its location on the tropic of cancer ensures high temperatures all year round. Wearing heavy clothing in those conditions becomes unbearably hot and along with less knowledge and funding for personal protective equipment the workers wear light clothing and sandals in what can be only be assumed as a higher exposure to injury from molten metal and other incidents. As a result workers have developed a heightened sense of the location of molten metals in the foundry and I observed them moving their bodies and paying attention to the location of dangers even when they were sometimes out of view or behind them. The location of ladles and crucibles of molten metal are sensed not only by heat and movement but what seems like a collective reaction from worker to worker as they move through the factory the body language and head movements of the foundrymen adjust to its passage as if they are ready for flight.

Boots are tools in a western foundry and are used to press, push or kick machinery, open moulds, flasks and dies but in All-Win bodies and tools are used differently with much more arm and leverage forces being used and feet kept well out of the way. An example of this was observed as the test-piece was removed from the flask by the patternmaker who used extensive arm and upper body effort to tip the Iron casing over and keep it away from his feet (see Fig. 4.26). A similar activity in a foundry equipped with steel toe capped boots would have resulted in a different process.

Fig. 4.26 Carrying molten metals and de-moulding the test sample

As I arrived at the factory to collect the finished casting Kothari informed me that it had just been cast earlier and was still too hot to handle so after some waiting it was possible to inspect the results. Fresh castings tend to have a rather deceptively poor initial appearance (as illustrated in Fig 4.27) and this was the case here, but after an inspection the mould had clearly filled properly and the surfaces seemed reasonably solid. The large flash line running around the outer edge made it more difficult to read the integrity of the form and the legs had deformed quite badly during the mould packing.

Fig. 4.27 Fresh casting and grinding

One of the disadvantages of using Thermacore is its flexibility that allowed the legs to be bent well out of alignment in the mould packing process. A metallurgical feature of casting

is that the crystalline structure of the alloy takes some time to form. This results in an increased malleability for a period after casting so Kothari and I discussed this feature and set to work immediately using of blocks of lead and sledgehammers to reform the legs into new realigned positions. Some of them had to be moved 20-25mm away from their original positions alongside needing some serious straightening. Kothari suggested that in future thin steel rods could be inserted into the Thermacore pattern's leg ends during patternmaking and removed before casting to keep them straighter while being packed.

Once the legs were straightened the final process involved grinding the surface until flat then polishing it to a high gloss finish. Kothari had offered to machine polish and finish the top surface by hand (Fig.4.27), a process that would radically improved the surface finish. In the final meeting to settle the bill he invoiced the work on the headed paper of one of his other companies. The company was called Copperking and this immediately struck a chord as an ideal name for the stool as it reinforced Kothari's desire to showcase the best of his talents as a master Bronze foundryman.

4.4.4 Copperking stool research output

Fig. 4.28 Copperking bronze stool H28cm W30cm D14cm

The undoubted beauty of this process is the knowledge that the extremely lightweight and fragile Thermacore material will become vaporised by the molten Bronze. In essence the 1,000 degrees centigrade Bronze chases the Thermacore though the sand mould, evaporating it into a gas before either ever touch. The process is essentially a contemporary iteration of the 5,300-year-old Bronze Age lost wax casting techniques and an opportunity to engage in the making process that was responsible for advanced tools and the early seeds of industrialisation remain a privilege.

The aesthetic qualities of the stool have shifted from the previous Ironmen in that the overall impression is softer and more organic and possibly as a result of using a warm metal and complex surfaces gives an impression of an indeterminate age. Copperking could equally have been unearthed from an archaeological dig as much as the result of a contemporary design research exploration. The interplay of various cultural influences, skills, knowledge and creative inspirations has resulted in an analogue translocation of making that has liberated experiential differences from three continents in the formation of this new design. Kothari seemed very pleased with the result and explained that with a couple of castings the quality would improve further.

Reflecting on the form development post-completion, its clear that two new affordances have been included in the new design as a result of conversations, discussions and use of the stools. While these were never articulated as problems or areas to improve they lurked on an unconscious level as irritations or unsatisfactory aspects of the previous stool designs. Some viewers new to the Ironmen had asked whether these were small tables or chairs, even though some had subtle two dimensional curves in the surface that indicated seating, these were too subtle to be picked up by some as a sign of a possible seating surface. The pronounced dip in the centre of Copperking sought to provide this affordance and indicated a positive seating opportunity while at the same time linking up with the more organic general influence of local forms.

Ironman had always produced an uncomfortable effect when lifting the 10kg of Iron as a result of touching the harsh under-surface produced from casting the raw polystyrene balls. This led to a second affordance which introduced subtle down-curved handles at the narrower end of the stool with a polished surface that curved underneath to produce a smooth holding surface, contrasting the expected rough surface.

Reforming the legs has also engendered a collaborative forming that has embedded a unique way to make legs that had a crafted quality that was variable and an expression of the process used to make the stool. Alongside this a few areas of porosity exist in the seat although these are generally to be expected in sand casting and some can be polished out in the finishing process. The researcher will refinish the top surface of the stool and the underside will be treated to remove some of the roughness and patinated a dark brown-green in order to enhance the contrast between the legs and top surface.

4.4.5 Copperking stool findings

The initial surprise in making Copperking was the ability to finish the project within a modest timeframe; a much shorter time than would have been expected when working with UK foundries and the speed and immediacy of the process seemed to enhance the outputs. However the greatest satisfaction lay in completing a series of translocated making projects across three continents from the original Ghanaian bronze foundry process, wooden Malian Lobe stools and evaporative casting techniques that had been initiated and explored in London to the final evolution in India. In addition the project succeeded in exploring the self-criticism of the original Ironman project in separating the influencing and making elements of the process. In this instance influence design and production all cohabited in the same space and values were evenly exchanged throughout.

Kothari was an experienced industrial producer and found it easy to understand the technical needs of our making collaboration but under the surface the cultural sensitivities around exactly why I had travelled so far to work at his foundry and why I was making an unusual stool that began in Africa via Europe seemed a little more difficult to communicate. Part of his curiosity seemed to be cultural and revolved around the value of the project rather than technical issues. I would suspect that this added to the momentum that facilitated a successful project. In other words travelling a long way to make something that is not easy to understand brings a reciprocated effort along with a curiosity to see the project through so that the reasons may become clearer. Kothari gained from seeing his skills showcased and finding a new (though secret to me) way to seal the top surface of the Thermacore.

In many ways it's the subtleties that are more powerfully enduring. A slow evolution from wood, to Iron, to a Bronze seat form evolved new forms and functions as the processes and experiments of trans-locations came to bear. My own sensibility was to withdraw from overt designerly activity and to work instead with the least inputs. Allowing the context, facilities and skills of collaborators to contribute evenly.

As the projects developed my own agency has emerged as an important element that requires description in order to provide a complete picture of the design methods and approach. Advanced practice in remote making environments is such a significant part of this design research and it would be incomplete without a mention. On reflection its the years of working in design scenarios that has polished skills for listening, providing space

for developing expertise, understanding how to engage with new cultures, minimising complexity, how much to explore and to see, hear and feel when limits have been reached.

The incoming translocated material included the Ghanaian influences (Fig. 4.29) that have prefigured the project alongside my embedded knowledge of furniture design and making the Ironmen stools developed with Kavanagh through the collaborative processes and the Reliance foundry (Fig. 4.30). In terms of the globalising frames it could be argued that Appadurai's Ethnoscape and Ideoscape figure prominently in the output via the physical material and translocated cultural material from Africa and Europe that was remixed with new influences in India. Influences from the Ghanaian bronze making process were contained in photographs (on the Mediascape supported by the Technoscape) along with material and cultural forms represented in the wooden stools (Ideoscape) transported to London alongside my own experiences (Ethnoscape). These differences extracted from their original culture were used as inspirations in Diplomat's design process to generate the Ironmen range of stools described in chapter one. The Ironman stools combined British and Ghanaian cultural material that was transported to India via printed photographs (Mediascape). These were used to show Kothari my previous work and lend some experience and confidence to our collaboration at the outset. My own tacit knowledge (Ideoscape supporting the Ethnoscape) combined with the local influences described earlier to create the Copperking stool designs. The outgoing influences disseminated from this project are contained in my enhanced knowledge as a design practitioner, the experiences of local makers and the London based designers. All of whom through collaborating in the processes that have been described here will be making a contribution on the global ethnoscape along with the findings of this research project (communicated on the Mediascape) and adding cultural material to the ethnoscape via the exploration of how we shared cultural material for collaborating to make new objects that lead to enhancing the Ideoscape.

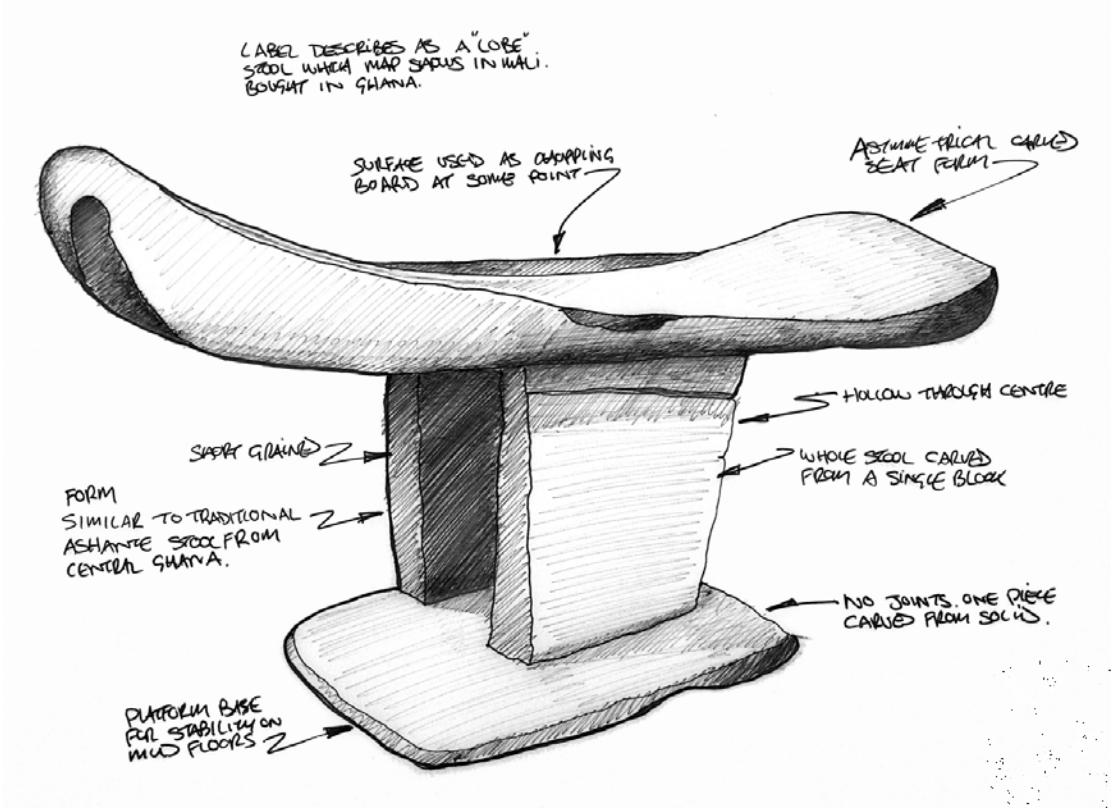


Fig. 4.29 Lobe stool from Ghana/Mali

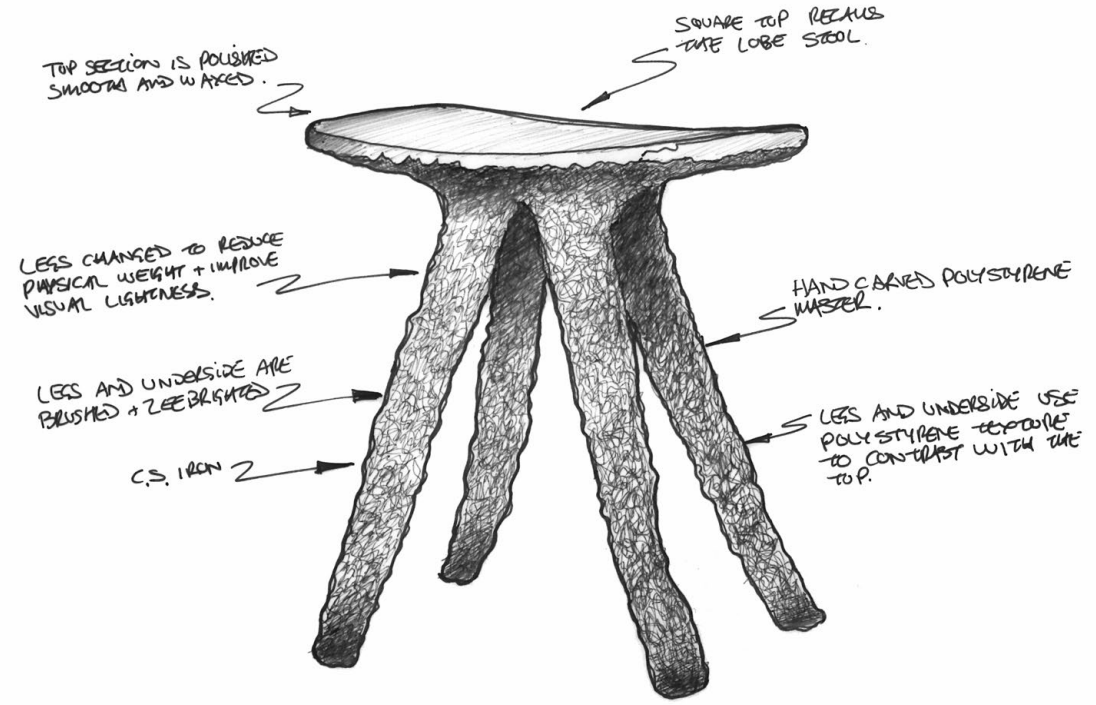


Fig. 4.30 Ironman stool analysis

The cultural design challenges came from my own agency as the conveyor of differences and how to explore this capacity in a way that was appropriate to the context and produce

an artefact that was a genuine product of its environment rather than a remote abstract imposition. Understanding this is easier in retrospect than it was in action and reinforced the need for some distance from the activity post-completion. The process of developing a stool concept blending my own creative outlook and local inspirations influenced thoughts on how and where these elements combined, and if it would even be possible to discern their presence and meaning in an artefact. Of course some generalities can be made in terms of form and materials but the more subtle elements remain intangible. I also began to realise that these dual sets of influences from the local context and my own have variable readings depending on the medium and location of the analysis. The innermost level being my own mental conception of the stool design followed by the drawings that represent a shorthand for the imagined form. The physical object is the real world manifestation that remains static and yet its own reading will shift when placed in an Indian or UK context depending on the viewers and even my own recollection of its meaning depending on the affordances of background reminders. Finally there are five interrelated design elements operating to liberate differences from geography:

- The inner mental concept of blending influences from the Ironman stool and the local context.
- The drawing media that represents a shorthand notation of this captured in the design intention.
- The stool, which is not only the physical manifestation but also includes traces of the local making culture.
- The reading of the stool in the local context introducing remote influences from the designer.
- The stool in the UK context where it imports remote influences from India in the form of the designer's projects and local making culture influences.

Figure 4.31 summarises the primary aesthetic, material and structural findings in the Copperking stool.

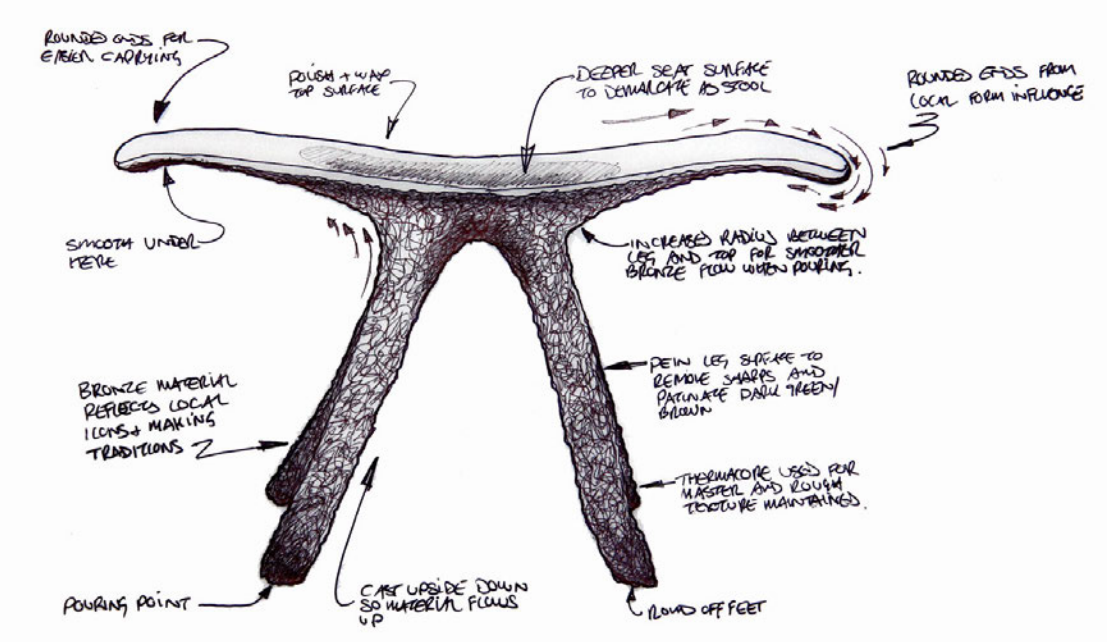


Fig. 4.31 Copperking stool analysis

A comparison can be made across all three stools in order to discover the traces of differences and similarities inherited across all three pieces in their design journey across Africa, Europe and Asia as illustrated in Fig. 4.32.

Translocated making Lobe-Ironman-Copperking

Location	Lobe stool bought in Ghana Original location Mali	Ironman stool designed and made in London	Copperking stool designed and made in Ahmedabad India
Material	Hardwood	C.S Cast Iron	Industrial Lead-Tin Bronze
Production	Hand carved from a single block	Evaporative casting from PS master	Evaporative cast from Thermacore
Similarities	One piece hand carved stool produced with simple geometric forms but seat carving is deceptively complex	Inherited square seat top geomtery and direct function, seat pan dip and Overhanging seat edges. Investment casting process inspired by local bronze foundry	Inherited the four legs, general seat top overhang, master carving and production process
Differences		Seat thinner and flatter to reduce weight. Legs made as separate forms, making process of investment casting but with different materials	Seat wider, more organic, deeper centre dip.Underside polished, Bronze replacing Iron, patinating the underside. Forms much more subtle

Fig. 4.32 Translocated making analysis across the lobe, Ironman and Copperking stools

It can be seen that a general similarity exists between the stools in both their relative heights and the feature of an overhanging seat top that functions as a way of carrying the stools. Ironman and Copperking both use a very similar patternmaking process while Copperking closes the cultural feedback loop by inheriting both the investment (evaporative casting) technique and Bronze material inspired from the roadside bronze foundry described in chapter 1. The most significant differences lie in the material choices of wood, Iron and Bronze for the unibody structure of the stools, none of which are made with any jointing or assembly process. Ironman and Copperking both have four legs partly as a result of needing to use the minimum amount of material for weight and costs saving but also as a result of being used on hard surfaces rather than a mud floor. The Lobe stool needs a wider flatter base to evenly distribute its weight and reduce the risk of the sitter being tipped off when used on the softer floor surfaces in Ghana/Mali.

The development of the Ironman stools has been described in chapter one as a case study and the relationship between the movements of cultural material has been compared against Appadurai's suffixscapes above. However the differences between the location of the cultural material and the design processes have yet to be related. The Ironman design process revolved around seeing form and material production technique influences in Ghana and transmitting these to London where the design took place. The design and influencing culture were separated and a feedback loop between design, making and place was not possible. The Bronze foundry on the outskirts of Kumasi and the Reliance foundry in London broadly shared similar making process in theory but in practice there were embedded in very different cultures. There remained a frustration that these rich influences were somehow external to the Ironman design and production process. The Copperking stool was designed and made within the cultural location of All-win foundry and Ahmedabad. This allowed the reproduction (but not replication) of the design and making process from London but transferred to a new cultural context. This experiment resulted in a shift of form making and the practical improvements made real in the Copperking stool.

4.5 Researching through design: Ashram paper stool

The Ashram stool is the second of two practice based design projects following the general methodology of researching through design. The aims are to explore personal design insights for evidence of geographically liberated difference as an element of a design

approach and to use the opportunity of a research project to reflect on personal practices. The research approach in this project aimed to combine innate design skills gained from the researchers background and deploys them in a non-anticipatory way that would allow unforeseen opportunities to guide the design process. Specifically the exploration of a new material category and making process to see if it would be possible to work in a medium that was unfamiliar to the design researcher and avoid relying on imported knowledge sets of existing process experiences. The Copperking stool used processes generally well known to the researcher and it could be argued that this reduced the risk of failure and could reduce the amount of incoming local influences. The Ashram stool explored a material category and structural process unfamiliar to the researcher to test this observation.

4.5.1 Context: Ghandi Ashram Ahmedabad

Following the unsuccessful attempt to work with the copper utensil makers in Manek Chowk (described in section 4.4.1) the search continued for new making collaboration opportunities in Ahmedabad. A few days later a visit was made to the local crafts promoter and hotelier Abhay Mangaldas who showed some simple papier mache bowls that he had sourced at the Ghandi Ashram. The Ghandi Ashram is a national monument on the banks of the Sabarmati River in Ahmedabad and was the home to Mahatma Ghandi for around twelve years. Following the British salt tax Ghandi led the Dandi salt march in 1930 that began the path that led to independence. The Ashram today contains a museum designed by Charles Correa, a school and several NGO's focussing on using craft for uplifting people from poverty including Manav Sadhna and Gramshree who continue to develop Ghandi's teachings of efficient simplicity and self reliance.

During a previous visit to Manav Sadhna in 2011 a suggestion was made to view some of the upliftment project work in the large Ramapir No Tekro slum (Ramapir No Tekro, 2013) across the road from the Ashram to see work that was being conducted in a craft centre to support local people develop new skills. The area around the craft centre specialised in making pots and this activity was supported alongside classes in basic business and marketing skills.

The next day a visit was arranged to find the papier-mache craftsman and further along the road from the slum lay the paper factory (Fig 4.33) that specialises in making high quality artisan paper.

Fig. 4.33 Ghandi Ashram paper factory

The paper production process involves recycled cotton that is first washed and shredded, then soaked in large tanks before being spread onto plates and pressed into sheet form. The paper is hand made using mechanical processes and is prized for its individual qualities and toughness (see Fig. 4.34).

Fig. 4.34 Samples of Ghandi Ashram paper

During the visit a number of large papier-mache vases approx. 60cm high were discovered at the back of the factory shop (Fig. 4.35). These had a significant wall thickness at around 1cm and the immediate idea formed this process could be used to make a paper stool using the copper sheet stool design as a starting point. This would be an unusual choice of material and a test for the purposes of seating and an experiment with minimal design and form control.

Fig. 4.34 Papier mache vases in the Ashram shop

Connections were made through the factory after showing a sketch of the copper stool and asking if similar forms could be made in paper and Arvind Chowda was recommended as the best papier-mache craftsman to work with.

Chowda differs from Bhavchaya and Husen in that initially his craft was leather shoe making after which he switched about five years ago to making paper products. His product range is mainly composed of stationary items including files, folders, business card holders and other office supplies. His motivation for entering the business was the innovation potential and the eco-friendly benefits of using recycled materials. Many Indian states have banned the use and sales of plastic carrier bags and drivers often switch off their engines at traffic lights reflecting a desire to improve environmental conditions. Chowda's craft does not continue his ancestral or local family culture nor does it define his cultural difference or place. It has a strong economic and environmental motivation.

4.5.2 Research design

In common with the Copperking project, the aim of the research design was to limit the amount of anticipatory creative planning and to initiate design ideas, product typologies, select materials and processes based on the opportunities gained from the network of makers in Ahmedabad rather than impose an external set of creative desires generated without reference to local opportunities and influences. The knowledge that the output of this project did not need to conform to commercial expectations, market, performance or longevity opened up new opportunities to delimit design activity. The research narrative will switch to first person in order to capture the richness and subtleties of researching through design.

4.5.3 Conducting research

Working with papier-mache at the Ghandi Ashram came about through an unexpected and non-anticipatory approach. The design was originally intended for production in copper sheet following a visit to the copper utensil makers in Manek Chowk but was left unmade due to an illness in the utensil maker's family. In the meantime the visit to the Ghandi Ashram paper factory provided the inspiration necessary to try out the idea of making a papier-mache stool. The attraction was in using paper as a structural material for the first time and to explore the new design parameters while at the same time collaborating with the skilful paper and papier mache craftsmen connected to the Ashram. A further interest was in being able to compare the outputs from the bronze foundry and papier-mache craftsman in terms of the different materials used and the relationships and setup for the same object type.

Copper utensil makers have expertise in forming sheet material into water containers and other large vessels using hammers over steel stakes set into the ground. It was interesting to observe that the craftsmen beat the entire outer surface of all the vessels with special hammers that left patterns of crosses or hatches and that the function of this was to rigidise the surface of the copper. The original sketch (Fig. 4.36) reflects forms inspired from observing the copper makers process and thinking about how this could be interpreted into a stool form. As I discussed the various techniques the owner warned that copper was a relatively soft material and that it could distort through sitting. For this reason an iconic form was chosen for the stool that would combine a number of objectives.

The stool stem was tapered into the centre and the seat depressed to provide some tension into the sheet work that would be more likely to resist the stresses of sitting.

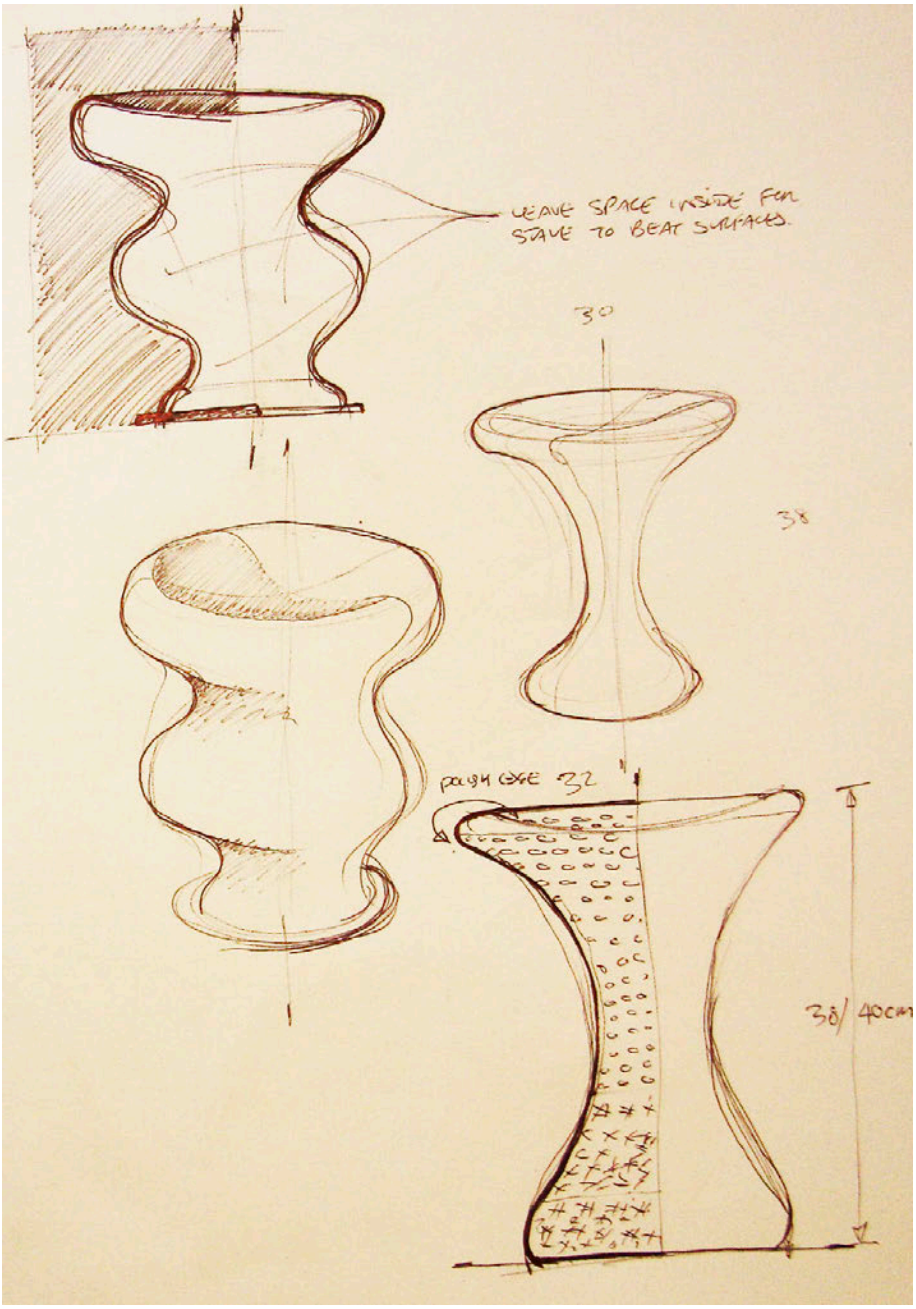


Fig. 4.36 Original design sketch for the copper stool (bottom right) that was translated into papier mache

Following the contact from the paper factory manager I met Arvind Chowda a couple of days later at NID. My aim again was to maximise the non-anticipatory aspect and so I gave Chowda a tracing off my sketch with some outline dimensions hoping to allow space for the craftsman's skill and interpretation while providing an element of a design guide. Papier-mache is capable of being made into a huge variety of forms, yet the inspiration in using the paper is the rich and complex variable surface patterns that come about as the

result of a hand making process. Subtle variations of surface provide the opportunity to appreciate the qualities of the handmade paper. This was achieved through the curvature of the tulip base and the depression in the seat top. Both forms also doubled up the functional features with the seat depression providing comfort while the tapering base provides more room for feet and legs to move around the seat when used in informal situations. At a structural level the form intuitively works with the expected properties of paper by removing sharp changes of angle and allowing the forces to be smoothly transmitted from the seat to the floor. In addition the concave form would be more likely to hide any production discrepancies and offers up the seat surface as the primary contact point. It was interesting to realise in retrospect how many of the copper stool's design features were also useful for the paper model but for entirely different reasons.

Chowda reviewed the freehand design sketches then returned a couple of days later with a template and suggested modifications to the profile. Fig. 4.37 shows the overlap between the two designs and the modifications that were made. It was quite difficult to understand exactly why some of them had been made though intuition suggested that some were for structural and process reasons while other were just differences of copying or regularising some of the subtleties in form that I had created. The template was then modified to create a sharper top edge and a discussion centred on keeping the form of the concave arc purer towards Chowda's template for form and structural reasons and this suggestion was adopted. At this stage I asked if we could visit Chowda's business so that I could observe his techniques and gain a greater understanding of his craft and design skills. It was difficult to get a clear response and after asking a couple of times it was clear that he wasn't happy for us to visit his premises which could be for a number of reasons due to their modest surroundings, to protect techniques and trade secrets or other as unknown reasons.

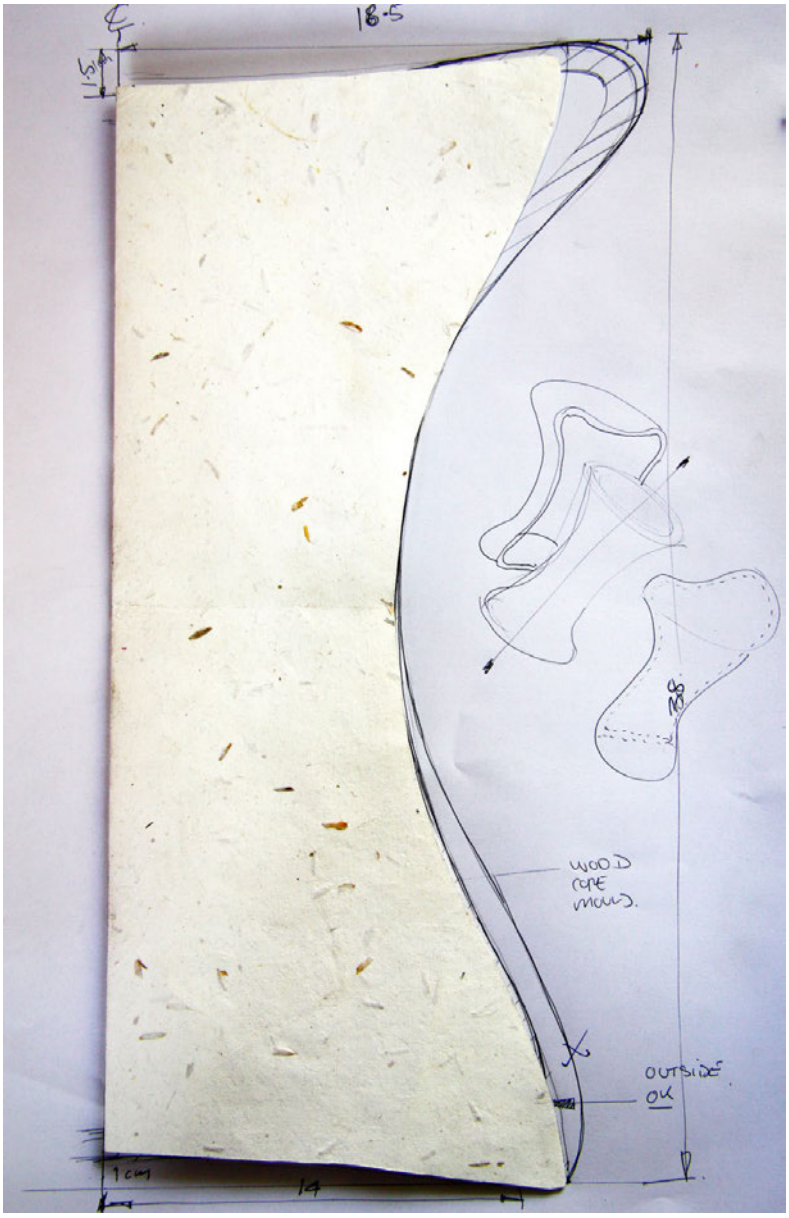


Fig 4.37 Shows the attempt to understand the mouldmaking process; this was in fact quite close except the centreline for the tool is cut 90 degrees.

The materials, construction and design of the mould used to make the stool became the next topic of conversation. Chowda was evasive about the exact technique he would use and it seemed that he was suggesting a turned wooden core that would be covered in paper and then cut out. This seemed an impossibly time consuming process and so assuming I had misunderstood I made a drawing to try and establish what I assumed to be the real process. At this point Chowda realised that establishing the full detail of the making process was part of the research and declined to give further details citing the protection of his techniques. Although later on he would describe how the mould was in fact turned from wood and then cut in half along the short centre and fixed back together

and the paper was then moulded onto the surface. When it was dry the wooden halves were slid out and the top and bottom sections were bonded in place to make a sealed unit.

A couple of days later Chowda delivered the prototype stool in white papier mache to NID and we discussed that a high quality recycled paper would be used for the final surface and applied in small 4-5cm squares. He indicated that these would be applied horizontally but after some consideration I suggested that he turn them 45 degrees and use then on an angle instead so that they were applied in a diamond pattern. The benefits of doing this were in how the curved surfaces would be read. If the patterns were horizontal then any discrepancies would show up clearly and the transition over the lip of the stool would be difficult and overall would need a great deal of coordination. My aim in adding the diamonds in a diagonal pattern was to help hide any differences but also to make sure that the surface read as one rather than a series of bands.

Finally Chawda layered the dried stool in the orange high quality Ashram paper that helped to even out some of the surface imperfections and I collected the finished item from the paper factory.

4.5.4 Ashram stool research output

Fig. 4.38 The final Ashram stool H37cm Ø36cm

The Ashram stool was the most direct project realised in the shortest timeframe, however it proved much more difficult to establish an exchange of ideas, making and collaboration that could provide deeper qualitative evidence. One could speculate that this was due to a relative newcomer to his craft seeking protection for his skills and economic livelihood in direct contrast to the Katchchh craftsmen Husen and Bhavik who saw their activity as a cultural affirmation of their identity. Protection and affirmation of difference are contrasting motivations and to an extent highlight the widely differing motivations for making. They also show the value placed on protecting and demonstrating difference as a cultural and economic activity.

A mono material purity belies the complexity and innate calculations that were exchanged by the designer and craftsman in this making collaboration. From the negotiation of the stem forms, seat pan dish, paper square orientation and patternmaking, a subtle complexity of decision and functions lie behind what appear to be simple forms. The prototype stool shows the history of its making through the connections in the centre stem and the seat and base pan connections. Using the recycled orange paper that was chosen for its intense vibrancy balanced the simplicity of the form and reflected the intense use of colour that India is famous for. During its lifetime it is expected that the paper will wear and produce a new set of surfaces with their own patina and characteristics. However the paper underneath the orange layer is white and a concern is that this could be a harsh contrast and a layer of lacquer will be applied later to provide more protection.

During one of the project discussions, Chowda revealed that he wanting to make a few extra pieces to see if they would sell. He was pleased to hear that the designs were copyright free and that he could sell them locally if he found a buyer.

4.5.5 Ashram stool findings

The Ashram stool project had a different atmosphere to the Katchchh projects in that even though the craftsman was more local and there were more meetings the possibility to engage in a deeper level of connection was missing. It would be dangerous to generalise on the observation that he was a relative newcomer to his craft and that a more commercial motivation reduced the impulse to connect at other level but this possibility cannot be ignored. Papier-mache processes are less complex than copper bellmaking; wooden lac turning and bronze casting and this reduction in complexity may explain the lower level of cooperation and opportunity for cultural exchange that took place.

Using minimal design information contained in simple hand drawn elevations and a few control dimensions was enough to successfully transmit design intent by allowing papier-mache to adapt itself to and inform the structure and finishes. It was the first time that I used paper for any kind of human supporting structure. Not only a useful experiment in a new material but a useful material and form contrast to the cast bronze stool.

Fig 4.39 illustrates the previous discussions on the Ashram stool by annotating a drawing to highlight some of the key design conversations and their location on the stool.

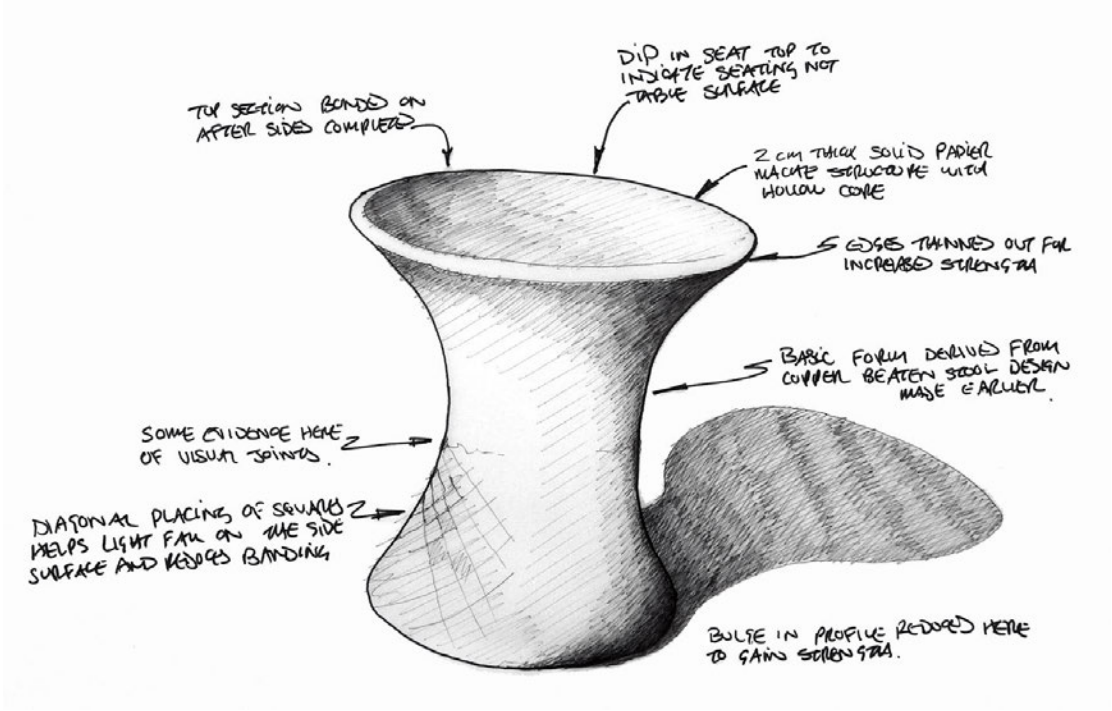


Fig.4.39 Ashram stool analysis

An important issue with craftsmen concerns their work being copied by others in different locations. Apart from the obvious economic impact they feel that it dilutes their cultural difference and connection with place. It was interesting to contrast the openness of the Katchchh craftsmen with arguably more reason to guard generations of knowledge with a new craftsman who was being so secretive. In common with Husen, Chowda also has a web presence and again this was aimed at advertising his crafted products. He had not used the Internet for sourcing information on new designs to find creative influences.

The challenges of culturally transferred differences in this project were more pronounced, especially when trying to get to know more about the making processes and approach that Chowda used. The knowledge gained was far less than the other projects and it's difficult to know where the boundaries of research, curiosity and respect for protected knowledge lie and in this instance after a couple of attempts things were left as they were. Chowda certainly benefitted from a new design that he could modify and refine to offer as part of his product range and the mouldmaking process from what I could understand in our conversation brought a new challenge in scale alongside making his first structure that could support a person's weight. My own challenges were in trying to penetrate Chowda's making practices enough so that I could design for his skills and capacity and stretch these if possible. Of all the projects this one was quite straightforward to execute and yet the one

with the least feedback. Alongside this differences of exploring a new material and transferring a design from copper to paper generated a local material transfer difference.

4.6 Designing research: Translocated making workshop

The translocated making workshop at NID aims to explore the idea of how designers can source and combine new creative influences from the Internet and apply them to design new projects. In particular, qualitative insights are sought that explore the effect on design thinking, methods and practice based observations. It centres on observing and facilitating a three-week workshop with undergraduate students from a diverse range of disciplines.

The setup differed from the previous projects in that it explored the potential of an upfront design approach intended to actively interact with the potential to use remote sources to provide a new design perspective. Differences would be sourced remotely and accessed through the Internet in India where the workshop process would seek to expose students to new forms of creative thinking.

The researcher would be observing designers in action rather the effects of remote designs or participating in research through design. In effect this was a total transition from the researchers design experience to an educational skillset. This was a deliberate choice in order to develop another angle from which to observe and record material that could have a bearing on exploring translocated making in action. Activity now would switch to a careful balance of working with individual students giving them enough information and support to feel that they were developing, but at the same time not to over explain the brief to the point where final outputs could be telegraphed from the outset.

The researcher's experience of running experimental educational workshops in a number of diverse cultures came into play alongside the ability to balance the need for creative exploration space moderated with guidance. The workshop design needed to take into account different levels of design ability and develop a method to ensure that dissonant tendencies were reduced.

It was hoped that the results of this workshop could provide initial insights for the development of a design approach or method that could harness the understanding of how differences from remote sources could be used as a conscious design process to elicit new results. A secondary aspect of the workshop would be to see how the students could

reflect on issues of cultural transfer and the roles and responsibilities for designers with increasing access to cultural information.

4.6.1 Context: National Institute of Design

The national Institute of design's institutional profile has been described earlier in this chapter. The student profile however is central to understanding the translocated making workshop. As a national institution NID draws students from all over India with a very large application to acceptance rate drawn from the 28 states. Around 95 per cent of students come from outside of Gujarat and according to staff the vast majority are unaware of the richness and diversity of Indian crafts and their role in supporting fragile and developing communities. Through immersive field trips students' research and record crafts in research reports which form a unique record of the variety and changing nature of craft traditions and cultures in the fast changing sub-continent. At the other end of the spectrum NID supplies high quality designers to feed India's burgeoning creative industries.

4.6.2 Research design

The research was designed to explore if it was possible to consciously draw on remote sources and combine them to form a creative personality with the capacity to elicit new forms of difference in a follow-on design project. Designers tend to develop strong personal creative worldviews often initiated from their educational foundations with methods that are rooted in traditional forms of influence gathering. The aim of the research design for the translocated workshop was to see if participants could be encouraged to develop a personal creative character that drew on remote fragments of cultural material to form a new method of designing. Designers regularly use the Internet to source inspirations from case studies, precedent, ideas, theories and projects to enhance their existing worldview. The translocated making workshop contrasts with this approach by using the influences to make a whole new worldview in its own right.

In terms of liberating differences from geography this approach contrasts with the previous research projects by exploring whether it's possible to remotely source influences as a coherent creative model for use in a local design project. In the previous projects the researcher brought material to the context and used his personal agency, in this format the students would be gathering material from remote sources and assembling and interpreting them locally reversing the information flow.

It was hoped that students would be able to remotely source new influences using digital methods and form these into a behavioural model for designing a simple artefact illustrating how remote differences could be liberated from diverse geographies. If successful this would indicate the potential for designers to deliberately form strategies to consciously introduce diverse remote cultural elements into their creative models.

The researcher designed the educational format and teaching materials, tutored the students and facilitated the workshop throughout until its conclusion. Students were met approximately three times a week for a session of tutorials and groups discussions.

4.6.3 Conducting research

On the first day of the workshop the student group was briefed (Appendix G2) and the three stages of the project were outlined and a PDF was emailed of the summary. The brief outlined the concept of translocated making and explained to students the idea of the chameleon character and how it could be made from diverse cultural fragments to form a new creative persona. The students would then creatively act in the character of the persona to produce a new design and in doing so liberate themselves from their existing design personal while absorbing remote cultural influences. The overall research structure was explained and ethics permissions forms were signed.

The students asked questions to clarify what the chameleon character should look like. The researcher explained that his role was like an anti-tutor and was giving permission to experiment with a new way to proactively use the Internet for creative cultural transfer. The students were from a good mix of backgrounds including textiles, product design, furniture and interior design. One of the main drivers to engage was the interdisciplinary opportunity. The NID group were all post-completion but pre-graduation students having handed in final assignments, awaiting their final jury date or organising internships. A couple have already begun small creative enterprises and so the NID cohort are experienced designers if not yet fully professional. Three German exchange students from Hannover also joined the workshop to provide a useful international compliment bringing the final total to nine in all, seven of whom were to complete the three week workshop. The detailed schedule for the workshop is outlined below:

Week 1 Chameleon: week one was centred on sourcing remote influences to develop a new creative persona composed of a mind, a body and a soul. Students were encouraged

to avoid their usual influences as far as possible and to explore opposites to their usual choices. On the third day the students were paired up and asked to swap either the body or soul of their character in order to ensure that an extra layer of exchange took place and also to reduce the level of self-censorship that inevitable creeps into self directed creative selection.

During one of the tutorials a comment from one of the students suggested that the workshop was a different way of thinking to what they were used to and that a chameleon character was against the tradition of building a personal profile. One questioned how the character could escape their personal projection and it was explained that it was in the exchanging process at the end of the first week where they would trade for someone else's body or soul components in a swap-over exercise. Some of the early concepts produced some interesting influences including a focus on synaesthesia, fractals, 2.5 dimensional perspective, radical engineering and off-world vehicles.

It became clear that the workshop setup of encouraging students to build a chameleon character has a strong 'permission giving' aspect that encouraged the participants to develop a new persona and allowed them to experiment in a way that had less personal risk. In other words the chameleon character delimited creative activity in a couple of important ways. The students already had a well developed and functioning design approach so they were aware that if the workshop experiment did not succeed then they already had a fall back position. A more pragmatic factor was that they were aware that this was an optional workshop that was not assessed as part of their course so they felt freer to take risks. The effect of which was to absorb influences from remote geographies and inhabit them as a design experiment that delimited the designer from their usual self-directed approach.

Week 2 Inspiration: the second week focussed around learning about the chameleon character, how it would think and design and then develop a simple product type that the students were familiar with in order to test out the creative potential of the new persona.

Week 3 Creative experiment: the final week involved developing and making the design for a three-dimensional object using the chameleon character. The artefact should be something that the student was familiar with to ensure some level of comparison and also to lessen the need for too much background research and familiarisation.

Tutoring support helped the students to source images and reinforced the idea that they could represent the chameleon character in any visual format that communicated the new influences.

4.6.4 Translocated making workshop research output

The following are three detailed examples of how student participants in the workshop developed their creative personas and liberated differences via the chameleon character method (full records are in Appendix G5-G8).

Vidhi Mehta is an industrial design student at NID with a strong set of traditional design skills with a mix of personal direction and user/socially directed design interests. She had been curious about synaesthesia for a while but this was outside the focus of the design projects she had undertaken so far. The translocated workshop allowed her to experiment in her 'Sound Snaps' project by using synaesthesia as a phenomenon for the mind element of her new creative persona (Fig. 4.40). Synesthesia takes place when senses cross over, for instance hearing the colour blue or smelling happiness. The body element was composed of Islamic calligraphy while the soul is fascinated by the transparency of glass blowing and glass painting. Fig. 4.40 illustrates Mehta's original chameleon character composition where synaesthesia streams from the headphones.

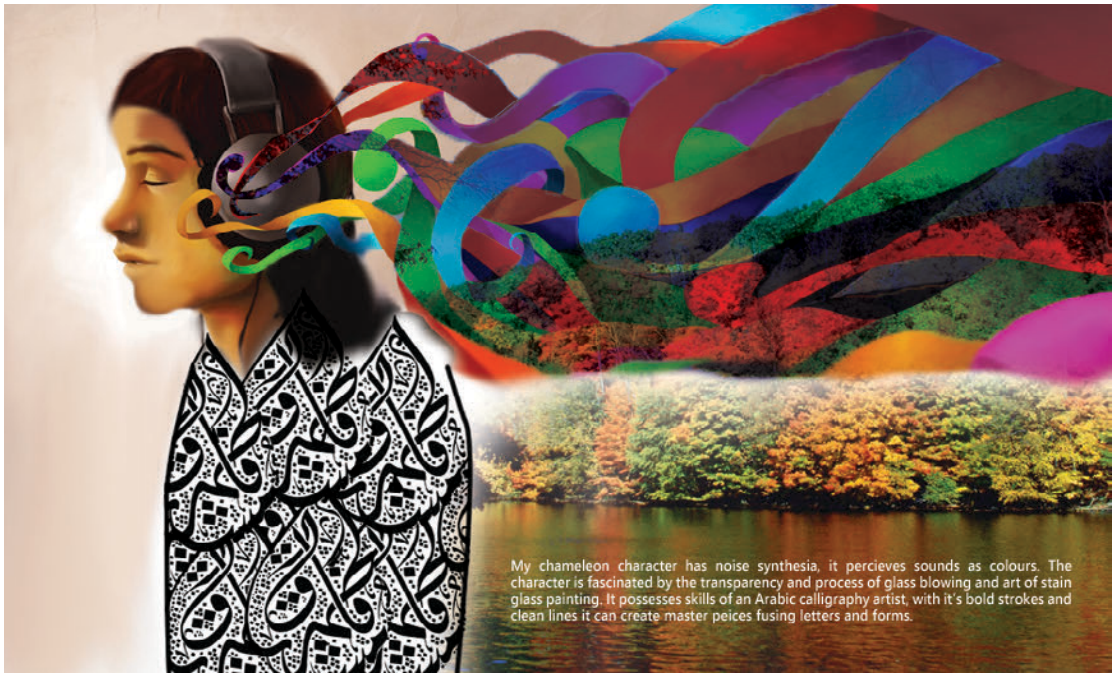


Fig. 4.40 Vidhi Mehta's original chameleon character

During the swap-over (Fig.4.41) Mehta gave away her calligraphic body element and accepted a 'technologist' body that inserted scientific knowledge into her Chameleon character who: '...makes new ideas by applying scientific knowledge. It wants to create new objects by overlaying information using coloured filters.'

The remote digital influences gathered from Internet searches have now been moderated with an unexpected difference from swapping with another student (Appendix G4) to produce a new hybrid persona.

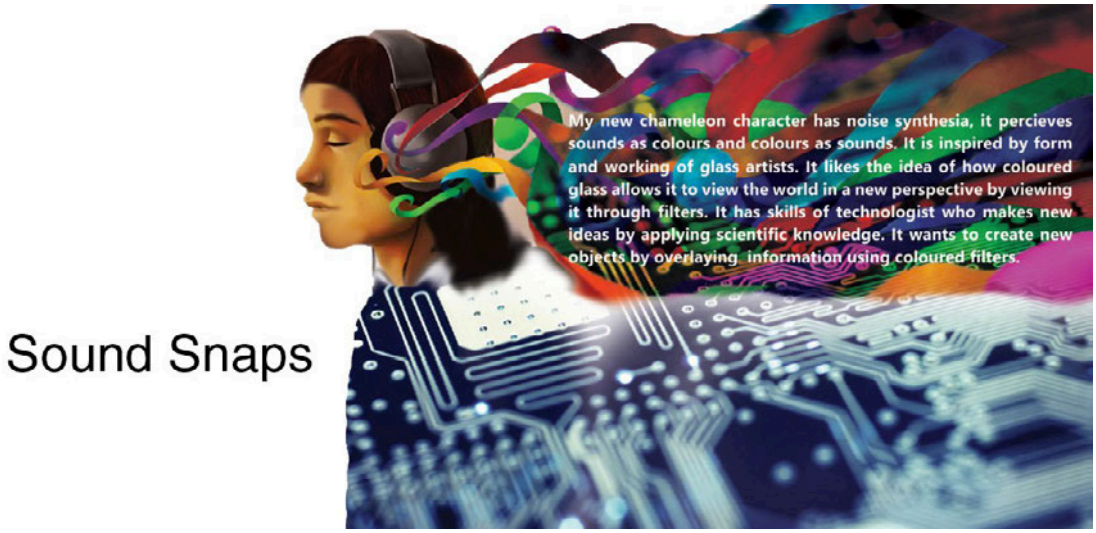


Fig. 4.41 Vidhi Metha's chameleon character with the body swapped

Fig. 4.42 Part of Vidhi Mehta's final presentation combining synaesthesia with Plutchik's emotion wheel

In the final stage following the swap-over, Mehta developed a concept that combined the technologist body element with synaesthesia in a camera that could convey sound emotions using Plutchik's emotion wheel (Plutchik, 2001) for emotional mapping. Figure 4.42 illustrates prototype images for this design concept and illustrates how sounds could be encoded with Plutchik's colours to convey a new sensorial layer of meaning. The sounds would be simply connected via frequency and repetition, length etc. as described in the lower left hand image where the steam and mechanical noises from the steam engine are captured on the rage/anger/annoyance scale. The image above conveys a more complex relationship where the photographer is joyfully describing the images on his camera and what we may presume is the subject is responding with a mix of apprehension and disgust.

Malav Sangvi's project is called 'A word is worth a thousand pictures'. His original chameleon character was composed of an exploratory spatial mindset, a magical soul with the ability to deliver unexpected results based on a technological body's capacity to deliver new technical innovations (Fig. 4.43).

Fig. 4.43 Malav Sangvi's original chameleon character

Sangvi swapped with Vidhi Mehta and received calligraphy as his body function. It's worth noting the fact that Mehta's body and soul choices were in analogue crafts whereas Sangvi's were in the scientific and technical.

Fig. 4.44 Malav Sangvi's swapped chameleon character

The swap (Fig. 4.44) was to prove crucial and opened up a new source of ideas that led to the final concept. He began to think along the lines of how the new chameleon character could creatively change perception by using advanced technology.

Fig. 4.45 Malav Sangvi's final design concept 'A word is worth a thousand pictures'

Sangvi's final concept reversed the idea of 'a picture is worth a thousand words' to 'a word is worth a thousand pictures'. His objective was to design a new creative platform for using words as an input and 3d models as the output. It became an experiment in thinking about how calligraphy could become the inspiration and the mode of input where a user would use several words that were filtered into a data collection application to source a set of images. An algorithm would combine the images and produce a 3 dimensional file that the user would be able to go back and customise at the image or calligraphy stage. The conceptual shift was possible by the selection of space as the original mindset and then creatively working with the input of calligraphy and combining both through a sophisticated enabling technology for the final concept. The result is an experiment in considering how technology could intercede to inspire new design ideas and is the direct output of sourcing and mixing cultural and conceptual influences.

Sarah Gmelin embraced the idea of a master baker providing a metaphor for the way that designers engage with social rituals by mixing sophisticated ingredients. She summarised her chameleon character thus:

> How does my new character – *Master Baker* – think and create?
>
> <u>My new character is very... creative and impassioned with his work</u>
> - Experimental
> - Open minded and welcoming to other people
> - Very into details and colours → eye-catching

- Want´s to make other people happy
- Likes the idea of bringing people together

My character would create a product that... is interactive

- That gets everyone's attention
- Can be used by everybody (no age or gender difference)
- Easy handling
- Easy to understand
- Something useful that makes people happy

Unlike the previous two examples, Gmelin's character is made from a range of image sets defining the mind body and soul, all of which describe the master baker. To the left of Fig. 4.46 is a series of images that describe the social mind activity of the master baker, whilst the centre images describe the soul that created through making and a body composed of fused ingredients and aesthetic delights.

Fig. 4.46 Sarah Gmelin original master baker mind body and soul

Fig. 4.48 Sarah Gmelin chameleon character with swapped soul

The swapping phase introduced a radically different body from student Lalita Parikh that contained images (Fig 4.47 centre) of religious freedom, through the tattooed scriptured face to democratic freedom, freedom of movement expressed through ballet dancers and freedom of expression. This introduced an element that formed a globalised outlook as Gmelin began to design games that would be used to connect peoples from different part of the globe.

Fig. 4.48 Sarah Gmelin final seven continent game design

The final design is a hybrid of the Tangram, Pentomnio and the Soma cube games and designed to be played by people from across the world's continents (Fig 4.48). Players are encouraged to customize as they play and when elements are swapped, the geographic cultural influences are freed to move to new locations and create new differences. The game design draws in elements of the master baker via its rich cultural motifs and the concept of game pieces that act as ingredients and the liberating effect of the freedom of expression contained in the body.

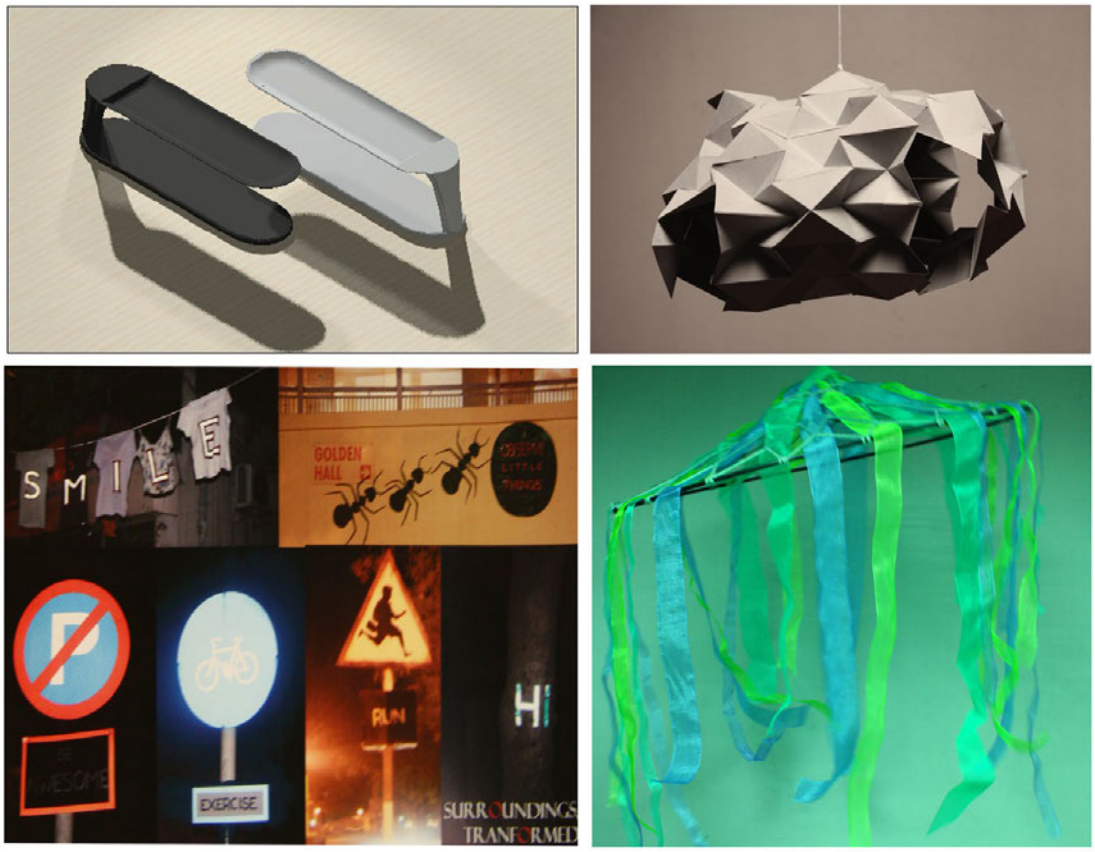


Fig. 4.49 Final designs from top left Judith Woker, Karine Muller, Lalita Parikh and Akkireddy Prakash

The four other participants developed a wide range of concepts varying from Judith Woker's cantilevered bench inspired by natural mimetic forms, Karine Muller's geometric lamp, Lalita Parikh's guerrilla city interventions and Akkireddy Prakash's lampshade inspired by fractals.

4.6.5 Translocated making workshop findings

Mehta and Sangvi's swapping body elements between analogue-craft and scientific-technical reinforces the design research strategy in the second stage of ensuring that participants are dislocated from self-selected choices within their own comfort zones.

While Mehta's final concept relied on the technical component to suggest the camera and advanced digital sensing to enable synaesthesia, Sangvi's final concept used writing and calligraphy as the innovation. In both cases the swap proved to be crucial to the final concept and raises a significant question about remote self-directed souring of inspirations verses the synergy and lateral opportunism of direct human connections. The findings challenged the researchers assumptions regarding the primacy of future digital methods over the analogue. Gmelin's swap also proved to be crucial in providing the expressive freedom that led to the seven continents game.

There was some evidence of selecting from within a participants same cultural group as Mehta chose a form of calligraphy with Arabic script, Parikh chose the face tattooed with religious scriptures, Gmelin selected the baker and both Woker and Mueller had elements which can be considered to be 'Western' or 'European' in their influences, even though they were thousands of miles from their cultural homelands.

An unexpected finding was the significant difference encountered between the Indian and German exchange student's creative processes. The NID students generally had a strong innate personal design model while the German students by contrast had a strong classic, industrial design process where the problem was clearly identified in advance and all stages and media used in the design project would be projected in advance of developing a solution. The exchange students embraced the project enthusiastically having only recently arrived in India and keen to explore new experiences. As the tutorials progressed it became clear that they found the process very different to the one they were used to and commented several times on the reflective tutorial stance of the researcher in bouncing questions back to the student and exploring which pieces of thinking and design work could support a decision. At the conclusion of the project they were unanimous in agreeing that the translocated making workshop had not only exposed them to an unfamiliar design method but had also provided an experience of designing where problems were obscure or even non-existent and replaced instead by opportunities.

In this project remote concepts were adopted and successfully synthesised into a sophisticated design proposal that looked towards new ways of understanding and visualising the senses. It would be simplistic to suggest that these ideas received from remote sources were completely unknown or disconnected from the searcher. There may well have been reminders, conscious or subconscious motivations for their use and

combination. Whatever the sophistications of individual searches and choices the remoteness served as a creative catalyst and in a sense gave permission to transcend local and personal frameworks allowing design outputs that judging by the participant's comments were perceived as a new way of designing. Typical comments were that 'I had more questions at the end of every tutorial that at the start' and 'we didn't know what the answer was at the start'.

Even novice designers are highly capable of synthesising new influences into creative solutions and the participants of the workshop were no different. Yet this raises a question about how to untangle an individual designers creative skill from the research design in order to explore how the student used design processes to extract and act on influences from remote sources. Translocated activity in the workshop can be traced on a number of levels from the global to the local:

> **Global** – Influence sources from the remote locations via digital Internet based technology as evidenced in the chameleon characters.
>
> **Remote** – Influences from the agency of the researcher and concepts of design thinking input via tutorial discussions.
>
> **Local** – Swapping one element of the chameleon character with that of another participant.
>
> **Local** – The designers own context and in an extension of that the three German students who were on exchange from Hamburg and therefore receiving new embedded cultural influences.

The translocated making workshop offered by far the most complex flows of differences from the researchers own input differences via the innovation and design education workshop structure, local differences from the student's individual disciplinary and cultural variety and the remote differences brought about by the Internet sourcing and chameleon character swapping. The richness of this mixture is relayed in the research outputs.

Clear evidence of Appadurai's suffixscapes was to be found in the way that ideoscapes were traversed from remote to local influences through the sourcing of remote 'minds' and 'souls' for the chameleon characters. The enabling Internet technologies for this are supported through the technoscape as provider, and mediascape as visualiser of the

transferred cultural materials. Collecting and engaging with remote influences allowed the ethnoscape to transcend both the online technoscape and mediascape through receiving remote digital influences and materialising them as drawings, sketches, models and design conversations. In addition the local swapping of chameleon character souls and bodies afforded an analogue element to the ethnoscape.

In terms of comparing analogue verses the increasing penetration of digital tools it is worth noting the contrast between the Internet use of the translocated workshop students and the Katchchh and Ahmedabad craft and industrial makers. Internet use by the Katchchh makers was very limited and even then largely used in rare examples to source images and gather market information. Kothari had an advanced use of email for communications in his business and Chowda was difficult to assess. In contrast the students were very adept as using the Internet (technoscape and mediascape) to source materials that were informative as well as conceptual (ideoscape) from remote locations and use graphical design skills to assemble these into prototype chameleon characters. The availability and creative knowledge of the student group in digital technologies had allowed them to absorb and try out a new creative technique.

In comparison to the other projects the translocated workshop is abstract, it does not represent a real life design scenario but it does offer a number of useful findings. The experimental educational workshop acted as a powerful permission giver allowing students to step outside of their normal persona with little risk. The successes demonstrated through the completion of a variety of outputs suggests that this could be developed and built upon as part of an enhanced design method for liberating differences from geography and allowing design students, if not more experienced designers to experiment with ways of changing their creative character.

4.7 Copper utensil makers

Following the return from India a potential sixth project possibility emerged. Through connections made during the earlier projects it appeared possible to revive the idea of making the copper stool originally investigated in Manek Chowk as described in section 4.5. Two sketches were emailed, one for a stool that was within the expected skillset of the copper utensil maker (left) and one that would stretch their skills (right) (Fig. 4.50).

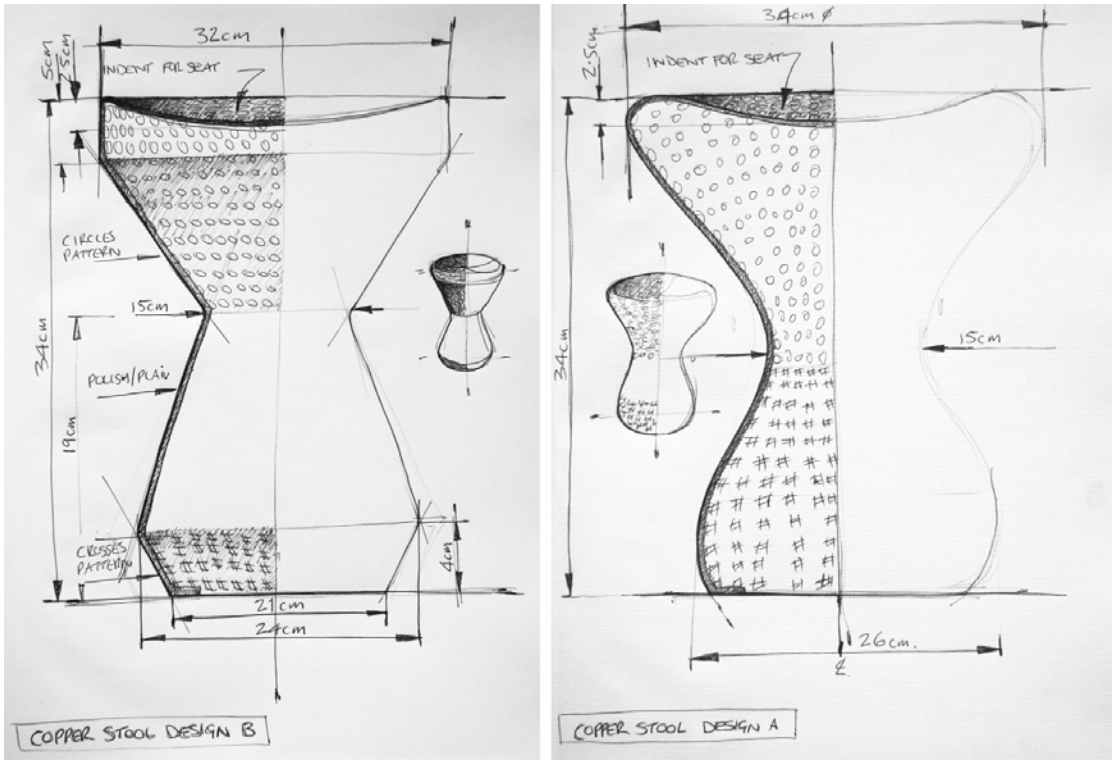


Fig. 4.50 Two sketches for the hand beaten copper stool

The aim of this strategy was to use the two designs to draw out the limits of the copper utensil making process and see how far it could be taken in making a new product type. The drawings were emailed off but after a few weeks it proved very difficult to take the project forward remotely as the partners had other commitments and it was eventually abandoned. Even though relationships were established in advance the lack of completion seemed to confirm the learning's from the other projects that a demonstration of effort and the agency of being on location in person are significant factors in the success of collaborative projects with participants from different locations.

4.8 Collecting findings

By far the most surprising operational finding was the success in completing all of the five design projects within the three-week period and sustaining recorded outputs from a significant number of project collaborators.

Chapter five will bring together findings to compare against the globalising frames, review action research and participatory design methods and expand on the nature of the agency of the researcher in demonstrating effort that was reciprocated by the makers.

5

On Translocated Making

Translocated making takes an overview of the project phase outputs and begins to draw together the threads for positioning groups of ideas that look towards the potential for framing the results in terms of suffixscapes and geographically liberated difference. It also assesses the relationship between action research and participatory design as investigation methods in the field and reflections from the researcher about the contribution to his practice as a designer and researcher-designer.

5.1 Comparing globalised frames

Chapter two introduced and reviewed a number of globalising frames including Appadurai's suffixscapes and geographically liberated difference in order to understand and contextualise the case studies from chapter one. The theories were described and explored in terms of their potential relationship to the design research. Following the completion of the projects described in chapter four, the collected findings and research outputs will be analysed and discussed here to explore the relationship between the research projects in India and the globalising frameworks.

A number of tables were generated in order to compare the outputs of the Ahmedabad and Katchchh research projects to the globalising frames with the aim of describing the relationship between translocated making, suffixscapes and geographically liberated difference. They build on comparisons made in Table 2.02 and Table 2.03 of the case studies from chapter one. Evidence uncovered through observations, discussions and physical artefacts provides an indication that some of the activities researched here could be understood in terms of the globalising frames. The four analysis questions from the project matrix in Table 3.15 will be used to focus each section and aid discussion.

Q1. Can the suffixscapes framework or the concept of geographically liberated difference be used to understand ideas of cultural transfer across remote locations?

5.2 On suffixscapes

Appadurai's five suffixscapes (Technoscape, Mediascape, Ideoscape, Ethnoscape and Financescape) are an attempt to provide a conceptual model for understanding the emerging post-colonial and transnational characteristics of global cultural exchange. The observations made during the five successful projects are collected together here to discuss more significant connections at a strategic level using examples from the project outputs. The criteria for analysis involves considering the definitions of each suffixscape

from chapter two and bearing this in mind to review each project for evidence of the flow of cultural material. Additionally the interrelationship of the scapes to the design process will be investigated to search for potential connections through timing, phases or activity types. Reviewing the systemic interactions of the research outputs including the physical objects, interviews, drawings and communication is part of the action research element of the research design methods.

The technoscape can be viewed as all the extended physical, analogue and digital technologies that make up the pathways that facilitate the movement of cultural and logistical information between participants. Logistical information can include anything from travel arrangement to the funds for supporting activities and connection to the financescape. There was clear evidence in the projects of a technological facility that allowed the transmission of cultural material. Physically transmitting printouts of computer generated renderings to Katchchh, sketching stool designs, making casting patters for Kothari at Allwin, a template for Chowda at Ghandi Ashram and wrapping and returning completed objects to the UK are all examples of the analogue communication of cultural information on the technoscape. While the remote email briefings of Young, students sourcing Internet information for the translocated workshop's chameleon characters and telephone conversations with the craftsmen are examples of digital evidence supported by the technoscape. Multiple routes and pathways cross-lace and inter-connect the scapes transforming digital into analogue and analogue into digital through these interactions. This is illustrated by the example of digitally generated and rendered images transforming into hard artefacts produced by a craftsman. The technoscape is clearly a facilitator; it transports and connects information from one point to another yet it also operates on another more fundamental level. It is the ground *upon* which technology sits (Heidegger, 1971, p. 161-185).

The mediascape is an essential interface between the technoscape and the ideoscape and ethnoscape whereby our interpretation of information is formed by and for the formats we choose to receive them in (the medium is the message, see McLuhan, 1964, p. 8-9), whether it's a CAD rendering, casting pattern, freehand sketch, verbal description or material sample. Indeed the design concepts studied here travelled on the backbone of the technoscape and shifted across formats on the mediascape. Translations between analogue and digital formats mediated small differences and interpretations and can be considered as one of the causes of the disjunctions that Appadurai describes. Digital-

analogue transfer is one of the mechanisms on the technoscape through which differences are generated. An example of this is the mediascape exchange from digital to analogue resulting in the change of dimension and form between Young's CAD file renderings and Husen's construction of the Luhar lamp. The steampunk aesthetic (a westernised interpretation) came about through the transition between a digital computer file that was printed onto paper and taken to India for making. It's clear in this transition that other scapes overlap, the ideoscape for idea sharing (the image of a lamp) and the ethnoscape for cultural background (how we know to call something steampunk). The mediascape is an image space where differences communicated via the technoscape are received and negotiated, the touch point for a conversation, sketch or model. The mediascape is both the projector and visualiser of culturally transmitted material. It is where we experience and receive photographs and emails, telephone calls and texts.

Ideoscapes are the way that we understand concepts of cultural information transmitted via the pipelines of the technoscape. A sharing of meaning and an overlapping of mental models allows the coexistence of an idea in the ideoscape, an example of which is the notion of an electric lamp transmitted by Young to Husen via a CAD file and how this manifested itself as a new structure. Both participants had a pre existing idea of the product type and the new design is focussed through images and differentiated through the local cultural interpretation of the drawings. Another example can be seen in the sourcing of remote minds, bodies and souls for the chameleon characters. Amongst these were ideas introduced from unknown foreign locations, potentially a website, social media post or server farm on the edge of the city or from the other side of the world. Comparing the interpretation of Husen to Young's drawings or Mehta's chameleon character to an unknown web-author suggests some interesting observations around the routes across suffixscapes from where we receive new ideas and how we compare differences within them to our own internal value system. Husen received and understood Young's idea in his own local space, an idea that was physically brought into his own home and workshop. Mehta by comparison understood her idea in the mediascape, remote from her on a digital network as an artefact of the technoscape. We can begin to see that collaborators can share very different experiences of an idea in the junctures between the techno, media and ideoscapes. This is the common ground of the suffixscape, the shared understanding that takes place between collaborators, even remote ones who have never met, spoken together or directly communicated. The differences then must surely exist outside of the

ideoscape if they are not shared. The envelope of interpretation, that which is left open in drawings, fuzzy or reduced information leaves space for a different type of interpretation or misinterpretation assisted by cultural heterogeneity.

The ethnoscape allows us to interpret and project cross-cultural influences transmitted via the mediascape in the form of photographs, films, writing, drawings and computer models. In collecting and engaging with remote influences we allow the ethnoscape to transcend both the technoscape and mediascape. We can see this taking place through the reception of remote digital influences and materialising them as drawings, sketches, models and design conversations. In addition we can deliberately extend the ideoscape into design action through the translocated making workshop's localised swapping of the chameleon character's souls and bodies affording an analogue element to the ethnoscape. Sangvi combined ideas of space, magic and calligraphy, importing those onto his own personal ethnoscape to propose the new 3D modelling system. Kavanagh deliberately attempted to interpret Bhavchaya's ethnoscape and position a design that was partly internal for engagement and partly external to extend and challenge his making practice. We can see that the ethnoscape can function as a transformative concept facilitating the remote sourcing of cultural materials and allowing the transmission to a local space enabled through both digital and analogue design methods. The transmission, reception, interpretation, retransmission and reinterpretation enable the transformations to take place through collaboration.

The financescape may seem a more remote landscape in this context, an incidental account of negotiating to pay the craftsman for his or her work or buying airline tickets on the Internet. However Young's interview brought to light the financescape as an equal mediator of motivations, materials, opportunities and threats that not only shape the short-term day-to-day survival but also push craftsmen into modifying their practice. Whether it's the earthquake that dammed the Puram River near Nirona reducing the pastoral incomes of local family or the later small influx of tourist that perpetuated some of the local crafts skills. These factors play out across the financescape modifying craft traditions by pushing some people out into new roles as part of rural-urban migration patterns or providing some hope in supporting a cultural craft. Without doubt Appadurai's motivation was to use the financescape for the political discourses of global culture as a way to describe the great inequalities of our times, however it also functions here in the

design projects on a local and micro scale recording the shaping and effects of individual transactions.

Through this discussion a proposition has emerged whereby we can begin to suggest a relationship and location for differences that are mediated by the overlap between the technoscape, ideoscape and mediascape that allows a set of cultural materials and understandings to be transmitted. The research projects in Gujarat explored this notion and we can now appreciate that varying the media type and information package leaves a bandwidth allowing us to alter the amount of potential difference we can affect in this type of system. The realities however will be highly chaotic and it's not the intention of this research to suggest that a concrete set of rules can be applied in order to radically govern cultural transfer. In fact the non-isomorphic and disjunctive communications suggestions by Appadurai play out across these scapes via the decentralised network of agents that operate fluidly providing space for the accidental, the serendipitous and the unanticipated to be acknowledged and acted upon. At this point it is worth expanding on the differences between the non-isomorphic and disjunctive communications witnessed in the research projects. An example of non-isomorphism can be made when observing the one-way linear foreign import of an entire design concept and the manifestation of that information as an object. Non-isomorphism occurs in the projection of western concepts into other geographies, for instance the idea of steampunk applied to the Luhar lamp in India can be viewed as a westernised (colonialist) imposition. Disjunction occurs in the slippage between the crafted surface of the copper bellmaker and the modernist organic forms of the Luhar lamp. The lamp inhabits an imagined world recalling Appadurai and Anderson's ideas of the cultural worlds projected by individuals and groups. Luhar does not belong fully to the world of Young, the London based designer, nor does it belong to Husen the Nirona bellsmith. It sits in between, in a new deterritorialised context supported by the overlap of both cultural world visions. It can only ever be partially understood in the London or Nirona geographical contexts. By extension it can never by fully appreciated when it inhabits either space and in this respect we may see an exciting potential. That Kavanagh, Husen and Hall culturally appreciate the new lamp object is not in doubt, yet it can only be fully appreciated in a delimited space by a suitably liberated entity in the field of vision set in a translocated context. In many ways the initial critical awkwardness of the Luhar lamp is the most significant and surprising of the physical findings from the projects phase. The disjunctive exchanges instigated via digital-analogue transfers, cultural

interpretation and misinterpretation powered the disjunctions and differences that enabled this outcome.

Table 2.01 in chapter two gave an indication of how suffixscapes could be applied to the case studies described in chapter one. A comparison has been made in table 5.02 below in order to bring together evidenced for assessing a structure of engagement with Appadurai's suffixscapes.

Suffixscapes	Ethnoscape	Mediascape	Technoscape	Financescape	Ideoscape
Luhar Lamp	Ethnoscape is highly embedded in the cultural practice	Reception of remote analogue and digital material provided by the researcher	Copper bellmaking with freehand drawings generated in London	Remote transfer to ATM in Ahmedabad then Cash wire transferred to bank in Bhuj	Tripartite shared understanding between remote London designer and local maker facilitated via the researcher
Nirona Stool	Ethnoscape is highly embedded in the cultural practice	Reception of remote analogue and digital material provided by the researcher	Wooden lac turning in Nirona with CAD files generated in London	Remote transfer to ATM in Ahmedabad then Cash wire transferred to bank in Bhuj	Tripartite shared understanding between remote London designer and local maker facilitated via the researcher
Ashram Stool	Ethnoscape is a secondary connection to a commercial craft activity	Reception of remote analogue material provided by the researcher	Analogue: Freehand sketches, turned wooden master and papier mache	Remote transfer to ATM in Ahmedabad then Cash paid on receipt of goods.	Local shared understanding between the researcher and craftsman
Copperking Stool	Ethnoscape is a secondary activity to a commercial industrial activity	Reception of local analogue material provided by the researcher	Analogue:Freehand sketches, hand carved wooden master and bronze sand casting.	Remote transfer to ATM in Ahmedabad then Cash paid on receipt of goods.	Local shared understanding between the researcher and craftsman
Translocated Workshop	Ethnoscape is the activity of the workshop mediated between participants and analogue-digital media	Reception of self-sourced global digital material	Digital media: Internet, CAD, Photoshop and other graphical tools. Analogue drawing and model making	None in the direct project	Highly complex developed through personal practice, remote sources, swapping and researcher agency

Table 5.01 Evidence of Appadurai's Suffixscapes in the design projects

In analysing the table it could be argued that the exchange of cultural material across suffixscapes is of a higher level in both of the Nirona projects where the craftsmen have a more unique practice and have embedded more visual evidence of their skills. For instance Bhavchaya covered the turned legs completely with lacquered marbled patterns using a new combination of colours and Husen's Luhar lamp was completely covered in the trademark non-ferrous metal coating. In reading the table we could suggest that the ethnoscape forms a strong connection across all the projects but reduces from a primary level of observation in its intensity and value to the relationships with the makers in the Ashram and Copperking projects. These are essentially commercialised activities where economic production requirements have distributed some of the human skill and opportunity for cultural practices witnessed in the Nirona craft activities.

Another value can be extracted from the table as it allows thoughts of structuring a directional flow of engagements across the suffixscapes. The structuring raises an interesting question about the possibility of a prioritisation of engagement in suffixscapes, a kind of narrative potential in this example describes a direction and sequence of flows across the scapes and forms a history of engagement. By taking the Nirona stool project as an example we can begin to show a succession of interactions. Without getting caught in recursive loops we shall begin with a flow of information onto the technoscape. In this example an email from the researcher to Kavanagh requesting the secret designs for Bhavchaya and the delivery of a package of designs converted from digital to analogue format. Through the interaction of the researcher the information is presented as an image on the mediascape to Bhavchaya who then negotiates on the financescape for a fee with the researcher. The concept of producing a particular artefact is shared between the partners on the ideoscape and mediated through the physical interactions of the mediascape. The ethnoscape is where we withdraw again to our own individual cultural backgrounds to make sense of our collaborations and make the kind of observations captured in the interviews and made by the researchers own analysis. Bhavchaya was influenced in the type of future objects he might make. Kavanagh was influenced in refining his remote design methods and the researcher was influenced in testing the globalising frameworks and the practice based design research methods. Structuring the interactions through the technoscape-mediascape-financescape-ideoscape-ethnoscape has enabled the articulation of a particular narrative making this point. The withdrawal into our own ethnoscape as researcher-designers acts as the positioning or location of our

critique, yet the sense of movement, moving into and out of our ethnoscape offers the potential to liberate our position in relation to the field.

A case can be made that the initial engagement point in the collaboration occurs via the technoscape and at that moment of connection the mediascape comes into play by affording a way to send and receive information that is understood on the ideoscape and valued on the ethnoscape. Acting on an idea becomes influence and difference, the outcomes of which sits on the ethnoscape and impacts on the human understanding of the world. However locating an activity on the suffixscapes appears isomorphic at this level and it is clear that the researcher has prioritised the interpretation of an observation onto one scape or another. To give an example; where Bhavchaya has just received the drawings, agreed a fee and interprets making the stool he is moving from the mediascape and financescape to the ideoscape. With a different narrative we could just as easily divert back to the technoscape after the negotiation on the financescape to represent the production of the stool rather than move onto the ideoscape where new ideas are formed. This is an illustration of the isomorphic potentials of interpreting activities on the suffixscapes (it should be clarified that Appadurai's use of the term 'non-isomorphic flows' concerns global scale observations for instance in finance markets or the example of western concepts projected into India made in chapter two) where narrative building as a technique for establishing a way to describe and understand a series of interactions is the outcome as illustrated in the structuring example above (a full mapping of the suffixscapes in each project can be found in Appendix M1-5 and combined in M6).

At this point it's worth reviewing the argument made to select suffixscapes rather than actor network theory as a way of organising the flow of cultural material. Suffixscapes was chosen for its potential of understanding cultural flows whereas ANT provided a detailed and delimited way to enable new ways of observing the social. Understanding the flow of cultural material was more central to the focus of this design research and critically was a concept that the researcher could engage with through design activity. The value of ANT (section 2.2) could also support these interactions as a series of intermediaries and mediators, however the theory was more valuable for questions of social science rather than design in supporting an understanding of the layering of cultural flows. An important feature was the way that design thinking has acted to liberated differences from their local cultural context and provides a narrative flow to describe human motivations.

5.3 On geographically liberated difference

Geographically liberated difference is a term introduced in the second chapter to describe case studies from the researcher's practice and examples from literature (Fiss, 2009; Clark, 2009; Appiah, 2006; Barber, 2003 and Cowen, 2002) to indicate scenarios where designers drew on local and remote influences to generate new cross cultural designs. The term is based on Fiss's 'liberated difference from geography' (Fiss, 2009, p. 3) and was explored in a paper (Hall & Barker, 2011) that set out the basis for this description. The following section discusses findings and observations from the practice based projects in Gujarat with reference to this concept.

A relationship exists between suffixscapes and the concept of geographically liberated difference, however the nature of the relationship is obscured at this point. Is the liberation of differences from geography the act that is played out across suffixscapes or is it the underlying mechanism? Is translocated making the outcome of the activity or is there a series of more nested relationships? Positioning these frameworks and models of thought in relation to each other using practice-based research has emerged as an important focus of the research. The following section describes research outputs from chapter four and looks at evidence in the three key elements of geography, liberation and difference.

Evidence supports the idea that the research projects witnessed differences being exchanged from one culture to another across a geographic divide using digital and analogue mediums to bridge the gap and that these resulted in new material outputs. For example designs from Kavanagh and Young transported between London's cultural-geographic location to Nirona. The researcher brought cultural information from the Ghanaian and London cultural geographies as tacit skills and experiences that were synthesised through design activity with local Indian cultural influences to make the Copperking and Ashram stools. The deterritorialisation of knowledge challenges conventional fixed ideas of a geography described as a line on a map that encompasses an aged territory along with its inhabitants. The high speed shifts of contemporary communications across geography is facilitating the Appadurai-Anderson-McLuhan sense of an imagined world, a culture-land that is permeable, shared and adapting across a synthesised media of analogue and digital exchanges, a loosening of the automatic assumption that geography and territory are inseparable (Massey, 2006). In this action we

initiate the deterritorialisation of cultures via their porous borders and free the term 'geography' to signify a new meaning as a fluid space to sustain cultural activity.

The porosity of the geography (Hazel Clark interview, Appendix K5) is initiated by the arrival of the researcher and made into an exchange by the material that has been transported and creates the cultural flows across suffixscapes. This is the analogue variant, but a digital variant exists in the translocated making workshop where a student opens a laptop, starts an application and views cultural material from a remote global source. The porosity is opened up by intent and actioned by material. The effect of intent and action combined as porosity liberates, it allows new material to escape its location based cultural space and move into a new one. Liberation is a design action, one that can be deployed deliberately to experiment with new creative ingredients, whether they are harmonious, complimentary, antagonistic or disjunctive. The aim of the Copperking project was to extend a chain of cultural liberations that were initiated by observing bronze casting processes and influences from the Ghanaian stools that functioned as cultural and technique influences for the Ironmen stool projects in London. The interplay of cultural factors triggered by liberations of information across three continents tripped a set of recursive differences around the Copperking casting process, subtle changes of visual language, physical features, finishing textures and environmental influences that led to the final design.

Understanding how the collaborators negotiated and worked with differences can be seen through the actions and evidence of Husen who experienced very few differences to his usual cutting and hammering craft techniques yet an overriding difference was formed through the aesthetics of an object that appeared to be a future design made in the past, or a design from the past made in an alternative future. The Luhar lamp generated unique responses in terms of product forms that reinforce the value of cultural collaborations as Husen used his embodied knowledge to improvise and interpret the fabrication of components into an assembly. The translocated making workshop was an experiment in treating the remote creative sourcing and use of differences as a deliberate design tool. In contrast the Nirona and Ahmedabad projects were observations of differences encountered through making projects and the relationship to cultural material structures and collaboration. A chain of differences can be observed on several levels operating between the key actors. Young experienced the communications of a new making process from photographs that introduced him to a remote difference, a difference of understanding how to make. He then generated a set of design ideas with the hope of

triggering the making of an object with new attributes that would be achieved through stretching the understanding of how to fabricate an electric copper lamp. Husen experienced differences as the results of his actions that were themselves the result of his interpretations of Young's design media. Through Husen's interviews it was clear that he saw the differences as challenges for his craft. Would he be able to use his knowledge passed down from several generations to interpret a new object? Husen had already begun to work with remote differences and to an extent had a previous experience of how one could absorb and work with external influences on a small scale via the Swedish collaboration. The researcher was the facilitator in the system and used his experience, agency and skills to set up a chain of interactions designed to encourage opportunities for the exchange of differences to take place. The positioning of the researcher, although it was external to the design process of the artefact was internal to both the research design and system of difference exchanged. In contrast, Bhavchaya's relationship to difference is notable in that it is more localised. He did not have a history of accepting external projects or experimenting with his craft, yet he engaged in a positive manner and delivered a result that was very comparable to Husen's in its quality of output.

Both Chowda and the researcher seemed to gain less in terms of the cultural differences exchanged through the paper stool research project. Whether this was the result of a more basic and less participatory process or not being able to visit his workshop or a number of other factors remains speculative.

The NID workshop was rich in differences ranging from the diversity of Internet sources consulted by the students to their interactions with each other during the swapping process, the challenge to their existing design methods and the facilitation of the researcher. The examples uncovered from this single source display the complexity of layering and scales from the remote to the global and indicate that liberating differences from geography can be a part of how we practice contemporary design activity. The translocated making workshop offered by far the most complex flows of differences ranging from the researchers own input differences via the innovation and design education workshop structure to the diversity of cultural influences available on the internet, the students choices and further local swapping at a later stage.

Table 5.02 takes the research outputs from the five projects and cross references then against the criteria established in chapter two for the liberation of differences from

geography as applied to the earlier case studies in chapter one. The headings used here are derived from the author's paper on design and geographically liberated difference (Hall & Barker, 2011) and are intended for testing through practice based design projects. This has now been achieved through the India projects which the table analyses.

Project	Liberation	Mediators	Transnationalism	Analogue-digital
Luhar Lamp	Design ideas from Young in London to Husen in Nirona and knowledge from Husen to the researcher.	Photographs, freehand drawings and the researcher	London to Nirona, Nirona to London	Digital to analogue
Nirona Stool	Design ideas from Kavanagh in London to Nirona. Knowledge from the Bhavchaya to the researcher.	Photographs, CAD files and the researcher	London to Nirona, Nirona to London	Analogue to analogue
Ashram Stool	Design ideas generated from local influence but remote experiences to Ahmedabad. From Chawda to the design researcher	Freehand drawings and templates, the researcher	Local to local. At a secondary level via the researchers experience	Analogue to analogue
Copperking Stool	Design ideas generated from local influence but remote experiences to Ahmedabad. From Allwin to design researcher	Freehand drawings, full size carved patterns.	From Ghana and Mali via London to Ahmedabad Ahmedabad to London	Analogue to analogue
Translocated Workshop	Remote sources to participants, participants to each other, researcher to participants	Internet digital media, freehand drawings, models.	Global to local Ahmedabad	Digital to analogue

Table 5.02 Evidence of design and geographically liberated difference

Liberation describes the triggering of an arc of movement as a result of the release of materials containing influences from one location to another along with the type of medium that has facilitated the transfer. For instance in the Nirona stool project the material of design ideas initiated by Kavanagh moved from London to Nirona via the medium of hand drawn sketches. The trigger was provided by the facilitation of the researcher and this proved pivotal in enabling the movement of material between different cultures and geographical locations. The mediums supporting this liberation of difference were the analogue sketches generated by Kavanagh for the stool made by Bhavchaya. Interestingly Young's process generated digital materials that were made as analogue form, while the translocated making workshop transitioned from digital influences to analogue

drawings and in a few instances reverted back to digital at the conclusion. Throughout the projects it is difficult to see a consistent switch between analogue and digital methods and it has not been possible to discern causal links to particular types of outputs, feedbacks or a relationship to types or movements of differences. As an overview the dominant medium is analogue, an outcome that is contrary to the researchers initial assumption that digital media would be central to the project and disproportionally effective. Part of the issue here is remoteness and access to the Internet, and familiarity with its capacity. However digital media is increasingly present in the field and indications are that it will penetrate more deeply in the future (Appadurai, 2009, p. 189; Sturken & Cartwright, 2001; UNESCO, 2005, Annex V, p. 2). Husen was asked how he viewed emerging digital communications in relation to copper bellmaking and what kind of influences he could imagine taking place in the future that could affect his craft, either in a positive or negative light. He thought about this for some time but found it difficult to provide a clear answer. This response along with other conversations around his Swedish collaboration illustrated that he saw the Internet as primarily an economic and communications tool.

The criteria of liberation, mediators, transnationalism and analogue-digital media were successful in providing a framework to assess the concept of geographically liberated difference and to describe its activity across the five projects completed in Gujarat. Liberation successfully captures the act of freeing cultural material, mediating the role of the designer in creatively exchanging cultural material to make differences, transnational notes the locations of partners and exchanging material and finally the analogue-digital provides the capacity to test the effects of introducing digital media to new locations and how it affects creative work.

Liberating differences from geography is a conscious intent, and it is a design activity. In fact it is shown and researched here to emerge as a design method. Playing out across suffixscapes it allows us to understand its operation in the field and to describe its influences across scales from the individual to the global. Design action can impact and play out across multiple scales. As a design method it has a key asset, that of re-narrativising the engagement of cultural transfer. It puts acting and observing the field of vision within a framework that can be pursued through design thinking.

5.4 On research in action

The final set of discussions centre around the design methods and reflections experienced through researching through design and designing research. It begins by looking at the action research and participatory design research methods that were deployed in the study. Researching through design and designing research were selected as approaches in order to provide a set of contrasting perspectives on the design research and also to allow the design researcher to experience the dual internal-external reflective perspectives. Designing research is the process of facilitating a research project and recording and analysing the results externally. Researching through design is the process of designing with an embedded research agenda that allows self-reflection from the personal experiences of being inside the action.

Action research and participatory research were discussed in chapter three as potential design methods for the practice based design projects in Gujarat. Through the investigation and comparison it emerged that action research has a strong reflective capacity with an emphasis on systems while participatory design has an artefact centred and co-design capacity. The final decision was to use a combination of both methods, a strategy recommended by Foth & Axup (2006).

Q2. How have the AR and PD design research methods combined in practice and can their influence in guiding the research be identified?

A combination of tools was selected for the research methods based around a designing research and researching through design approach, both of which required an AR/PD combined method. Around the design projects a number of research tools were used including photographs of craft contexts including workshops, techniques, drawings, templates, patterns, models and environments (Appendix B-G), observations recorded through written notes (Appendix H1, translocated diary and Appendix H2, translocated projects general findings) and research instruments (Appendix J) that were used as the basis for interviews with participants (Appendix K).

As recorded in the literature it was clear that AR and PD were overlapping approaches for design research. However the experience of researching in the field proved that the most valuable models for understanding and driving the design research quickly became the concepts of suffixscapes and geographically liberated difference. It was quite clear during note taking and end of day diary recording that the two frameworks had been taking place

during day-to-day activity. Suffixscapes and geographically liberated difference became much more powerful frameworks for understanding what went on, and as such can be considered more effectively as the tools of the project rather than remote theories. Establishing clear boundaries between which actions characterised systemic (AR) and artefact (PD) based outputs in order to separate the methods for comparison was not possible. The abstraction with which these methods are compared and described in literature along with a lack of agreement on ways to combine tools and techniques was borne out through this experience. As regards the balance between AR and PD the researcher felt that PD fell within the majority focus of the research. Artefacts were the main making, collaboration and analysis focus indicating that PD tools were focussed towards this method and that the systematic observations and findings were drawn primarily from an object driven interaction rather than an AR systems focus.

Q3. How has the researcher's practice been influenced by the design research project, what are the reflections?

Chapter four described the first hand experiences of working with Omprakash Kothari at the Bronze foundry and Arvind Chowda's paper craft as internal observations on the AR/PD design research process. The following section describes in the first person how the internal reflective observations were experienced on a more fundamental level of researching through design and designing research as part of the researcher's experiences.

By far the most significant and unexpected realisation came through understanding that my own agency, by which I mean the effort, skills, communications and presence, became the tipping points for actions on the ground. In researching through design the challenge came from my agency as the conveyor of differences, and how to explore this capacity in a way that was appropriate to the context, and collaborate on an artefact that was a genuine product of its locality rather than a remote abstract imposition. Designing research was challenged by not knowing exactly when my influence would become prescriptive and over-ride the intentions of Kavanagh and Young, or implant anticipatory decisions and plans on situations that needed to be explored more openly in context. These were decisions that often had to be made on the ground. The deliberate decision to source 'secret designs' from Kavanagh and Young was a method to avoid the anticipation of any kind of planning based on possible miscommunications or questions around techniques or interpretations. The results worked surprisingly well and it was a straightforward process to

push questions back to the craft makers and explore the answers as their decisions rather than offer an answer from my own perspective. In a way this was contrary to the usual client-maker relationship where the route to success lies in pleasing the client and heeding their answers.

Both Husen and Bhavchaya commented that they engaged in the project as a result of the efforts I had made to reach them and initiate a collaboration, and as mentioned before I began to realise that my initial expectation that the presence of digital technologies as a significant influence was partially in doubt. Their capacity to enable disjunctive interpretations in the Nirona Stool, Luhar lamp and translocated workshop were confirmed but the agency for these interactions came from my presence in the field that unlocked the collaborations. The failed sixth project partially confirmed that remote setup of collaborations even with known partners can be problematic. The implication is that information received as an email or other remote digital media would be more likely to fail, not as a result of the media or information but because of the lack of reciprocal effort or presence offered by the researcher.

During a discussion one evening at NID with Professors Nahar and Rao it was put to me that my presence as a foreign visitor was a key reason for the speed and positive collaboration in the projects I was engaged in, that a visitor was accorded certain privileges over residents in the tasks they wanted to accomplish. My agency therefore is a key aspect in the negotiation of these relationships and was also confirmed by a couple of other sources:

> Franklin told me today that my advantage as a western visitor was in being able to try out new approaches and techniques that would be a lot more difficult or take a lot more persuasion for local designers to achieve. Bhavik Bhavchaya also reinforced this by saying it was only the fact that we travelled to see him that persuaded him to try the stool design.
> (Hall, Appendix H1, translocated diary, 3rd December)

The methods that I used to create the space for differences to emerge and to be part of creative interpretation involved providing minimal design information in simple hand drawn elevations with a few control dimensions that were only just enough to successfully transmit the design intent. Kavanagh spoke of the tensions and risks of ceding creative

agency to another individual but also how this could be an exciting opportunity for new outcomes. We can see that Bhavchaya's skills were liberated through reading simple elevations with only one dimension as recorded earlier. This was harder to achieve in the Copperking project as I was producing the patterns myself although the designs were certainly influenced by Indian cultural exchanges. The envelope for negotiating external differences was very much within my control whereas with Husen it was outside of my control and Bhavchaya even further with the introduction of Yunas, the second unexpected maker. Looking back I can see that the envelope of collaboration is the space where imagined worlds are conceived and shared, and it's the space where these new cultural translations take place; the steampunk aesthetic of the Luhar lamp, the subtle blend of situated craft knowledge in the Nirona stool, or the cascade of multiple and overlapping cultural liberations from the African, European and Indian geographies that make up Copperking.

Whilst discussing the research project with professor Rao at NID on another occasion it became clear that my initial entry into a design career was from a classic form and material culture direction (Appendix H1, translocated diary, November 21st). The role of the designer was to create an aesthetic vision for projection through the making process and it was the role of the manufacturer to respond in kind by producing the objects as accurately as possible to the design vision. The activity was about total control and execution of the design idea while the role of the manufacturer was to faithfully execute the design. Self-reflection whilst at NID showed a new perspective, that of the designer as facilitator and collaborator. Of working with and learning from making as a creative cultural system, understanding that differences are a key moment upon which to focus creative thoughts. Undoubtedly the freedom from commercial limitations and ability to explore relationships, disjunctures and other lines of enquiry without concern over the product-ness of the final output contributed immensely to this process.

One of the most interesting results is the aesthetic impact of the artefacts and the dislocations and differences that have been left in the content of the designed objects as histories of the collaborations. The 'steampunk' characteristics of the Luhar lamp, the modern-retro contrast of the seat and the turned lacquer legs of the Nirona stool and the layered histories of cultural liberation in Copperking are examples of these. As the projects developed these common and unexpected threads began to emerge from within both the

researching through design, and designing research approaches. They are also specific results lending themselves to experimental design outcomes and research activities rather than a commercially driven model of engagement.

Experimentation was described as a design method in chapter three and was found to operate on a number of levels in the Indian projects as the basis of a design method. Rheinberger's epistemic things (Rheinberger, 1997) played out as an experimental system that was composed of the objects of collaboration, the frameworks of suffixscapes and geographically liberated difference, the AR & PD methods and the actions of the collaborators. Through experimentation it deployed its epistemic power to position the action of the projects and the knowledge in the frameworks to articulate the new insights into how we exchange influential differences between different cultures over distances. At an artefact level the secret designs, chameleon characters and papier-mache materials are examples of experimentation in tools, methods and materials. However a more subtle type of experiment takes place in the Copperking stool in attempting to trace the cultural influences from three different continents in a physical artefact. The result was successful and the stool comparison in Fig. 4.32 illustrates that differences across three cultures could be extracted. It also operated on a meta-level between the projects in that they all broadly investigate suffixscapes and geographically liberated difference without a pre-existing definition of how these ideas could be positioned against each other as design research.

Q4. How has positioning the researcher enabled the recording and analysis of cross-cultural material?

The transition in thinking narrated by this research is essentially that from total control over the image of a single product, to the opportunity of moving from a centre-periphery to a networked field of vision. Ceding total control by positioning oneself in the 'third' space of facilitator allows others into the cultural space to collaborate on making new objects.

Rogoff's concept of the field of vision as a delimited poststructuralist critique of material culture (2002) and Kemmis & McTaggert (restated here) 'the problem of facilitation, and the illusion of neutrality' (2007, p. 284) illustrate the frustration of acting and critiquing in the field of vision either as a designer or facilitator. The core of this frustration lies in having to work from a cultural position as a designer in order to bring material to the collaboration,

yet at the same time realizing that this material occludes or narrows the field of vision for an objective analysis.

Rogoff's material culture perspective is undoubtedly a valuable position from which to critique, however in translocated making we are at one and the same time attempting to observe and act inside the field of vision. Clearly the envelope of collaboration happens in this space where situated knowledge enters the frame. Could we say that the mental model of an envelope of collaboration is jointly held and understood in a conscious way between participants? Unless we can frame a new context where design can at least appreciate and occasionally inhabit the frame we risk a disconnection between action and analysis in shared cross-cultural design projects. The relationship between suffixscapes and geographically liberated difference offers a potential for acting and understanding when we exchange differences between cultures.

6

Synthesis

6.1 Summary of findings

This research set out to explore translocated making through cross-cultural relationships with a particular group of craftsmen and makers, and to investigate the impact of digital and analogue technologies on design and making practices.

Suffixscapes have functioned as a highly successful framework to understand how cultural material flows across borders to influence designers and makers in heterogeneous cultural environments. Clear evidence was found of activity across and between the technoscape, mediascape, financescape, ideoscape and ethnoscape. In design terms suffixscapes allowed the tracing of design-led narratives at a number of scales from individual engagements (from Young to Husen and Kavanagh to Bhavchaya) to regional and national scale issues (rural-urban migration in remote villages). It has also been useful to position the researcher amongst the various flows of cultural information in the field. The notion of geography being a fixed concept connected to a territory has been questioned via the collaborative envelope of differences exchanged by participants when generating new contexts through the creation of an artefact.

Pursuing this design research has impacted on the researcher through reflecting upon his trajectory from a highly controlled to a collaborative non-anticipatory design approach. In terms of unlocking the potential of design collaborations in diverse cultures, materials and techniques, the agency of the designer has emerged as a fundamental aspect of this form of partnership, however a clear method of capturing and relating this form of experience and engagement has not emerged. Whether through the movement of information, artefacts or people, human agency has become the critical factor operating above digital and analogue methods as the key moment in negotiating cultural differences. The conscious agency performed through designing and its effects on the physical outcomes is clear, yet the more subtle aspects of agency involving presence and experiences drawn from a history of working in a diverse range of cultures was not captured through reflections or analysing physical outcomes. Action research and participatory design were useful for understanding the issues involved in researching and acting in the field but the common tools and various disciplinary perspectives from the literature made comparisons problematic. The notion of experimentation liberated the researcher to test out new methods of engagement and an open-ended approach to understand how the globalising frameworks might interact in the field. Positioning the researcher in relation to describing

and analysing the output of the physical artefacts was challenged by Rogoff's field of vision (2002) and although it was not possible to fully engage with that critical approach it raised a number of important issues that will be developed further.

6.2 Synthesis

Following the analysis of the findings in terms of the suffixscapes, geographically liberated difference, experimentation and the field of view, this section brings together the globalising frames by synthesising their relationship to one another as translocated making. It develops to explore the synthesis and its contribution to wider issues and relevance to questions of cultural exchange.

The original context for suffixscapes was in the field of global cultural anthropology. Investigating this framework through design research has added evidence to support its value in framing cross-cultural activity but has also allowed a redefinition in terms of design. The new elements that add to its redefinition are its capacity to support design narratives to describe and understand the flow of cultural material between collaborating partners working across remote locations. Suffixscapes have also demonstrated a capacity to frame issues of scale from the individual to the national and global. In terms of the digital, suffixscapes have proven to be more than flexible enough to cope with combinations of digital and analogue media working in conjunction with each other despite the framework being formulated in the pre-internet era. Design research has extended suffixscapes from an anthropological framework into a design method for situating exchanges between partners in a way that allows an understanding of the cultural differences being exchanged. In this respect, suffixscapes have shifted from an analytical framework towards a proactive design method.

In the Nirona context cross-cultural materiality is blended through translocated craft production resulting in the dislocated steampunk aesthetic along with other new aesthetic and form elements. Copperking and Ashram are much more subtle in that the researcher brings translocation in two forms, through embedded practice based knowledge combined with the situated local knowledge internally interpreted and externally connecting with local influences. In the Nirona projects it is argued that the designers and makers experienced translocated making and the researcher facilitated and observed translocated making, while in the Copperking and Ashram projects the researcher experienced and observed translocated making. In this respect a successful project is not

based upon the understanding that translocated making is taking place. It is an observed phenomenon of something that has existed previously and most likely since humans have exchanged objects. What is new here is the potential to intercede in these processes with design intent to positively affect the outcomes of the process. The NID workshop differs in that the students were introduced to the concept of translocated making and a process was designed to deliberately exploit this in a creative activity. The remarkable outcomes and positive comments from the students suggest that knowledge of this concept can enhance design activity and encourage a positive model of cultural transfer and collaboration.

Geographically liberated difference was a term developed during this research to conceptualise a series of design studies that used cross-cultural influences. At that stage it was an analytical post-event observation. The relationship between translocated making and geographically liberated difference began to clarify when it appeared that translocated making is the result of how we liberate differences. Through designing we allow them to move from one part of the world to another via objects, media and ideas using digital and analogue methods choreographed through collaborating with various agents. Translocated making is the result of geographically liberated differences.

The expectation during this research was that geographically liberated difference would act in a similar way to the suffixscapes in providing a framework to understand what was really going on. In practice it proved to be more than that; geographically liberated difference became a term that implied a series of narrative events across separate locations. It drove the formatting and execution of the design projects to the point where it became a way of doing, a method, a way to consciously design with pieces of cultural material released from one location and transmitted to another.

It is clear that a series of nested relationships is taking place between translocated making, suffixscapes, geographically liberated difference, the action research-participatory design combination, the research tools and the design projects. In order to clarify this complex set of interdependent relationships the diagram in Fig. 6.1 sets out the hierarchy of relationships from the theoretical to the applied between research focus, methods, frameworks, tools and projects. Translocated making describes the design and making of objects as an activity shared across different locations. Suffixscapes and geographically liberated difference are the framework-concepts promoted through design to the level of

methods. Action research and participatory design (annexed by Rogoff's field of vision) positioned the researcher in relation to the participants and the material in the field for analysis. The research tools of observation, photography, notes, interviews and reflections were applied to the design projects. The experimental system of epistemic things is suffused throughout a number of layers in the diagram including suffixscapes and geographically liberated difference, action research and participatory design, tools and the design projects.

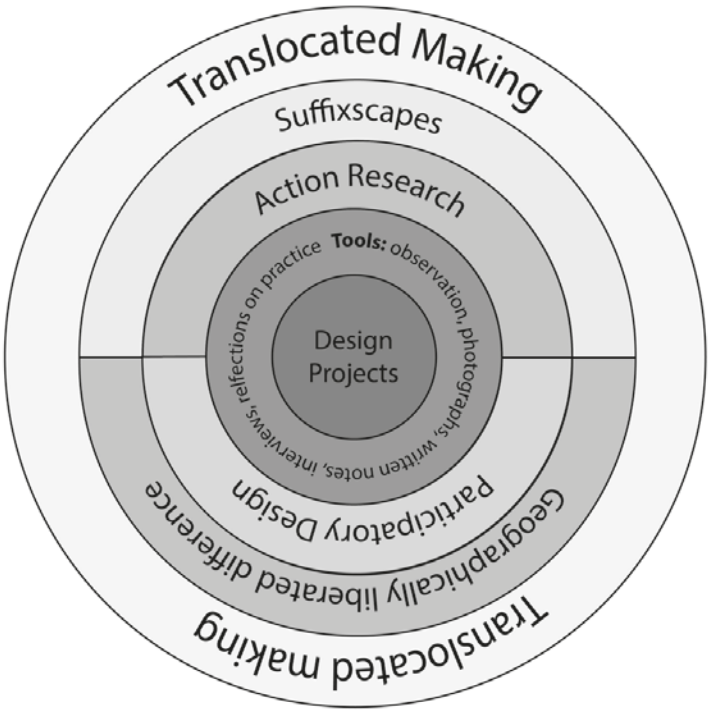


Fig. 6.01 Translocated making, frameworks, methods and tools

In chapter five an argument between objects and context was left unresolved (section 5.2, pp. 210-211). It arose through using suffixscapes as a framework to understand cultural flows as an envelope of collaboration shared between designers and craftsmen. It was described using Appadurai's term of an imagined world, a description that he had himself applied from Anderson (1993) and McLuhan (1964). That argument was left hanging around how the Luhar lamp sits 'in between', in a new deterritorialised context (Deleuze and Guattari, 1972; Appadurai, 1990; Massey, 2006; Appadurai, 2009, Appadurai, 2013) supported by an overlap of both cultural world visions (Husen and Kavanagh & Hall). A section from Appadurai's chapter on '*The Social Life of Design*' has been re-quoted here to focus the argument on a key finding of this research:

> The problem of contexts is one of the black holes of current social science, and this black hole opens new possibilities for thinking about design processes from a social and cultural point of view. (Appadurai, 2013, p. 258)

The researcher is arguing that we have seen the production of a new context that has been achieved through design research, one that explores the contextual black hole of social science. It has been understood by using Appadurai's suffixscapes as a way of delimiting cultural context and mediated through design action (liberating differences from geography) to make a shared new context. But this is not a new physical location; it is an object that supports traces of diverse cultural imprints that can never be fully understood in one location or by one viewer, and so the question remains; where is this new deterritorialised context and how do we describe it? The answer must lie in the relations between a range of conceptual associations within which the artefact sits. The artefact becomes deterritorialised (liberated) by the disjunctures in the collaborative mediums (the drawings, models, and conversations interpreted when moving across, and in the exchanges between digital and analogue media). We visualise the context through Rogoff's field of vision: not through a delimited critical position but by placing in on the periphery of our cultural worldview where the object is recognised as the familiar (lamp) and culturally codified as the unfamiliar (steampunk). So how to articulate this in terms of the object? When we move, the object-traces are stretched out in a web from the contributing cultures, but the web is both geographic and cultural, and space is collapsed into the relative positions of the viewers and their different experience and appreciation of the cultural codings. The interpretation becomes elastic as the geographic positions of collaborators, their cultural position and the artefact shift in relation to one another.

It is this proposition that makes a central contribution through design research to situating ideas of the image, the problem of the production of context via objects, and the deterritorialisation of culture and knowledge.

Through its framing of a design method, geographically liberated difference re-narrativises the context laid bare by ideas of actor networks and other post-structuralist theories. Critics of post-structuralism (Massey, 2006; Appadurai 2013) point to its de-anthropocentrisation, negating the traces of human agency and self-determination as serious limitations. Suffixscapes are naturally isomorphic without the tidal flows of human information; it's our exchanges that introduce anamorphisms (and disjunctions) into the

landscape. This research has traced how those can be perceived and acted upon through the narrative of the collaborative design projects in Katchchh and Ahmedabad. The delimited landscape of suffixscapes are balanced by the narrative power of geographically liberated difference to model human agency in a way that allows the flexibility and freedom to observe and act. It is argued that in terms of design, this could be understood as an attempt at the re-narrativisation necessary to balance the polarity of the opposing structuralist and post-structuralist theories that we knew at the turn of the twentieth century.

In order to illustrate the relationships between suffixscapes, geographically liberated difference and the field of vision, a diagram has been created to visualise the conversation in Fig. 5.2. The diagram is composed of four key elements; context, collaborators, the object & imagined world, and the field of vision. The context is composed of unlimited possible geographies across which lie the suffixscapes where the collaborators are simultaneously situated in their locations and interacting across suffixscapes. Liberating differences from geography is the method of collaboration that is focused through the overlapping understanding of the imagined world that produces the artefact and by extension the new deterritorialised context. The field of vision is the fourth element although it's now clear that this is shifting from a removed objective position to indicate the analytical/reflective role of the designer.

Fig. 6.02 The relationship of suffixscapes, geographically liberated difference and the field of vision

The findings are an insight into a fundamental area of knowledge exchange that many designers would recognise and it supports the value of investigating and questioning how designers operate in remote collaborations. Moreover the cultural sensitivity of these situations along with the responsibility to support unique embedded cultural making practices highlights the future values of engaging and developing an understanding of how to respect and work with traditional forms of making as cultural affirmations of identity. This knowledge has been built upon existing paradigms and has reinterpreted and tested them to offer new practical examples of their application when planning for a future of increasingly rapid penetrations of porous geographies through human activity.

6.3 Future significance

The future value of this research lies in understanding its significance in relation to several developments including predictions of the localisation of production due to the foreseeable limitations in globally sustainable material use and transportation. One view is that objects and materials will have a reduced capacity to travel around the world due to energy and environmental restrictions and to address this issue localised models of digital cottage industries are already being developed (e.g. Assa Ashuach, 2013; UCODO, 2013).

Digital media is also increasing the porosity of sensitive cultural environments to external globalising influences (Appadurai, 2009, p. 189; Sturken & Cartwright, 2001; UNESCO, 2005, Annex V, p. 2). These factors combine to challenge how we have traditionally sourced our cultural influences and provide new insights into collaborative methods for more equitable relationships. It is hoped that this research can help provide a model that can be developed between craftsmen in developing economic situations to find space for their ingenuity and to sustain their long histories of making.

Designers also need to understand their agency in experimental design projects and how they can creatively behave to open up the potentials for engaging with different making cultures. This concerns the way we critique the results of cross-cultural collaborations and how we can act for mutual benefit by sharing our cultural differences. The issue has to do with how we can evolve, understand and act using knowledge of structures and conceptual models of cultural exchange across increasingly porous geographical borders.

6.4 Recommendations

Recommendations for the future are to bridge the knowledge gap between this research and the globalisation of production, in particular through ways of understanding more accurately our own agency and how this acts in cross-cultural exchanges. Extending knowledge of suffixscapes through testing different collaboration models and understandings of cultural geography and researching alternative narrative forms to explore further how network disjunctures come into play. The field of vision would also benefit from further design research that seeks to develop methods for how designers can be better positioned to simultaneously act and appreciate a wider field of vision. Initial findings reported in this research seem to suggest that a new understanding may be emerging. The lack of clear evidence supporting a view on digital and analogue methods in shaping outputs would be valuable to explore further in order to enable a better understanding of media routes as compared with the envelope of potential differences. The argument that a new deterritorialised context has been generated through a cross cultural collaboration aimed at producing an object is tentative and will need much more discussion with voices from the disciplines that it draws knowledge from. Additionally more examples of this type of practice in the field are needed, as well as a method of capturing the cultural imprints in artefacts. As digital systems penetrate more deeply and bring enhanced media for collaboration and visualisation, we will need to monitor the effects on sensitive making cultures to allow equitable relationships to be formed through knowledge of the structures that bring forth homogeneous and heterogeneous globalising influences.

Coda

My position as designer-researcher in the translocated making space fluctuated between the heavily embedded positions of Copperking and Ashram where I was deeply immersed in designing and making, to the facilitator-observer role in the Nirona projects and translocated making workshops. I entered the research with a fairly fixed idea of a designer's relations with those around them, but with an underlying suspicion that some of my earlier experiences exposed a different truth. Now I'm unpositioned, hovering between acting and observing, never in the role of the impartial observer or the subjective designer and this position comes with a privilege, that of being able to experience, observe and record more substantial structures that override these events; as suffixscapes and geographically liberated difference frame translocated making.

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