Jun 7th, 9:00 AM

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Citation

Catterall, K.(2013) Another future for designers in America, in Reitan, J.B., Lloyd, P., Bohemia, E., Nielsen, L.M., Digranes, I., & Lutnæs, E. (eds.), *DRS // Cumulus: Design Learning for Tomorrow*, 14-17 May, Oslo, Norway. https://doi.org/10.21606/learnxdesign.2013.025

DRS // CUMULUS 2013
2nd International Conference for Design Education Researchers
Oslo, 14–17 May 2013

Another future for designers in America

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Abstract: *The rationale behind mass-industrialization, now normalized, is embodied uncritically in the practice of many new designers. What if the industrial past could be explored and experienced as a foreign territory, providing a vantage point from which to critically evaluate contemporary design practices and define new paths? Young American designers are searching for alternate roles, and ways to design and live. Many experiment with models from elsewhere, places where new futures are growing from useful pre-industrial remnants. America, a country synonymous with industrialization, has no such resources upon which to build new practices, and slowing while creating value through quality is pitted against the dominant ideology of democratic capitalism and a national mythology that conflates freedom and prosperity, with ownership and abundance. Students who lack understanding – critical or otherwise – of mass-production, its precedents or antecedents, learn first-hand the values of making one and making one million by producing spheres through whittling, turning, casting, and using software defaults to send the perfect sphere off for automated reproduction, ad infinitum. This exercise develops in the manufacturer (student) a nuanced understanding of worth and consequential value, and creates receptivity, otherwise absent, for identifying and testing new patterns of behaviour.*

Keywords: Sustainability, reconfiguring values, design education

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Another future for designers in America

Previously the parameters of the design project were tightly drawn and narrowly defined; an appropriate form for a particular purpose, executed economically using readily available materials and technologies, for the purpose of keeping the client happy and the economy afloat. And for the better part of a century design education has facilitated, supplying a stream of serviceable designers and stylists for immediate deployment in the burgeoning design fields.

Over the past two decades however, the design discipline, well used to incremental change caused by the introduction of new tools and methods, has experienced a seismic shift, the complexity of which has yet to be absorbed into design education, practice and the greater culture. A shift precipitated by the far-reaching implications of scientific revelations suggesting that mitigation and sustainable growth will not avert the coming environmental and economic crises. A reality complicated by the social impact of ubiquitous computing, and the expansion of the design activity to include development of strategic planning tools for use in business, politics and urban planning.

Victor Papanek's legacy and a widespread appreciation of the Cradel-to-Cradel approach notwithstanding, design education in the United States if focused on sustainability at all, has embraced the idea of sustainable growth. The requisite training for designers focused on sustainable growth does not question the values and social mores that fuel rampant consumerism, nor does it explore the consequences of expanding the existing economic and industrial system in order to situate alternate options.

Once incongruities within the sustainable growth model become visible, the design project expands to include a critique of the role design and designers plays in an economic system sustained by designed obsolescence and hyper consumption; and morphs quickly into a wicked social, environmental, economic and increasingly political problem. The enormity of the problem confronting humanity paralyzes most designers and educators. What kind of skill set to introduce? How to structure engagement with seemingly insurmountable problems? With few clear answers to proffer most educators choose to skirt the topic and teach to more conventional material.

Designer, writer and educator, Meredith Davis's recent comments on the nature of design education in the United States affirm that:

> …most undergraduate programmes focus on the design of de-contextualised objects and a process with the goal of fixed, 'almost perfect' results. Mastery of an abstract visual language precedes investigations of context, as if formal logic can be imposed on any problem and the intent of design is to simplify rather than manage complexity.
>
> In cases where methods must be applied to existing settings, problem statements are often defined by the faculty rather than by the students, and are rid of complexity and contradiction. (Davis 2011)

In the early 1970's Horst Rittel acknowledged the pervasive uncertainty and complexity that was to frame all coming design tasks. He recognized that conditions would no longer permit simple solutions, and the observations he made then, remain relevant for students today as they engage in the process of design, negotiating new futures for humanity. In their essay Why Horst W. J. Rittel Matters, Rith and Doubberly outline the fundamental ideas that Rittel introduced.

> Simple problems (problems which are already defined) are easy to solve, because defining a problem inherently defines a solution.
> The definition of a problem is subjective; it comes from a point of view. Thus, when defining problems, all stake- holders, experts, and designers are equally knowledgeable (or unknowledgeable).
> Some problems cannot be solved, because stake-holders cannot agree on the definition. These problems are called wicked, but sometimes they can be tamed.
> Solving simple problems may lead to improvement—but not innovation. For innovation, we need to re-frame wicked problems.
> Because one person cannot possibly remember or keep track of all the variables (of both existing and desired states) in a wicked problem, taming wicked problems requires many people.
> These people have to talk to each other; they have to deliberate; they have to argue.
> To tame a wicked problem, they have to agree on goals and actions for reaching them. This requires knowledge about actions, not just facts.
> Science is concerned with factual knowledge (what-is); design is concerned with instrumental knowledge (how what-is relates to what-ought-to-be), how actions can meet goals.
> The process of argumentation is the key and perhaps the only method of taming wicked problems.
> This process is political.
> Design is political.
> (Rith and Dubberly 2007, p. 73)

Still absent from the education of most designers in 2013, is the challenge to critically assess the broader context within which the design activity is undertaken, to develop methodologies derived from personally relevant values and to seek opportunities to contribute to the work of collaborative multidisciplinary teams; learning to research, then facilitate effective communication through the design process.

This paper characterizes some of the cultural impediments still facing design programs in the United States that seek to negotiate alternate routes for designers, and presents projects from the Design Program at University of Texas at Austin, that serve as experiments in reorientation of values aimed at a thoughtful reconfiguration of design practice in Texas.

A Complicated Context

Tim Jackson a former member of the now defunct UK Sustainable Development Commission - a British Government think-tank - has asserted, “Society is faced with a profound dilemma. To resist growth is to risk economic and social collapse. To pursue it relentlessly is to endanger the ecosystems on which we depend for long-term survival.” (Jackson 2009, p. 193)

Design is situated between these two realities and is uniquely positioned to negotiate possible futures that depolarize and reframe the situation in the hope of offering more positives outcomes.

However, it is a challenge to contextualize for students in America the importance of design research that produces models for a sustainable future when the urgency of

calls to action from elsewhere appear radical, situated alongside an on-going national debate that gives credence to climate change skepticism.

Mitt Romney, the 2012 candidate for President criticized his opponent Barrack Obama, for listing climate change as a primary threat to US national security. While his running mate, Paul Ryan openly called into question the motives of climate change scientists, by suggesting that they intentionally mislead the public undercutting business interests. Perhaps in the wake of Hurricane Sandy, the 2012 storm that wreaked unprecedented but predicted havoc on the North Eastern United States, attitudes and research dollars will shift. But for the present, uncertainty remains and widespread doubt has the effect of maintaining the status quo as the nation asks – 'If climate change is really such a pressing issue, why is our government not saying and doing more about it?' Waiting for a clear directive, citizens divest themselves of personal responsibility and shelve the issue for later, assuming they will be called upon to act at the appropriate time. As a result, action at the governmental, local and personal level has effectively been stalled.

Meanwhile it is business as usual (and shopping as usual) in the United States.

The Du Pont corporation's vice president for safety, health and environment, Paul Tebo, has been credited for creating the term *Sustainable Growth* in order to make sustainable development acceptable to corporate business.

> Growth was very important. I tried sustainability and the business leaders saw it as status quo. I tried sustainable development and they viewed it as environmental sustainability. I tried sustainable business [but] growth is what organizations want – either you're growing or you're not and not growing is not a very good sit. (Holliday, Schmidheiny and Watts 2002, p. 15)

Even though *Life-Cycle-Analysis* (LCA) and *Life-Cycle-Thinking* (LCT) have proven to be effective tools for improving business efficiency, and have profoundly shaped environmental policy within the European Union, in the United States where regulation of business meets with more resistance, the Environmental Protection Agency (EPA) has had more limited capacity to effect change. The Clinton Global Change Initiative (CGI) may indeed have more leverage and is pursuing the idea of more efficient production and shorter supply chains, if not cyclical industrial systems. The CGI annual meeting 2012, Design for Impact, brought Wal-Mart (ASDA in the UK) and IDEO together to discuss, if not propose, solutions that might be advantageous on both environmental and economical levels.

It is apparent that the dilemmas faced by many designers are remarkably similar to those faced by most Western governments. Both are confronted by predictions that climate change will precipitate a contraction of global markets, with immense and negative economic consequences, and both fail to strategize for that eventuality.

As designers and governments question the long-term viability of dependency on market growth, fuelled by practices of design obsolescence and conspicuous consumption, both are faced with the conundrum: how can a reasonable standard of living be sustained, if production and consumption is slowed in order to afford humanity a brighter long-term future?

Designed obsolescence having reached its zenith, and hyper-consumption having transformed artefacts once purchased to last lifetimes into ephemera, we are left with

little to indicate the human endeavour over the past 70-years that is truly trans-generational, except perhaps landfills.

It is within this context that many students ask whether the design field can move beyond being handmaiden of industry and become a useful tool for transforming the understanding of value, and with it the logic of production and consumption, in order to create culturally relevant artefacts within sustainable social and economic systems.

In Italy, the Slow Food and Design movements were able to connect contemporary possibilities for sustainable living with the pre-industrial traditions and practices of that region. Slow movements having utilized traditional Italian methods of production for food and artefacts and have championed the cultural importance of product quality and longevity, while defining a more humane, satisfying and environmentally feasible existence.

As American designers and producers explore alternate modes of operation for the future they are confronted with an absence of such lessons and useful remnants upon which to build; and new ways of practicing seem pitted against the dominant ideology of democratic capitalism and a powerful national mythology that conflates freedom and prosperity with ownership and an accumulation of material goods.

In a country where the economy derives 70% of its earnings from consumption, designers (students) struggle to recognize, challenge or redefine ascribed cultural values, and while international examples are useful, it is individual experiences and personally relevant examples that are instructive when creating the fissures necessary for recreation of lifestyle and design practices in the United States.

Design Education

Precedents within the United States are few, but pro-active design teams led by educators like Samuel Mockbee, founder of Rural Studio with the School of Architecture at Auburn University, David Orr, leader of the proposed Green Arts District with Oberlin College, and Emily Pillot, who leads Project H and its school based sustainable building programs, all provide useful templates for field research in design that grapples with the enormity of the socio-economic and environmental problems at hand. Through addressing actionable items at the local level they have created ‘labs’ to transform small local communities into demonstrable models for sustainable intervention. These examples challenge other educators, students and communities to find ways in which to become engaged while also making the argument that rhyzomatic interventions are the most efficient way to effect large scale transformation quickly; and it certainly beats waiting around for professional organizations, or legislators to take the lead.

Design interventions in the social realm, requiring off-site work are the exception rather than the rule for design education within Universities, as projects that pose awkward questions in the social realm, and that are enacted outside a design studio are often viewed as a liability. In addition, there is a new focus on the vocational aspects of design even within research universities. Long the benchmark of success in technical schools, the value of drafting skills may trump that of broader critical thinking in circumstances where industry funding for research is sought to supplement dwindling resources from public coffers. Such funding often comes with strings attached and has the potential to limit research that does not have recognizable market applications. The fear being that,

> Education, diminished to the level of instrumental functionality, becomes ever more vocational and bonded to supporting the status quo. It produces compliant service-oriented subjects and displaces the essence of learning and, in so doing, erodes our ability to be critical – understood as a facility of judgment able to disclose the work (given and made) so that directional responsibilities can be adopted. (Fry 2002, p. 214)

It is the job of design education in the coming years to safeguard this critical capacity; a project slowly underway.

There is hope in design education, but progress has been astoundingly slow. Randy Swearer, an expert the areas of design, higher education management and strategic planning, led changes in the 1990's that situated design education at University of Texas (UT Austin) and Parson's The New School for Design within a liberal arts and sciences tradition. He restructured both programs and established curricula that introduced common design research and thinking methods in trans-disciplinary studio-based settings. Swearer is currently Provost at Philadelphia University, where design thinking has been introduced into the university-wide curriculum.

Australian design writer and philosopher Cameron Tonkinwise has also been instrumental in developing programs in the United States, at Parson's and at Carnegie Mellon University, with a focus on socially responsive forms of designing, sustainability and dematerialized design. Jamer Hunt recently established a graduate program at Parson's, TransDesign, which is project-based and collaborative and which "incorporates a profound understanding of the ways design transforms social relations". He was also involved in building the Design Criticism curriculum at the School of the Visual Arts in New York, home to the new Products of Design MFA that endevors to search "beyond the mass-produced object, encompassing instructional, interventional, narrative, experiential, and speculative possibilities—all aimed at creating the new types of value that catalyze positive change". Similar objectives inform the Design for Change Center at Stanford University which, as the programs website states is "aimed a directing design thinking towards creating strategic paradigms that bring about rapid change in some the larger problems facing mankind, such as energy, climate change, water and global health".

From the first iteration of the Design Program at UT Austin in 1992, the curriculum has been focused on the collaborative, societal, trans-disciplinary future of the design disciplines. At UT, sustainability, history and theory are integral components of every design studio, a lecture lab format ensures that students synthesize and internalize theoretical and historical concerns as they produce new proposals. Core skills in design are augmented by a curriculum that requires participation in courses across the research campus and collaborative work in the public realm.

The courses

Discussion Lab: Understanding Consequences

A reassessment of disciplinary assumptions through a critical review of past practices is viewed as an essential part of the education process for students at UT. However, in Texas, a seminar style introduction to the history of the industrial revolution and contemporary ideological impediments to ideas like slowing production, product longevity and shortening supply chains, can quickly become politicized and

have a polarizing effect on students; effectively shutting down meaningful debate and limiting capacity for critical reflection on dearly held beliefs.

Through undertaking this series of seemingly innocuous studies, students who lack understanding – critical or otherwise – of mass-production, its precedents or antecedents, learn first hand the values of making one and making one million by producing four spheres through whittling, turning, casting, and finally using software defaults to send the perfect sphere off for automated reproduction, ad infinitum. This exercise develops in the manufacturer (student) a nuanced understanding of worth and consequential value, and it thus creates receptivity, otherwise absent, for identifying and testing new patterns of behavior.

The course explores the values that inform production and consumption from personal to national levels, and affords students an opportunity to experience the thrills and consequences of production methods while learning valuable prototyping skills. This is a lively arena in which divergent perspectives can be aired within the context of a common experience.

Whittling

Sitting together, working and talking, students discuss how satisfying this low-impact process is. Despite sore fingers and slow progress, there is a sense of accomplishment as a sphere slowly emerges from a cube of wood. The discussion turns from how a skillful individual could make a full range of useful artifacts for personal use without much overhead investment, to nostalgia and the 'unrealistic and bourgeois aspirations of William Morris.' Students talk about speed, or lack thereof. They consider perfection, honing skills through experience and a sense of autonomy.

THE ROLE OF THE PERSON IN PRODUCTION:

Students discuss how unusual it is today to fully understand the tool that you use and control an entire process which yields limitless formal possibilities, only bounded by the imagination.

SOCIO-ECONOMIC IMPACT:

How about the idea of frugality; fulfilling basic needs, producing items for your own use, or becoming the 'go-to' person in a community; and exchanging your products with others, for necessary items within, or perhaps outside of a currency system.

ENVIRONMENTAL IMPACT:

This method implies a slower use of materials in a locale allowing opportunities for renewal. This is a world of lower density, more dispersed communities. Slower production methods mean fewer artifacts in circulation, greater likelihood of extended use accompanied by a make-do and mend philosophy. The dominant materials in use at this scale of production are clay, wood and perhaps metal, most of which can be assimilated or reused.

CURRENT RELEVANCE:

The slow food and design movements are focused on limited production of high quality, trans-generational artifacts and using materials native to a region. This way of working has the potential to sustain environment, communities and traditions and to reinsert values compromised by conspicuous consumption and global overproduction.

Lathe

The lathe initiates an oddly symbiotic relationship between body and machine. Students are thrilled with speedy production of a more perfect sphere. They feel empowered. The process is still contingent on their skilfulness, so they retain a sense of satisfaction and ownership. They say that the power and speed supplied by treadle, water or electricity is amazingly 'addictive'. There is some loss of freedom; the fixed axis dictates a very symmetrical outcome for everything, every time and that obviously shapes what can be designed using the process. This feels like progress, but there is agreement that it is informative to know how to whittle and to have other options.

THE ROLE OF THE PERSON IN PRODUCTION:

The lathe is like a prosthetic enhancing human capacity. Repetitive stress injuries are pervasive in communities of lathe workers. We shape the objects, as the process shapes us, to adapt Churchill's comments on architecture.

SOCIO-ECONOMIC IMPACT:

Production is amplified 20-fold (even for beginners!); at first this is thrilling and it appears to be a positive development. Then the conversation turns towards credit in order to buy a lathe. Is this one lathe, or many? What if there are lots? It would lead to massive resource depletion, while quickly flooding regional markets. It would lead to the building of factories and cities. Whole urban infrastructures would grow to house the people who made the things, and supply chain systems would develop to transport raw materials to the factories. Those systems would facilitate trade networks. Energy sources would become an issue at some point, right? And then new sources for raw materials and new markets would need to be secured and defended.

ENVIRONMENTAL IMPACT:

Despite the painfully quick transformation of economies and ways of life, huge rewards are evident as the basic standard of living is raised for many. The rapid depletion of national resources on the local, regional, and then global level even seems to be feasible and justifiable. It looks like this system may have the potential to benefit everyone in the long run.

CURRENT RELEVANCE:

The on-going hunt for cheap labor, natural resources and energy resources leads to global inequity and conflicts.

Casting

The mold-making process is compelling, but the cast is only as good as the original. It takes planning and skill to make an effective mold, which is expensive. The process is rapid, but replicated forms and components require clean-up, removing traces of sprues, mold seams, then perhaps attaching components to one another, before finishing, polishing, dipping, painting, chroming. The expense of the mold has the tendency to limit the range of forms in produced and when the number of standardized units in circulation exceeds demand markets can stagnate. Styling and designed obsolescence are a logical consequence of this process.

THE ROLE OF THE PERSON IN PRODUCTION:

Designing the mold becomes the most inventive moment in the process, so those who assemble and finish have discrete assignments and only see fragments of the

whole. The discussion turns to Ford's assembly line and its social or psychological impact on the worker. There is a sense that the assembly line breached the final link with the skilled artisan and decreased worker satisfaction, but this sacrifice for the sake of efficiency might still be a good thing.

SOCIO-ECONOMIC IMPACT:

Casting (and other automated processes) yields a relatively cheap, crude product, but the process is fast, not very labor intensive and it does not require a very skilled (educated) labor force. Metal, glass and finally plastic products become pervasive as supplies wood dwindle and become more expensive.

ENVIRONMENTAL IMPACT:

Material throughput and energy consumption (coal) rise as industry uses smelting to extract metal and molten metal is cast. By-products are toxic and voluminous on an industrial scale – disposal is at first haphazard. In the post-WW2 period, plastics take off; a cheap renewable material stream, a petroleum by-product whose use forms a closed loop production system of a kind. Fossil fuels are the main source of energy for production, it is recognized that pollutants released as a result of extraction are problematic to health, environment and national security. Nuclear energy emerges.

CURRENT RELEVANCE:

Increased automation, production and consumption yield decreased worker/citizen engagement, human redundancy, and a frantic search for new or renewable materials, and energy streams. There are clear signs that most social, biological and technological systems are being pushed to their limits in order to maximize output for economic gain.

3D Printing (and continuous production)

All those earlier struggles with perfection of form! Now idiosyncrasies and mistakes are a thing of the past. A sphere is one of the easiest objects to generate using 3-D rendering software. No need to build it, there is a default tool that can create most basic geometries. Generate, then send the file to a 3D printer next-door, or halfway across the planet. That was easy, command PRINT and voila. Everyone is thrilled, it's so easy; it's magical!

THE ROLE OF THE PERSON IN PRODUCTION:

A person makes a Stereo Lithography file translating an idea into a digital form. A nuanced translation might occur if designer and renderer talk, but if they are not the same person or even in the same country so cohesion is a challenge. Software defaults and the limitations of industrial processes limit the scope of the form. If the designer only knew the processes more comprehensively, if only experiments and prototyping were not prohibitively expensive invention might occur. Material choices and formal decisions are dictated by economic viability given the anticipated lifespan of the artifact. Product longevity is an unknown quantity and a business liability. Designers become voyeurs and somewhat redundant. The design and production process is fragmented, unrelated people working on loosely related components of an unwieldy global project.

SOCIO-ECONOMIC IMPACT:

The designer becomes dislocated from the place and processes of production. Experimentation becomes less likely as those who are able to challenge production assumptions through experience and contextual knowledge become fewer. A

generation of designers who lack production know-how, or hands-on prototyping experience tend to replicate more than they invent, severely limiting the transformative capacity of design. Goods are not always economically available to those who produce them.

ENVIRONMENTAL IMPACT:

Circuitous supply chains lead to higher carbon footprints for commodities, but it's cheaper than local production. Outsourcing often leads to production in countries with poor working conditions and compensation for labor, and lax health, safety and environmental regulations. Small-scale garage manufacturing enterprises are on the rise, but environmental regulation on these operations is non-existent.

CURRENT RELEVANCE:

Lower labor and material costs elsewhere push industry to pursue fabrication abroad. Large-scale manufacturing industries are scarce in first world, so what option is there? Energy use for transportation is high. Obama's vocational education plan initiates a conversation about creating a new cadre of localized, skilled labor in America, this could be a means of over-coming mass unemployment and apathy; engaging the population and fostering sustainable communities.

Students reference a recent New York Times commentary which observes that:

> Ask the administration or the Republicans or most academics why America needs more manufacturing, and they respond that manufacturing spawns innovation, brings down the trade deficit, strengthens the dollar, generates jobs, arms the military and kindles a recovery from recession. But rarely, if ever, do they publicly take the argument a step further, asserting that a growing manufacturing sector encourages craftsmanship and that craftsmanship is, if not a birth-right, then a vital ingredient of the American self-image as a can-do, inventive, we-can-make-anything people. (Uchitelle 2012)

After experiencing the amazing achievements of the Industrial Revolution, it is time to reflect on its negative consequences, its failures, its legacy and how this history might inform the future.

> Dear Brothers and sisters in Apollo, why don't you like to speak of your defeats? Perhaps you're so ashamed of them? But I can reassure you. Of all the things you have entrusted to me the most interesting were the flops. Why not tell me yours? You understand that such an exercise would be not only exiting and interesting but also entertaining and informative – The culture of success and everything around us soon disappears, but failures linger a long time in the memory. Failures show you the conditions they were produced in, methods and usages, and can help the unskillful to see the minefields they will have to cross. (Enzensberger 2011)

CATTt (Research Determined by Personal Values)

The CATTt manifesto functions as a useful method for testing values derived during the previous project, and for specifying a research territory. By appropriating *CATTt*, a generative tool originally intended for literary application, students are guided step-by-step through the process of defining a starting point for a semester-long critical design project.

CATTt (manifesto, Ulmer, 1991)
C= Contrast (opposition, inversion, differentiation)

A= Analogy (figureation, displacement)
T= Theory (repetition, literalization)
T=Target (application, Purpose)
T= Tale (secondary elaboration, representability)
(Ulmer 1994, p. 8)

The manifesto requires a confident affirmation of an opinion as exemplified by one student's position, "I think Facebook selling my personal information without mexplicit permission is wrong" which lead to recognition of the broader implications of this condition: "I am opposed to the commodification of my personal identity in the virtual realm." The next step is an analysis of the methods used by Facebook and other online entities to commodify their users' information. When the method is fully understood it is easier to describe what opposition to the problem might be and to clearly specify counter-methods. The first three steps of the manifesto clarify an argument for behaving and designing in a very deliberate way based on personally defined values. The target phase requires that parameters be drawn and a specific context be identified for the design project. Finally, tale allows for the elaboration of a future design scenario, a first draft that demonstrates the potential impact of newly defined values and design behaviours.

This years proposals ranged from: an K-12 evaluation method for introduction into the public education system, designed to educate future citizens while instilling self-determination, autonomy and ownership of the process, a strategy standing in stark contrast to outcomes derived from standardized testing and learning by rote; a range of social interventions designed to forge stronger communities capable of regaining control of everyday life from the drug cartels in Monterrey, Mexico; a project confronting the predominantly masculine workspace, content and visual language associated with digital game development, while questioning cultural assumptions embedded in common responses to pink and the "girly aesthetic."

This experimental process affords students great latitude and has also yielded concepts that debate the plausibility of fully automated factory, that is regional, carbon zero and uses a robotic production system for sustainably processing organically grown fibers that would afford unprecedented amounts of leisure time while maintaining standards of living for the community; more familiar urban farming scenarios that propose sustainable and fully networked communities using local exchange and trading systems; and critical design proposals that integrate regional climate change data into development proposals in order to forecast future local needs.

Projects aimed at reconfiguring values that affect how the design project is conceived are pivotal at all levels in the curriculum and augment a range of projects that focus on designing very specific artefacts, services and systems. In the undergraduate curriculum many projects also occupy a more familiar disciplinary territory and focus on the design of objects and interactions.

Better Things (Ethics and Designed Obsolescence)

If we design and produce considering materials and energy as finite resources, product longevity becomes a priority, and quality of the artefact trumps quantities of cheap throwaway stuff. If we carefully and cleanly produce what we need and design things to last lifetimes, we can interrupt the cycle of waste.

WHAT IS PRODUCT LONGEVITY AND WHAT DETERMINES QUALITY?

It is: an item that can be useful for long enough to validate the cost of its production, at very least. This does not relate to the cost in terms of the loan you took out to buy it, but the cost as determined by Life-Cycle-Analysis, or carbon accounting, which estimates the total carbon dioxide equivalents emitted at every step of the process that led to the artifact arriving at your door – and then some. For example the carbon footprint of a laptop computer suggests it should be functional for 11-years, however, it is generally acknowledged that the industry falls short on this by about 7-years; the reason for this being more economic and fashion driven than technical, given that the hardware is light enough to suffice, it would be totally viable to upgrade software and exchange internal components.

It is: an item that has a deeply rooted cultural meaning enabling its insertion into the rituals of everyday life and ensuring its more permanent status. A fine set of cutlery, a tea pot, a pen, a chair – these items regularly make their way from one generation to the next, some only imbued with personal histories, but many also having a current utility or purpose that ensures they are both treasured and used.

It is: any artifact that is kept because it works well, feels good to the touch, cooks evenly, is weighted perfectly; is familiar, comforting, reliable and even elegant; it is a thing of beauty that we will never replace. These things are by nature more expensive, they are the things grandparents saved for and only a few could buy on a whim before the advent of the debt economy. Elitist? Perhaps that could be argued, but if we keep producing cheap plastic crap in the name of democracy that leaves us with a very serious problem.

This project starts with a life-cylce analysis of two small domestic items, one of which is assumed to have a short lifespan and one that might qualify as trans-generational. This process introduces LCA and tests assumptions about artifacts, materials and mechanisms. It situates the conversation about quality and longevity, and provides a platform upon which to build a design that might achieve trans-generational status. This might lead to proposals to extend the life of existing materials, or durable mechanisms, or research into renewable materials for a sustainable throw-away society, or new forms that support longevity on a whole variety of practical and psychological levels.

Outcomes range from a systematization of reuse, using materials with no inherent resale value and huge landfill potential (bike tire inner tubes, or swivel chair bases), to create small, local 'factories' for the production of new furnishings; to BeLeaf, a plant-based recyclable tableware system; to more polemic solutions that question the nature of gift giving – by proposing a gift that takes the form of a *derive* handbook designed to help friends spend a day of discovery together.

Networks: University-wide and regional

The German Government's Advisory Council on Global Change (WBGU) issued a Social Contract for Sustainability in 2011, framed in a recent tweet from John Thackara as "A 400-page how-to plan from Germany's most prestigious scientific institutions for a 'Great Transformation'." (Thackara, 2012)

WBGU puts the socio-economic consequences of climate change center stage, poses difficult questions and proposes ways forward by challenging citizens to transform personal value systems, while outlining why good intentions frequently fail. WBGU report also considers the possibilities of completely circular industrial economies that are restorative and in which material flows are classified as either,

biological nutrients that can re-enter the ecosystem safely, or are technical nutrients designed to circulate at high quality without the waste.

McDonough & Braungart have argued a for a circular

> cradle-to-cradle strategy [that] allows us to see our designs as delightful expressions of creativity, as life-support systems in harmony with energy flows, human souls, and other living things. When that becomes the hallmark of productive economies, consumption itself will have been transformed. (McDonough & Braungart)

It is within this frame students consider the impact that a trans-generational, or longevity requirement might have on the on production methods, material choices and even the proximity of production to communities utilizing the items. It will also have an impact on the types and numbers of artifacts produced, not to mention economic systems.

Projects which foster strategies for creating networks and which introduce, as Ezio Manzini frames it, "sustainable social innovation that is – small, local, open and connected," are crucial to the future of both design education and regional development. A seedling network is presently being cultivated at the UT Austin campus, where colleagues in Textiles, Environmental Science, Biology, Agriculture, Human Ecology are congregating around a project alongside colleagues from Design, Urban Planning, Social Work, Education and elsewhere.

The project, which is in the planning stage, is designed to test the possibility of applying the idea of product longevity to a typically ephemeral commodity – clothing – and exploring possibilities for a regional system for making climate appropriate clothing for Texas. As students move forward focused on designing clothing that is suitable for the region, breeches the fashion-system and positively impacts Texas on an environmental, social, economic and political level, there is a realization that to reduce the carbon footprint of artifacts, regional supply chains need to be improved, and networks of production and distribution need to be reconsidered. Local plant-based dyes make sense, building communities of local skilled labourers and designing curricula for training schemes would be a necessity; research regarding the environmental consequences of different scales of textiles processing, and farming fiber-yielding plants will be necessary; and so the project and its contributors could grow exponentially.

We know that Alpaca and goat farms, and organic cotton growers already produce raw materials locally, and that the Alpaca and goat wool is hand treated and spun, finding its way into the craft networks. Bamboo production for textiles does not yet factor for textile production in the region and the cotton that is grown in Texas is shipped to the East Coast for processing and weaving into cotton jersey, then returned to Texas to be made into t-shirts and bags. The big Texas textile mills closed in the late 1960's and production moved to other states, Vietnam, and then Mexico. Perhaps this is an impediment to production, or perhaps testing could happen on a smaller scale locally, while a full range of options are explored.

The goal of the project is to bring together faculty (and students) with academic expertise and work with growers, spinners, weavers, tailors, hobbyists and former textile workers (often Mexican immigrants) who contribute experiential and tacit knowledge, to produce a collection of garments that are locally sourced, and designed for life along the 30th parallel. In the process research into the feasibility of regional textiles production will be developed and presented. Students may also find ways to

insert themselves into the politics of development and become more actively engaged in issues pertaining to Texas agriculture, local production, environmental policy, trade training and business.

Slow progress is being made in design education, but mandates like the "Designers Accord" published by Icograda in 2011 (http://edutoolkit.designersaccord.org) and the growing number programs interspersed across the country indicate that change is gaining momentum.

Design is becoming engaged in the work of demonstrating alternate models to unsustainable ways of doing and living. As Tim Jackson suggests:

> Progress relies crucially on the construction of credible alternatives. The task is to create real capabilities for people to flourish in less materialistic ways. At a societal scale, this means re-investing in those capabilities: physically, financially and emotionally. In particular, we need to revitalize the notion of public goods. To renew our sense of public space, of public institutions, of common purpose. To invest money and time in shared goals, assets and infrastructures. (Jackson 2009 p. 193)

We believe that students who have experienced working in collaborative teams, have an understanding of what it takes to activate social networks, and have questioned the idea of economic growth in order to determine new positions from which to practice design, will ultimately be able to insert themselves into industry, non-profits and politics, effecting incremental change through communal or independent action.

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