

DYSFUNCTION, DECONSTRUCTION & RECONSTRUCTION: EXPLORING SUSTAINABLE THINKING THROUGH DESIGN MAKING

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ABSTRACT

In this paper the authors describe an environmental design project, entitled *Deconstruct Reconstruct*, supported recently by SEPA, (*Scottish Environmental Protection Agency*), and SeDa, (*Scottish Ecological Design Association*), [1] which offers engineering, product and other design educators, insights into sustainable workshop techniques developed over a nine year period. The workshops reflect an anti-consumerist attitude toward the reworking of discarded products. The authors describe the project rationale, and illustrate how it embodies sustainable values, (rather than 'green-gloss'). The workshop utilizes discarded, dysfunctional, and often fully functioning products from local waste streams and recycling centers. The authors contend that in order to comprehend global and sustainable contexts, and aspire to become what Kelly describes as true *globo-sapiens*, [2] local contexts need to be experienced first. The authors speculate whether traditional design sketching becomes redundant during this intuitive re-making process, and explore whether a 'linear' design process could be enriched, by embracing a much more non-linear and fluid creative process common to artists, but often missing from design education. This workshop allows students to establish a philosophical position within the difficult terrain of sustainability. *Deconstruct Reconstruct* challenges academic orthodoxy, in particular the rationalist mode of learning common in universities. Complimenting this with holistic learning, [3], experience prototyping, [4] and a play ethic [5], as valued alternative approaches which can enrich design and allow us to rethink our relationship with products, function and waste. *Deconstruct Reconstruct* provokes 'meta cognitive' thinking-about-thinking on sustainability, and transforms learners horizons from disciplinary toward global perspectives. The project represents a type of sustainable activism, and meets aspects of the Eco Pluralist Manifesto [6]. *Deconstruct Reconstruct* is part of a rich and provocative history of recycling, re-making and rethinking our relationships with objects and how we create, cherish, discard and then re-create products. Finally, the authors reinforce the transferable potential of this project to other disciplines, and discuss new sustainable initiatives.

Keywords: *globo-sapiens*, deconstructing, reconstructing, holistic, eco-pluralist

1 INTRODUCTION

Design is sexy. Waste is not! Sustainability is not merely an issue, but represents 'the' only issue affecting design and the planet. Baxter [18] reminds us that society needs to move beyond a culture of affluence towards a more creatively global society. Affluence is not a guarantee of happiness. But how do we win the hearts and minds of design students when conscious of the scale of the problem? How do we embed sustainability within design education? How can educators engage intelligently with sustainability given the saturated educational market we exist within? Pressures on resources, increasing student numbers, reduced teaching time, decreases in staff, impact on how and what we teach? However, the authors suggest that not all disciplines need to

respond to sustainability with the same intensity, scope or direction. Disciplines across the sector, (Engineering, Product, Painting to Poetry), will have their natural limits of engagement. We might define this as ‘a sustainable spectrum of engagement’, [10], but deepest engagement (eg. Engineering perhaps), need not necessarily diminish alternative or other experimental methods. What may appear ‘superficial green gloss’ may carry equal legitimacy, resonating at a different design frequency within a sustainable spectrum. Figure 1 shows examples of the *Deconstruct Reconstruct* sustainable spectrum undertaken at year one in Dundee over nine years. Re-working, re-appropriating and resurrecting products, for some, may imply a form of casual customization which may seem mean spirited rather than generous to our environment. However recycling is as paradoxical as sustainability is complex. Waste can appear superficially worthless only to evolve into design classics, as in Boontje & Woffenden’s tranSglass collection, or evolve into an exclusive art object, as in Remy’s Rag Chair. Waste may become politicized media, as in Lucy Orta’s *All In One Basket*, or refer to urban homelessness defined by Maria Cecilia Loschiavo dos Santos, [7]. This latter example allows the socially excluded to exclude design industries. This paper explores one approach which integrates sustainable values directly into design thinking in first year, through the inventive re-working of dysfunctional, unloved & abandoned, broken waste products, materials and artefacts from local waste streams.



Figure 1 ‘Tube-Light’, made from waste hose and LED’s; ‘Chairz’, constructed from beech school chairs and transformed into one domestic seat; and ‘Trolley Dolly’, a rescued supermarket trolley is fused with a PVC upholstered seat. Trolley’s recur as a motif in recycling, often discarded in areas adjacent to supermarkets.

2 LEARNING THROUGH RE-DOING

Deconstruct Reconstruct has been the result of an on-going process, developed over a nine year period, and represents a form of environmental and educational activism. The process embraces haptic, intuitive, and low fidelity modes of design learning, through *remaking* and *redoing*, and echoing Daniel Weil’s view, that we learn to design through making. During the process, student’s source discarded objects from local waste streams and recycling centers, which are then transported to the workshop. Following an intensive 10 day / 4 week period, sourced objects are intuitively deconstructed and gradually reconstructed into a new product. The project incorporates traces of the objects original history, which is embedded within the reworked object. A wardrobe, for example, evolves into a throne, but the keyhole from the original wardrobe door remains as a legacy of its previous life, echoing what Badke & Walker described as the cultural meaning of products, [8]. *Deconstruct Reconstruct* represents a form of emotive *remaking* where students may also embed personal themes into their objects. Discarded suitcases morph into symbolic containers representing the transition and separation from home to university. Other examples use the project as a vehicle in which to depict their learning experience as a metaphorical journey. The project represents one approach that enriches teaching and critical thinking within a sustainable framework and brings an ethical dimension into design learning, and allows us to question whether consumerist

values, rather than sustainable ideals, drive design learner's and user's expectations of those disciplines? Working within the community, the recycling nature of the task makes economic sense given the increasing pressure for centralized resources within educational institutions. Not all design decisions are rational, therefore establishing an intuitive response reinforces the emotional relationships we forge with products we choose to live with.

3 REVERSING REVERSE ENGINEERING

Found products are *reconstructed* into an exceptionally broad spectrum of tangible 'artefactual products' that physically embody abstract sustainable concepts, in a way that dry objectified data or conventional problem solving may not. Indeed the authors speculate that design cannot really look to 'solve' all sustainable problems, and that the paradigm of design as a problem solving activity has limits. Figure 2 illustrates how *Deconstruct Reconstruct* objects may be fused, (two chairs become one), hybrid products may emerge from the morphing of different contexts, (table + chair morph into a 'Chable'), inverting elements of a dysfunctional stool resolves functional flaws, and the original spatial context may shift, allowing objects to evolve from a recreation environment to residential. Hybrid artefacts may be created which exhibit fuzzy functionality, evocative of cultural probes [9]. Indeed, Barnett speculates that sustainability is itself a fundamentally 'fuzzy' concept [10]. Outcomes in this workshop reflect Kawazami's weird tools, or 'psuedo-products' which have no direct or observable function, but are culturally purposeful and allow us scope to question attitudes toward function. Not all 'useless' design is necessarily a design failure [11]. *Deconstruct Reconstruct* objects may be categorized more as ambiguous artefacts than slick products, but represent a design process that interweaves emotive reactions, sustainability and making. In deconstructing the authors would draw a distinction here between the conventional reverse engineering within product design programmes. The un-building of the object exposes constructional, manufacturing, production and assembly techniques, (in some respects similar to the analytical observations within product design), however, deconstructing opens up possibilities for future forms more reflective of the intuitive processes of sculptors 'feeling' their way toward a creative resolution, but not necessarily seeking a design 'solution'.



Figure 2. 2 Chairs fuse into one; hybrid 'Chable'; Inverted Stool leads to an arguably more elegant form than the original; and Chair-Slide takes a recreational object for the external environment, and re-works it for residential use

4 OWNERSHIP, TRANSMISSIVE TO TRANSFORMATIVE DESIGN

Central to the learning experience of *Deconstruct Reconstruct* is creative and intellectual ownership of the project. Rather than teachers imparting knowledge on their own terms, *Deconstruct Reconstruct* challenges this mechanistic trans-missive, teacher & institutional centered mode of learning, to one of a trans-cultural, trans-formative, and person centered mode of experience. Indeed this analogy of transmissive to transformative learning surfaces within recent debate on the role of sustainability within

higher education. In this context, transforming modes of learning echo the cultural changes that Sterling suggests may lead toward truly sustainable education [12]. Sustainable learning has to be relational, holistic, learner centered, real world & future oriented, critical & systematic, experiential, human scale. Interior's is inherently human in scale, and whilst *Deconstruct Reconstruct* is equally intimate in its scale, it also encapsulates relational, holistic and learner centered values.

5 ARTICULATING & PLAYING WITH ARTEFACTS

Rather than a conventional product prototype common to this conference, this paper uses the experimental medium of open-ended artefacts, (exploratory 'shorthand' for products and process), which allows access into product thinking for disciplines not normally engaged in product design. When design disciplines engage with sustainability it should be without losing sight of that disciplines *raison d'être* by ensuring that core skills, (researching, sourcing, workshop, concepts generation), and subjects are reinforced. *Deconstruct Reconstruct* may appear merely playful, but we should not underestimate the potency of play within design education or research. Play and experimentation can be central themes within interdisciplinary learning, and this is evidenced in both Engineering & Product education [13], and within interdisciplinary design education [14]. Play may imply a lack of rigour, a pretence, or a lack of real-world thinking, but this can be challenged both by the deliberate ambiguity within the cultural probes in the RCA's Equator Project, and the value of the Play Ethic as a counterpoint to a conventional educational approach which reinforces the notion that education should nurture the individual, not the system. *Deconstruct Reconstruct* also helps questions utility, functionality and purpose as dominant markers of product success, but it also reveals an emotional link between people and products i.e., the falling in and out of love with the objects with which we surround ourselves.

6 RECYCLING PRECEDENTS

Deconstruct Reconstruct shares a rich lineage with recycling, from the romantic imagery of Robinson Crusoe, to Tejo Remy's recycled milk bottle chandelier. Simon Starling's recent Turner prize SHED-BOAT-SHED, and Castiglioni's appropriation of a bicycle seat, echoes Duchamp's infamous urinal piece. Gerrit Reitveld, (a founding member of the Dutch *DeStijl* (The Style) movement), salvaged perforated aluminium from a British aircraft in occupied Holland under curfew, to experiment with a lightweight aluminium armchair. Michael Marriot's utilitarian storage unit, using sardine tins and MDF, is indicative of low fidelity design, rather than mass-produced products. During the eighties Product designers were compelled into working on small scale, one-off and limited edition products, often with ad hoc waste materials. The mottled recycled plastic sheeting from Jane Atfield are synonymous with new attitudes to waste, and Tord Boontje's sectioned wine bottles create arguably more elegant vessels than their original purpose demanded. The 'Off-The-Shelf' workshops undertaken at the Architectural Association, in 2001 again underpins the potential for integrating a recycling design ethic alongside off the shelf existing materials into architectural and design education, bringing design theory and practice together [15]. On the extreme edge of the sustainable spectrum is the homeless research into urban living in Sao Paolo, Tokyo and Los Angeles by Maria Cecilia Loschiavo dos Santos. Tomas Maldonado described this as *survival design*, triggered by genuine necessity from those on the margins of society but neglected by design. Lambert's recent research in Tanzania [19] is relevant in this context. The work of Rural Studio & Samuel Mockbee represents the meeting of design with genuine local needs. Michael Hoenes's designs of *tin-can-shacks* in Lesotho utilized soft drinks cans, and is reminiscent of a

previous concept by Heineken to build houses out of indented beer bottles [16]. Within this recycling context, we might argue that Interiors effectively exists to recycle redundant architecture [17].

7 FITTING THE SUSTAINABLE AGENDA?

The breadth of environmental terminology and complexity surrounding sustainability is itself a potential barrier to winning over the hearts and minds of design learner's [6]. Initially the authors did not set out to match any specific facet of eco –design, rather our aims were to promote environmental awareness as a recurring issue from within a discipline, Interiors, normally associated with deeply consumerist values. However *Deconstruct Reconstruct* fits within contemporary environmental thinking, and can be conceptually linked with a philosophy of pragmatism where one mans waste is another mans material. In particular, Faud-Luke's Eco Pluralist Manifesto [10] is relevant to the focus of this paper. Firstly, 'Eco Re Design' (ERD) first coined by the Royal Melbourne Technical Institute, is described as '*...the redesigning of existing products to reduce the environmental impact of one or more components of the product*', secondly, 'Sustainable Product Design' (SPD) is defined as, '*a design philosophy in which products contribute to social and economic well being,...have negligible impacts on the environment and can be produced from a sustainable resource base.*', and thirdly *Deconstruct Reconstruct* may also be categorized with 'End of Life' (EoL) concepts, describing the end of the life of a product and its environmental impact and its potential for '*...disassembly and recycling of components and/or materials*' which are preferable to disposal via landfill or incineration'. Indeed, the authors speculate that *Deconstruct Reconstruct* may come close to meeting eleven out of the fourteen stated points within the *Eco Pluralist Manifesto*. In addition, the workshop provides a springboard within Interior & Environmental Design which leads to other design projects which exhibit similar ethical, sustainable and community inspired dimensions to design learning, Homeless Kiosks, Eco Office, and sustainable furniture from indigenous waste timber.

8 CONCLUSION

As a novel way of engaging students in sustainable, ethical and environmental discussion at a very early stage, *Deconstruct Reconstruct* is transferable across many sectors of education, including those not normally associated with creativity or design.

- *is a form of educational and environmental activism which offers alternative strategies of engagement within sustainability, through rethinking attitudes toward waste, function and our emotional attachment to objects.*
- *is part of a rich lineage of experimental remaking from designers, architects, artists and crafts-persons, but demands engagement with the community, local waste streams and recycling centres as a way into sustainability.*
- *Independent, small group learning, and interdisciplinary approaches are valid*
- *it reflects design practices where one-offs, and limited editions act as counter-points to mass-produced outcomes.*
- *is concerned with process, not product outcomes, and meets the Eco Pluralist Manifesto. Mediating artefacts represent a convenient shorthand for product processes and innovative product concepts.*
- *It reflects more transformative & holistic modes of learning, which can compliment traditional modes of delivery.*

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