SEATS OF LEARNING - A TEMPLATE FOR DESIGN MODELLING

Alex Milton, Ben Hughes

ABSTRACT

This paper presents a novel methodology for participatory design modelling under the title 'My Chair.' This was developed for a series of exhibitions at leading design events in the UK, but through further development, the process has been evolved into a creative tool for design education.

It describes the use of design templates as a teaching tool that enable novice and expert designers alike to sketch, model and build 3D physical representations of design concepts. The paper goes on to discuss the projects' impact and the Design Transformation Group's continued strategies to provoke and promote new thinking in design through symbolic, virtual, physical and scenario modelling.

Keywords: sketch modelling, design templates, archetypes, participation

1   INTRODUCTION

This paper explores the notion of creative design modelling and introduces a recent research project, 'My Chair;' part of an initiative that attempts to engage audiences at 'design events' in creative, playful, physical design activity and creation.

One problem that designers frequently encounter when exhibiting work is how to effectively engage their audience. There is a shifting and often poorly-defined relationship between the creators and consumers of 'design' objects, which might fluctuate between that of a shop, a gallery and a trade show. This is often difficult to navigate for an audience who is more comfortable with consuming art – at a comfortable distance. In the guise of The Design Transformation Group (DTG), the authors have developed a series of events and installations that experiment with the format and presentation of design. [1]

They have deliberately introduced elements into their shows that are intended to draw their audience in and encourage participation and debate. This has led to a series of innovative formats that require a re-negotiation of the relationship between audience and author. These collaborative design installations, such as Claystation, are being continually re-developed, and help to publicly question the future direction of design. They have been heavily influenced by theories of play, which the authors believe are key in the development of creative thought. [2] Whilst these formal exhibition formats have proven highly successful in their aims, an unforeseen by-product has been the ease with which the techniques and processes employed have been successfully adapted for use in design education at all levels.

Following the success of events at Designersblock London in 2003 and 2004, and a subsequent exhibition at the Salone Internazionale Mobile, Milan, in 2005, the DTG found itself with a credible track-record in the curating of participatory events. Early in 2005, therefore, the team was approached by the National Museum of Scotland to create an educational and interactive format that not only provided a link to their hosting of the touring Jerwood Prize for furniture, but that also encouraged visitors to spend time doing, as well as thinking about and looking at, design.

The resulting event invited wannabe Philippe Starcks and Charles Eames to indulge their designer fantasies in the production of individual and unique chairs. The aim was that these visitor-created elements would take inspiration from, and provide a critical backdrop to the 2004 Jerwood Applied Arts Prizewinners on show elsewhere in the Museum. The most prestigious award in the applied and decorative arts, the Jerwood Prize rewards commitment, excellence and innovation in contemporary design. [3]

In their role as design educators, the authors were able to trial their initial concepts for the event, and begin to evolve an educational research tool that would provide the opportunity for both 'novice' and 'expert' participants to visualise, model, exhibit and debate their own designs alongside each other.

2   DESIGN TEMPLATES

The exhibition brief was to create a format where participants of all design abilities would be able to explore, develop and communicate a design proposal for a chair within the context of a interactive gallery installation. The challenge was to provide a template for creative expression whilst simultaneously making the general public aware of the creative design processes undertaken in industry.

The use of templates as an aid to creative design is arguably most apparent in multimedia design and web authoring, where templates form a grid from which to design new documents. This not only saves time, but also allows the novice to bypass some of the technical aspects, which might not be crucial to the production of basic examples. A template may be as simple as a blank page in the desired format and orientation or as elaborate as an almost completed document that only requires the minimum of user-input. In both cases the designer benefits from being able to focus on content rather than becoming lost in programming and formal structure.

The popularity of these tools has had an empowering effect on fostering a new generation of 'novice' designers who are now able to express their ideas autonomously without requiring 'expert' interpretation, and collaboratively through blogs, fan and amateur online communities. The authors felt that they could adopt this democratic creative model for the project, and create a design template that helped users in the design of a chair. .

3   DESIGN ARCHETYPES

The Chair is what might be termed 'culturally mature' in that its archetypal form and aesthetic genres are culturally embedded and clearly recognised by designers and consumers alike. The underlying relationships between a chairs typological form and function have evolved over generations.

"The approximately horizontal platform to sit on and the approximately vertical back to lean against have been resting legs and conferring status for thousands of years. The underlying form is recognisable. It does not need to be decoded. The basic relationship to the body has been essentially constant since the Egyptians." Ralph Ball and Maxine Naylor [4]

Taking this on board, it was clear to the authors that the template should conform to this approximate notion of archetype or typology. The provision of a number of fixed parameters to do with the chair's proportion and structure meant that participants were free from functional and formal concerns, and therefore able to focus on the more interesting expressions of creativity enabled through this exposure of themselves as consumers and designers. This, in turn, provided a forum for the critique of the chairs' cultural values, explored directly through the visual information (sketches and models) contained and associated with participants' designs.

4   SKETCH MODELLING

"Industrial Design is a three-dimensional discipline by definition, but unlike a graphic artist who both conceives and executes designs in two dimensions, the Industrial Designer must shift from a three-dimensional idea to a two-dimensional sketch, and then back to a three-dimensional model." Dick Powell [5]

Both sketching and sketch-modelling retain their status as significant elements of a 'toolbox' of skills for designers working in three dimensions. Despite a popular perception of design being a 100% virtual process, rough sketches on paper remain as widespread as CAD in current product design practice. [6] It has been argued that sketching is important in designing, as it facilitates visual discovery, mainly through the supporting complex figure and form 'restructuring.' [7] Sketching provides visual external references, which enhance communication and clarification of design ideas to others and to the designers themselves. [8]

While the authors felt that the use of sketching could be justified academically, and on the additional practical grounds of low-cost, availability and immediacy, it was felt that one could not overlook the well established limitations in tackling 3D design purely through sketching. The sense of engagement provided by models has been shown to be qualitatively different to that provided by drawings. Since the perceptual experience of a physical three-dimensional object is substantially different to the perception of a 2D representation of that object, modelling activates a different set of skill which the authors were keen to foster during the event.

This presented a number of issues to address, such as the relationship between two-dimensional and three-dimensional forms and the difficulties that students tend to experience in making the transition between the two. [9] Research has shown how students with no prior formal design education rarely possess the necessary skills to represent in two-dimensional form an object, which will eventually be made using three-dimensional materials [10]. This issue is compounded by the inevitable mismatch between a student's creative abilities and their representational skills. [11]

The construction of 3D physical models has some well established tangible advantages for designers. Most notably enabling novice designers and experts alike to visualise design concepts, communicate complex ideas, stimulate creativity and aid design understanding. [12]

5   IDEA INTO REALITY

To address these issues, the authors and the DTG design team of Lea Lagasse, Tom Gray and Diego Bello developed a card template that successfully linked the notion of design for three-dimensional form through the projection of two-dimensional images. In order to be effective, the template needed to make use the formal and semantic opportunities afforded by archetypes to enable participants to create 3D designs through the medium of 2d sketching. In addition, the form and construction needed to be sufficiently straightforward to enable the widest number of people to participate without extensive instruction or demonstration.
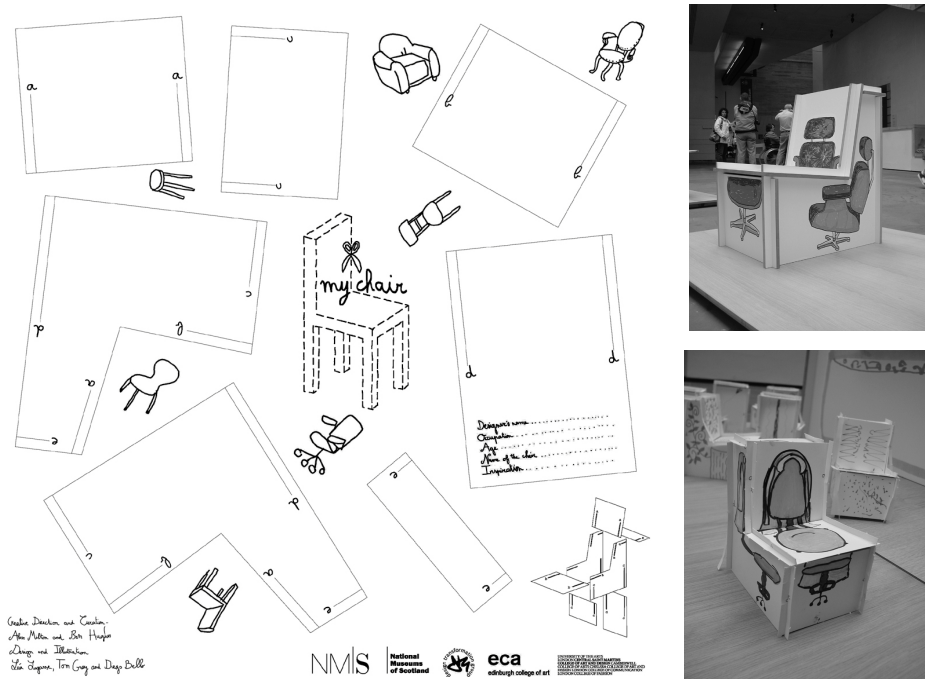

Figure 1. My Chair Card Template, My Chair Full Size Demonstration Model Illustrated with Classic Eames Design and Participants Concept for an Office Chair

The resulting template aimed to enable participants to create designs that were free from structural or conceptual limitations. The design consciously avoided engineering drawing conventions such as orthographic and pictorial projections, but rather drew inspiration from traditional childhood card models. The slot and tab construction method, and hand drawn illustrations were deliberately designed to evoke childhood memories and a 'Can-Do' spirit of inclusivity. It was vital to the success of the project that the task was not perceived as 'technical,' 'time-consuming,' 'skillful,' or 'designerly,' in any way.

Trials were undertaken prior to the event to fine tune the design template and ensure that participants would be comfortable with the process that had them first drawing their own scale model of a chair, and then pressing-out and assembling the card to create their own free-standing object. The Museum expected hundreds of visitors a day to participate and an average turnover of one design concept every 10-15 minutes. In order to facilitate this, the decision was taken to employ full-size demonstration models and visuals to help communicate the design process (See Figure 1).

6   DESIGN EVALUATION AND DISSEMINATION

The final 'My Chair' gallery installation for the National Museum of Scotland consisted of a set of six full-size knock-down flat-pack chairs. Four of these carried graphics depicting either 'classic' or 'amateur' chair designs, displayed alongside both a 'dismantled' version and an 'exploded' version.

Inspired by the short-listed designers; Azumi, Tom Dixon, El Ultimo Grito, Jim Partridge and, the winners, Barber Osgerby, members of the public were invited to realise their own chair designs on miniature cardboard copies of the full-size chairs. The DTG handed out a die-cut press-out version of the chairs as a blank canvas onto which participants were free to explore their interpretation of what a chair might be. Each of these was photographed and displayed alongside the full size models and those of leading professional designers, creating a series of dialogues: between the designer and consumer, the iconic and the personal, the Jerwood Prize and the audience.

The exhibition saw a wide range of visitors in terms of age, race, gender, socio-cultural background and, it has to be said, design ability. Whilst the majority of participants to 'My Chair' were in the age range 5-17, this was by no means exclusive, and in most cases, parents and grandparents needed little encouragement to take part. This provided a particularly useful insight for the organizers, in that previous events had been directed at a more specialist audience, generally with a relatively sophisticated understanding of design and creative practice.

Over the course of the exhibition over 500 people created chair designs. All were recorded photographically, and compiled in an animated film, which has subsequently been screened at events in both London and Milan. Participants were drawn into the creative narrative, creating a critical mass of designs that questioned the notion of the 'chair' as a cultural archetype. The event garnered positive reviews in the design press [13,14], and the authors were subsequently invited to reprise the event at Designersblock 2005 and the Milan Furniture Fair 2006 [15], where all the designs produced by novices and experts alike during all the events were successfully exhibited.

My Chair did not aim to merely present a unitary vision of the chair; rather it hoped to develop a template for creative expression, which could be adopted in educational environments. Analysis of the events showed that the combination of 3D modelling and 2D sketching was central to their success. The authors are continuing to develop the methodology through creative workshops with novice undergraduate and postgraduate designers and engineers. Further information on the project can be found at www.claystation.org

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CONTACT INFORMATION
Alex Milton
Head of Furniture, Product and Interior Design
Edinburgh College of Art, Lauriston Place, Edinburgh, EH3 9DF
T: +44 (0)131 221 6132   E: a.milton@eca.ac.uk   URL: www.alexmilton.co.uk

Ben Hughes
Course Director, MA Industrial Design
Central Saint Martins College of Art and Design, University of the Arts London, Southampton Row, London WC1B 4AP
T:+44 (0)207 514 7111   E: b.hughes@csm.arts.ac.uk