

# SEATS OF LEARNING - A TEMPLATE FOR DESIGN MODELLING

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## ABSTRACT

This paper critically analyses and presents the participatory design modelling methodologies developed for a series of exhibitions at leading design institutions and events entitled 'My Chair', and their use as a creative tool for design education within the realm of public design exhibitions and the design curriculum.

It describes the use of design templates as a teaching tool that could 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 Groups 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 attempts to explore the notion of creative design modelling and introduce 'My Chair', a project that attempts to engage audiences for design in creative, playful, physical design activity and creation.

One of the problems of the designer is how to effectively engage their audience, who are often more comfortable with consuming design in the same way as 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. Creating collaborative design installations such as Claystation that are in the process of constant reinvention, pioneering the interests of the participants whose designs they exhibit, and publicly questioning 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] Techniques and processes devised for these formats have been successfully employed in design education at all levels.

Following the success of events at Designers Block 2003 and 2004, and at the Milan Furniture Fair at 2005, the DTG was invited by the National Museum of Scotland to create an educational and interactive new device for encouraging visitors to get involved in design, rather than just looking.

The resulting event invited wannabe Phillippe Starcks to indulge their designer fantasies in the production of new chairs, taking inspiration from the 2004 Jerwood Applied Arts Prizewinners on show at the new Museum of Scotland exhibition space. 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 enable 'novice' and 'expert' participants alike to visualise, model, exhibit and debate their own designs collaboratively.

## **2 DESIGN TEMPLATES**

The exhibition brief was to create a format where participants of all design abilities would be given the opportunity to explore, develop and communicate their own design proposals 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 a template acts as a starting point to design new documents, with the codes for page and typographic layout already in place. A template may be as simple as a blank document in the desired format and orientation or as elaborate as a nearly complete that only requires a small amount of customisation. With the designer focusing 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 'shareware' communities. The authors felt that they could adopt this democratic creative model for the project, and create a design template for Chair Design.

## **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]

Given this, it was clear to the authors that the exhibition should utilise the notion of archetype. Freeing the participants from functional and formal concerns, and instead focusing on the latent expressive possibilities of consumers and designers. Enabling a

formal and critical questioning of the chairs cultural values, explored directly through the visual information (sketches and models) contained and associated with the participant's designs themselves.

#### **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 modelling are still perceived as necessary among designers working with 3D forms. Despite popular perception, rough sketches on paper are 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 modelling and the difficulties that students appear to experience in making the transition between the two. [11] Research has shown how students with no prior formal design education do not have the skills to represent in two-dimensional form an object which will eventually be made using three-dimensional materials [12] (Constable, 1994a). This issue is compounded by the inevitable mismatch between a students' creative abilities and their representational skills. [13]

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. [13] (p.346, Crossing Design Barriers, Model Making Techniques as a Teaching Tool in Product Design Engineering etc)

#### **4 IDEA INTO REALITY**

To address these issues, the authors and the DTG design team of Lea Lagasse, Tom Gray and Diego Bello created a card template for the event. The design had to enable participants to create 3D designs through the medium of 2d sketching, and utilise the formal and semantic opportunities afforded by archetypes.

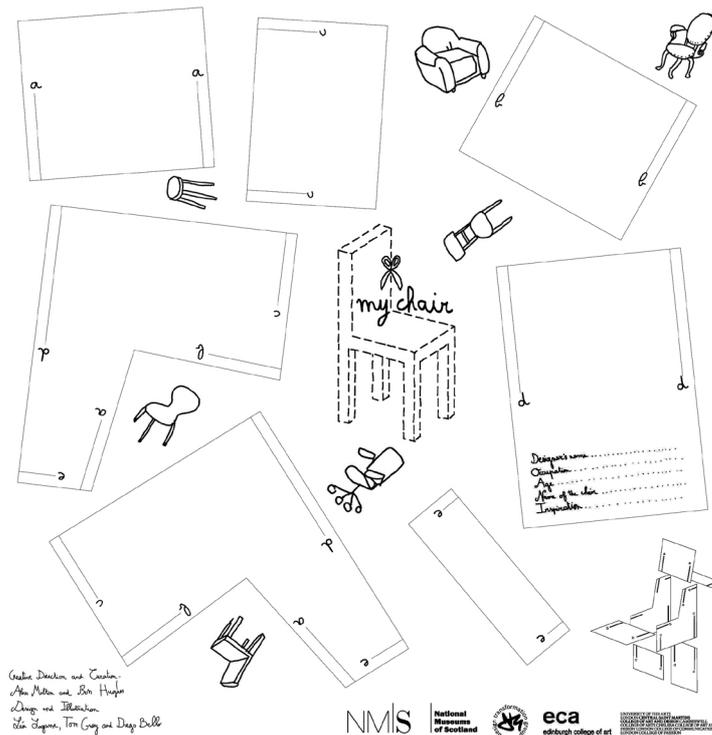


Figure 1. My Chair Card Template

The resulting template aimed to enable participants to create designs that were freed 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 have a 'Blue Peteresque' quality.

Trials were undertaken prior to the event to fine tune the design template and ensure that participants would be able to intuitively draw their own scale model of a chair, and then simply fold and assemble the card to create their very own 3D design. The Museum expected over 1000 visitors a day and an average turnover of design concepts every 10-15 minutes, and the decision was taken to have full size demonstration models and visuals to help communicate the design process.

#### 4 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 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.



*Figure 2. My Chair Full Size Demonstration Model Illustrated with Classic Eames Design and Participants Concept for an Office Chair*

Each of these was photographed and displayed alongside the full size 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.

Over the course of the exhibition over 500 people of all ages and abilities submitted designs. All the designs were recorded in an animation to be shown at future events. Participants were drawn into the creative narrative, creating a critical mass of designs that questioned the notion of the chair. The event garnered positive reviews in the design press, and the authors were subsequently invited to run the event at Designers Block 2005 and the Milan Furniture Fair 2006 [15] where all the designs produced by novices and experts alike were successfully exhibited.

My Chair didn't 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 event 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 projects can be found at [www.claystation.org](http://www.claystation.org).

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