DESIGNER & USER CREATIVITY: PROCESSES, GOALS, LIMITS

An essay on the purpose, function and necessity of creativity in the design process.

CONTENTS.

INTRODUCTION.

Throughout history, flair for creativity has always accompanied the successes of great artists, inventors and cultural icons of the world. If it were not for the creativity of the grand master himself – Leonardo Da Vinci – the modern world would not be the same place we know it to be today. If it were not for creativity to help articulate the skill of individuals in areas such as the arts, engineering, and science, society itself would never grow and develop. Creativity is essential to development and innovation of a product, and too, user and social innovation.

For the simplification and consistency of this paper, we will talk exclusively of the design process for products in particular unless specifically outlined in text or in relation to anecdotal evidence.

PART 1:
THE CREATIVE
PROCESS
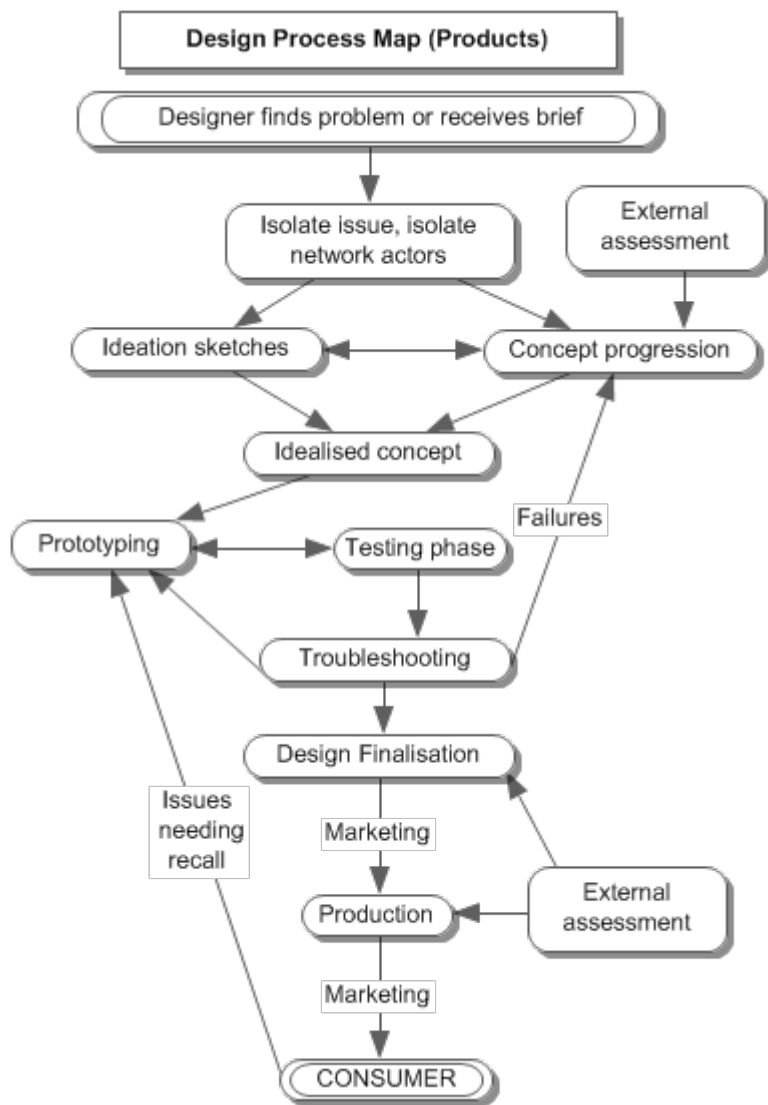# OF DESIGN.

Before the nature of creativity and its links and relations to design are outlined, we must first examine and understand the process of designing itself and what is determined and accepted as exactly necessary to cultivate 'good design'. This section will analyse what design is in essence and what elements combine to form a perfectly articulated representation of good design.

PART 1A:
THE ESSENTIAL STAGES OF EFFICIENT DESIGN PROCESS.

Design as a process can be defined as "purpose or planning that exists behind an action, fact, or object."[1] Design as a term is considered by a designer as the way in which they work, as well as the product of that work.

Although many do believe that design is a circular, ongoing process in relation to the ideation and refinement process, the steps that a designer takes can be simplified down systematically into stages (*diagram i*)[2] that are inclusive and continually considerate of the fundamental principles of good design (section 1b).

The eventual goal of design process is to achieve a refined product (service, system, or a combination of some or all of these elements, as will be further explained in part 3a.)

Design Process Map (Products)

Designer finds problem or receives brief

Isolate issue, isolate network actors

External assessment

Ideation sketches

Concept progression

Idealised concept

Prototyping

Testing phase

Failures

Troubleshooting

Design Finalisation

Issues needing recall

Marketing

Production

External assessment

Marketing

CONSUMER

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PART 1B:
THE FOUNDATIONS OF GOOD DESIGN.

Good-looking design is a highly subjective topic. What an individual considers desirable aesthetically may often be attributed to fashion, taste and many other external influences that may be changing and/or ongoing. However, it can also be said - academically speaking - too, that there is an objective way to measure and quantify how purely 'good' a design – in respects to products and systems – can be.

Known to designers and architects as the *10 Principles of Good Design*[3], it is a go-to reference for what is worth valuing and prioritising as a 'good' designer. This criteria, as selected by renowned and praised designer Dieter Rams, follows as shown in *diagram ii.*

The 10 Principles of Good Design

- Innovation — To be new in some quantifiable degree
- Usefulness — To have some point to its creation, development and curation
- Aesthetic — To maintain beauty in its existence
- Understandable — For the usefulness to be comprehensible and accessible to the user
- Unobtrusive — To be fluid and streamlined in functionality
- Honesty — Demonstrates the true value and ability of the product, nothing more or less
- Long-Lasting — To maintain relevance as well as durability
- Thorough to the Last Detail — To be perfected in all design aspects
- Sustainable — To minimise environmental impact wherever possible
- As little Design as possible — To be succinct, simple and streamlined

PART 2:
THE RELATIONSHIP OF DESIGN AND CREATIVITY.

Although technical drawings and overall functionality of a product may be based in what is considered ultimately scientific and essentially engineering, there is no doubt in any respect that design – good design - is in fact a creative process. This section will define creativity and demonstrate its direct links to design and design process.

PART 2A:
THE CAUSATION AND CULTIVATION OF CREATIVITY.

The history of research into the nature of creativity is almost entirely based from the perspective of psychological analysis. Creativity is agreed to - across academic fields - as being the perfect marriage of value and originality.

It has been analysed by notable figures such as Sigmund Freud, who theorised that creativity could only come from the minds of those who had suffered [4]. Behaviourist schools suggest [5] that creativity can be cultivated within an individual, through the process of creating a stimulus of 'prize vs punishment', which subliminally makes the participant transfer input into a drive to be creative. Gestalt[6] argued that breaking a problem into fundamental logic and re-arranging it would develop what could be considered a creative approach, and to add further depth, Johnson-Laird[7] concluded that in order to have a truly creative outcome, both freedom and constraint needs to be present.

According to widely accepted modern psychological interpretations of the components of creativity to date, the Torrance Tests of Creative Thinking [8] are a way of quantifying an individual's creativity. This is done through a series of questions that measure levels of divergent and convergent thinking (as identified by the Behaviourist school) through categories of: Fluency, Flexibility, Originality and Elaboration. These questions may come in three forms (Verbal tasks using verbal stimuli, verbal tasks using non-verbal stimuli and non-verbal tasks. Some of these categorical measures can also be seen re-interpreted in introspection psychology, such as the definitions of Carl Jung's personality types [9] which draw conclusions on a person's character based on a series of questions.

PART 2B:
THE NECESSITY AND FUNCTION OF CREATIVITY WITHIN DESIGN.

For a designer in order to pursue a personal project or brief they need to be able to innovate – similar to the eventual user – and in order to be innovative, they need to maintain motive (drive) and combine that with their own ability (or, for the user, comprehension). Innovation is the key to successful design as it is the iteration of creativity that directly relates to making a design worthwhile. It is the way a product develops to be worthwhile simply in definition, and so, innovation – and hence creativity - is integral to design practise.

Creativity and playfulness as far as aesthetic goes, especially in 21st century design, has been the source of acclaim for many designers. With the development and accessibility to new technologies and manufacturing techniques, users have been able to witness a revolution of creative expression within functional design.

A key example of this would be the success of design firms such as Droog and Alessi. The former, Droog, known widely for their playful – sometimes childish, sometimes ridiculous – yet always memorable takes on high design culture with creative projects such as the 'Do Hit Chair'[10] by Marjin van der Pol. This piece is essentially a cube of aluminium that the user repeatedly bashes with a mallot until it forms a seat. Alessi is also well known for their playfulness, reputable worldwide for their visual puns and inherently 'fun' products [11]. These directly connect with the aforementioned critical elements of constraint (the product function) and freedom (aesthetic and form), and in turn, also engage with the user to form a relationship built on innovation.

iii Droog's 'Do Hit Chair' by Marjin van der Pol, 2000

iv Alessi's playfullness, 1997 product 'Diabolix' by Cisotti Biaggio

PART 2C:
THE INFLUENCE OF CREATIVE CONSTRAINTS ON DESIGN.

As mentioned earlier – in relation to the exploration of creativity by Johnson-Laird – creative constraints on design are sometimes the most effective way of getting a designer to engage in an innovative process that also incites innovation from the prospective user. This is often seen in the form of a brief or client expectation, however, there are many ways of including creative constraint into the design process without the overarching constant need for revenue within a project.

This harvesting of creativity for the sake of creative output itself can be seen in the art world, with the well-known Surrealist experiments of "The Exquisite Corpse" [12] game for example wherein the participants fold down the part of the drawing that they had been working on behind the canvas and out of view for the next player, with only some lines indicating where the next person is to start drawing, in order to create surreal images. Conceptually (as surrealism is known for) there were no boundaries, but as far as presentation and format, the constraints were able to create some highly unique and considered pieces of collaborative art.
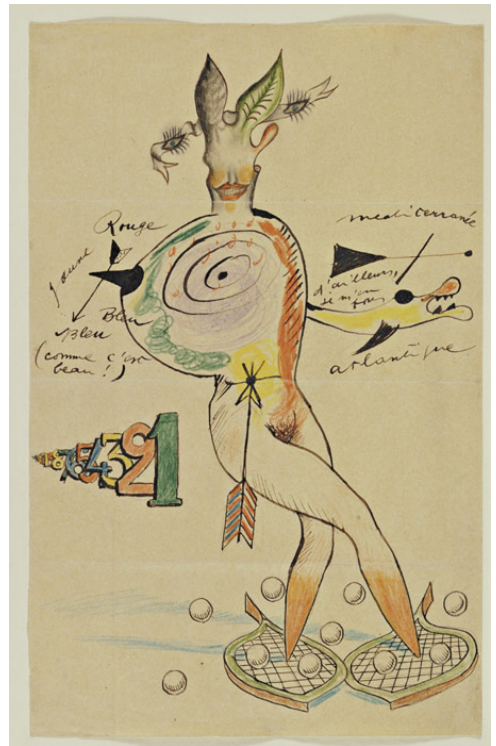
v "Nude" Cadavre Exquis with Yves Tanguy, Joan Miró, Max Morise, Man Ray, 1926, composite

A clear indication of how a designer has harnessed creativity in order to create a product system that articulates creativity within the user can be seen reflected heavily in the work of Delft design student Hans Ruitenburg and his graduation project, titled "Tiny Task" [13].

Tiny task is a system in which a participant receives a set of 'tasks' (pictured, vi) to complete, with a QR code in the back relating to an objective and then record of their 'task' achievement. This also refers back to the merit and reward system seen in the behaviourist school, and encourages the user to interact with the system exponentially through the thrill of point collection and the mystery of an enigmatic task.

Once the participant passes 5 of the 6 tasks, they are sent a new set of 6 in the mail. The development of a creative mind is sure to be aided by a prompt encouraging a user interaction and personal goal setting.

Another notable example of design process being used to curate creativity through constraint is the SIBI project, founded by Roberto Fassone[14].

SIBI is a set of design constraints presented as a game, the potential designer clicks through randomised criterion in order to be presented with a finished paragraph constructed by: Medium (three variables), 'Aboutness' (content – two variables), and title (one variable).

This will then be (hopefully) actualised by the 'player' in the form of a creative, tangible outcome. An example of SIBI constraints can be seen in graphic vii.

vii . Example of the SIBI brief outcome

PART 3:
THE DIRECTION OF CREATIVE DESIGN OUTCOMES.

Design by itself is a particularly broad category, and can refer to many things. When looking at industrial and product design in particular, there is also still quite a large scope of what could be considered a field of design, and what fields could benefit from what is known amongst versed designers as good design.

Although not always apparent, it can be said that the need for design is essential in most fields, and so, to analyse then where creativity and innovation is necessary and/or present is again, not such a particularly small field of reference.

PART 3A:
FIELDS AND RELATIVE PURPOSE OF DESIGN.

As mentioned, the application of industrial design spans many fields and also has crossover with many other design oriented fields. This is demonstrated in the provided chart, viii.

Engineering

INDUSTRIAL DESIGN	CROSS DISCIPLINE
Manufacturing Equipment	Mechanical Engineering
Armed Forces	
Disability Related Equipment	
Medical Supplies	
Service Systems	
Transport	Urban Planning
Sporting / Fitness Equipment	
Digital Entertainment	Architecture
Adult Toy	
	Visual Merchandising
Automotive	Interior Design
Appliance	Web Design
Consumer Electronics	
Exhibition	Fashion
Materials / Textile	Costuming
Toys	
Packaging	
Set Design	Graphics
Furniture	
Props / FX	Concept Art
Ornamental	Illustration

Aesthetic

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PART 3B:
FURTHER TANGENTIAL APPLICATIONS OF CREATIVE DESIGN.

The projected outcomes of design cannot always be accurately measured, as often, in nature, it's a genuinely unprecedented process. However, there can be several case studies referenced in where the 'goodness' of good design has reached even the furthest disciplines and uses beyond the intended designer-and-intended-user interaction system.

A large – but pronounced – presentation of this is within online communities [15], especially of those relating to fan-bases for certain gaming worlds, such as the Warhammer 40k system [16] and White Wolf roleplaying games. As well as specific communities like this, several networks exist for fans of other kinds of products and legacies. Music, television and film, and even art or life styles can be all seen online to have their own network and communities. These communities may often individuals who make a point of re-writing or creating tribute pieces in the form of art, 'fan-fiction' and videos.[17]

This kind of constant network of readily available collaboration of enthusiasts is prone to growth through memetics and what is known as 'tropes' [18] of commonly identified information. A particular example of this quite fascinating approach and reaction to the creator versus consumer dichotomy is openly expressed in what has been coined by online art and comic book circles as "The Hawkeye Initiative".[19]

AS A GUY WHO ENJOYS REALLY GOOD COMIC ART, EVER SINCE I FOUND BLOGS LIKE 'THE HAKWEYE INITIATIVE', 'ESCHER GIRLS' AND COMIC ART CORRECTION BLOGS, I'VE REALLY STARTED TO NOTICE JUST HOW BADLY SOME ARTISTS DRAW PEOPLE, PARTICULARLY WOMEN, IN COMICS. NOW WHENEVER I SEE A 'BOOBS AND BUTTS' POSE OR SIMILAR THINGS, IT SERIOUSLY ANNOYS ME.

SUPER-HERO-CONFESSIONS

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The Hawkeye Initiative (referred to onwards as THI) started as a point of satire online, established in late 2012, and inspired through content viral sharing social media site Tumblr. The website consists specifically of images of Marvel superhero Hawkeye re-drawn into the same – often nonsensical, hyper-sexualised, humiliating, uncomfortable and even physically impossible – physical positions that his female superhero counterparts are often pictured.

Over time, even some professional artists in the field itself have even joined in, further cementing (in often amusing ways) the overall complacent and prevalent sexism that still exists within how women in popular culture are 'bent until they fit'. Although solely artistic in mode of graphic illustration, this example still rings true on the subject of how once a design – whether it be product, graphic, film or otherwise – is released, it will be subject to critique, reinterpretation, consumption and collaboration by users (or fans) in a way that could be considered fair-use, homage, or parody. THI is now commonly referenced by comic fans and feminists alike, after going viral in early 2013.

PART 4:
THE EFFECTS OF A COMPLETED CREATIVE DESIGN OUTCOME.

As the Part 3 explored, the consequences of launching and maintenance of any product, service or system may include backlash and unwanted criticism, along with appeal and acclaim.

Beyond this, a part of this process is also the journey of growth. No product, service or system exists isolated in space and time, and so, all creative outcomes of the design process that encourage some form of innovation are bound to in some ways affect the designer, user, and coincidentally, the observer and general society.

PART 4A:
CREATIVE OUTCOME EFFECTS ON DESIGNER INNOVATION.

The first response that comes to mind when approached with the question "How is a designer affected by their own creative design outcomes?" is usually thoughts on the pride and feeling of accomplishment that is associated with "a job well done". There are these feelings, of course, but as any designer would know, there is always a feeling of need for further developments, further exploration, and further improvements.

The designer however, will eventually be more fulfilled if there is ongoing communication between themselves and the user. [20] This kind of maintenance between the designer and the product or system that they have created is particularly useful for supporting innovation, and the growth of the designer and their practise itself. This kind of approach benefits all parties.

PART 4B:
CREATIVE OUTCOME EFFECTS ON USER INNOVATION.

Many products – even without intentions to – incite creativity out of the user. Particularly seen in new emerging interactive media, there are always ways to customise and enhance the individual's experience. However, too, it can be considered as a struggle (as seen particularly in the Warhammer online universe, referenced earlier in part 3b) for a company to truly connect with a user when all their intentions rely more directly on profit alone.

Using these kinds of consumer-rejection patterns as a basis of reason for improvement, many other brands and companies have however proceeded to do just the opposite. As identified through the work of Takesha Gong and Youjae Yi [21], the core elements of a successful designer-to-user interaction and collaboration, assures their customer maintains these following points:

• Information seeking – to satisfy requests and cognitive needs
• Information sharing – to provide and receive relevant information
• Responsible behaviour – recognising duty as a part of the system
• Peronal interaction – relationship building, customer to employee
• Feedback – constructive criticism from outside the company
• Advocacy – recommendation of business to others
• Helping – assisting other customers and potential customers
• Tolerance – willingness to be patient with shortcomings

It can be argued that once the ability for collaboration is made available with these constraints met as reaction to an inherently caring and responsible company ethic and system, a positive and innovative creative collaboration is sure to ensue; once relationships are built, companies thrive.

PART 4C:
CREATIVE OUTCOME EFFECTS ON THE OBSERVER AND SOCIAL INNOVATION.

An interesting perspective to add, finally, is that of the observer – the individuals (or, alternatively, collective) outside of the design and immediate user circle – and to examine that particular perspective.

The brilliant thing about good design anthropologically is that it has a ripple effect into the lives of people not directly involved with the design itself. [22] Good design affects society on the whole – maybe in small ways, but nevertheless, if a design is inherently creative, that creativity will pass along users until it interacts with someone uninvolved, and has an enlightening effect.

This today can especially be seen with the use of social media where people – who would usually be oblivious to design-world news and developments made in the field – can discover, interact, comment, and ultimately be influenced in ways they could never have otherwise been without the medium of the internet.

SUMMARY.

From this paper, it can be concluded that through design innova-tion and collaboration, the process of designing and consuming can be thoroughly enriched. Without creativity, there cannot be in-novation. Without an established relationship and understanding between designer and user, there cannot be collaboration.

Therefore, without the processes, goals and limits of the design process - combined with creativity, and user collaboration and con-sideration - any design (be it product, service or system) cannot establish itself as truly relevant, and above all innovative.

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