

# **The Object Speaks: Connecting the Post- Optimal Object Design with New Media Arts Discourse**

**A Research Report submitted to the University of the Witwatersrand  
School of Arts, in partial fulfilment of the requirements for the Degree of  
Master of Arts.**

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**Supervised by  
Tegan Bristow**

## **Declaration Page**

**I declare that this is my own unaided work. It is submitted for the degree of Master of Arts at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree of examination in any other university.**

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**February 2010**

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## **Abstract**

### **The Object Speaks: Connecting the Post-Optimal Object Design with New Media Arts Discourse**

This research paper aims to make evident a relationship between Post-Optimal Object design and New Media Art. This objective is approached by reflecting on the respective disciplines' theoretical and practical area of exploration. In Chapter One, the concept of the Post-Optimal Object, which is a proponent of design, is introduced and categorised, in order for it to be discussed in relation to New Media Art. In Chapter Two, three art historical descriptions utilised by Francis Halsall, which include: the dematerialisation of the art object; intermedia; and the post-medium condition, will be used to contextualise New Media Art, and serve towards its discussion with the concept of the Post-Optimal Object. There will also be a contemporary reflection of these two disciplines, which include a genre of New Media Art, referred to as interactive digital installation; and a genre of the concept of the Post-Optimal Object, which is 'responsive'. In support of the proposed arguments of this research paper, four case studies will be utilised for illustrative purposes. In Chapter Three, a New Media Artwork, entitled *Overflow* (2000), by artist Laura Nova, will be discussed in comparison to a Post-Optimal Object case study entitled, *The Technological Dreams Series* (2007), by the design duo, Dunne & Raby. In Chapter Four, two additional case studies will be compared and discussed: *Standards and Double Standards* (2004) by interactive digital artist Rafael Lozano-Hemmer; and *Et Dukkehjem* (2008) by the design duo Rooftwo.

Title Page	1
Declaration Page	2
Acknowledgements	3
Abstract	4
List of Illustrations	7
<b><u>Introduction</u></b>	<b>9</b>
<b><u>Chapter 1: The Concept of the Post-Optimal Object</u></b>	<b>17</b>
1.1. Dunne's Approach to Design	18
1.2. Conceptual and Critical Design	20
1.3. Poetic and Aesthetic Design	21
1.3.1. Aesthetic Experience	21
1.3.2. Terminology Associated to the Post-Optimal Object	23
1.4. Categorisation of the Concept of the Post-Optimal Object	27
1.4.1. Three Categories of the Concept of the Post-Optimal Object	29
1.4.1.1. The Ubiquitous Nature of Technology	30
1.4.1.2. The Dematerialised Object	31
1.4.1.3. The Implications of the User	33
1.5. A 'Responsive' Post-Optimal Design	33
<b><u>CHAPTER 2: The Contextualisation of New Media Art</u></b>	<b>38</b>
2.1. The Development of New Media Art	39
2.2. Systems Aesthetics	42
2.2.1. The Dematerialisation of the Art Object	43
2.2.2. Intermedia	45
2.2.3. The Post-Medium Condition	49

### **CHAPTER 3: New Media Art and the Concept of the Post-Optimal Object**

**54**

3.1. A comparison between New Media Art and the Concept of the Post-Optimal Object	54
3.1.1. The Ubiquitous Nature of Technology	55
3.1.2. The Dematerialised Object	57
3.1.3. The Implications of the User	59
3.2. 'Overflow'	61
3.3. 'The Technological Dreams Series'	64

### **CHAPTER 4: Interactive Digital Installation and A 'Responsive' Post-Optimal Object**

**69**

4.1. Interactive Digital Installation Art	69
4.1.1. New Media Characteristics	72
4.2. Relating the Two Disciplines	75
4.2.1. 'Standards and Double Standards'	76
4.2.2. 'Et Dukkehjem'	77
4.2.3. A Comparison of the Two Works	80

### **CONCLUSION**

**83**

### **LIST OF WORKS CITED**

**88**

## List of Illustrations

**Figure 1. P. 26**

Fig. 2. Num June Paik. *Magnet TV*. 1965, New York/DACS, London. By Peter Moore.

**Figure 2. P. 28**

Dunne & Raby. Still from *Pillow Talk* video. 1997.

**Figure 3. P. 35**

Aoife Ludlow. *Remember to Forget?* 2006, Guldagergaard.

**Figure 4. P. 46**

Alan Kaprow. *18 Happenings in 6 Parts*. 1959, Reuben Gallery, New York.

**Figure 5. P. 62**

Laura Nova. *Overflow*. 2000.

**Figure 6. P. 63**

Laura Nova. *Overflow*. 2000.

**Figure 7. P. 65**

Dunne & Raby. The Technological Dreams Series: no. 1 Robot. 2007. Geneva.

By Per Tingleff

**Figure 8. P. 67**

Dunne & Raby. The Technological Dreams Series: no. 1 Robot. 2007. Geneva. By Per Tingleff

**Figure 9. P. 76**

Rafael Lozano-Hemmer. *Standards and Double Standards*.  
2004, Basel, Switzerland.

**Figure 10. P. 78**

Roofotwo. *Et Dukkehjem*. 2008, Macedonia, Skopje.

**Figure 11. P. 79**

Roofotwo. *Et Dukkehjem*. 2008, Macedonia, Skopje.

## Introduction

This research paper aims to connect the Concept of the Post-Optimal Object, which is a proponent of design, with the aesthetic genre of New Media Art. This connection will be achieved by reflecting on the respective disciplines' theoretical framework and practice, in order to provide evidence of shared similarities. The concept, referred to as the Post-Optimal Object, was coined by Anthony Dunne and introduced in his book, entitled Hertzian Tales: electronic products, aesthetic experiences, and critical design (1999). According to Dunne it refers to a vision of design, which aims for the development of culturally enriching electronic products (Hertzian Tales, xv). The concept of the Post-Optimal Object is also concerned with the social and ethical impact of the development of technological objects (Dunne, Hertzian Tales, xii). These are some of the characteristics, which will be used to illustrate a relationship between the concept of the Post-Optimal Object and New Media Art.

The research agenda of this paper is partially motivated by more recent developments associated with the concept of the Post-Optimal Object, in that it can potentially be 'responsive' and involve sensory mechanisms, dynamic media systems and user participation (John Marshall, 142). One such example is a design installation by Rooftwo, a design duo which comprises of Cezanne Charles and John Marshall. Their work, entitled *Et Dukkehjem*, was exhibited at the 3<sup>rd</sup> Upgrade! International Gathering, in Skopje, Macedonia in 2008, entitled, *Chain Reaction*. This event is associated with the Upgrade! International Community, which is primarily concerned and involved with New Media Arts and culture. In Chapter Four, this work will be compared and discussed in relation to the sub-genre of New Media Art, referred to as interactive digital installation.

An important aspect of Dunne's concept of the Post-Optimal Object is its relationship to design. Dunne rejects many aspects of commercial design and uses the concept of the Post-Optimal Object as a critique towards electronic design. Dunne's concept of the Post-Optimal Object envisions:

...the design of conceptual electronic products as a way of provoking complex and meaningful reflection on the ubiquitous, dematerializing, and intelligent artificial environment we inhabit (Hertzian Tales, xv).

Dunne states that conceptual electronic products may be achieved by the exploration of "metaphysics, poetry, and aesthetics", rather than common commercial trends which aim for developments in "technical and semiotic functionality" (Dunne, Hertzian Tales, 20).

Anthony Dunne, in his conception of the concept of the Post-Optimal Object, utilised fine art extensively. According to Gillian Crampton Smith, in the forward of the book:

*Hertzian Tales* explores a space between fine art and design, showing how designers can use fine-art means - provoking, making ambiguous, making strange - to question how we cohabit with electronic technology and to probe its aesthetic potential (Dunne, Hertzian Tales, ix).

This emphasis on fine art, may relate to Dunne's educational and professional background. Dunne is a professor at the Royal College of Art in London, where he is the head of the Design Interactions Department. He is also partner in the design practice *Dunne and Raby*, with Fiona Raby. This design team emphasises critical design and the concept of the Post-Optimal Object. Dunne and Raby have exhibited and curated internationally; and have works which are now part of the permanent collection of MoMA, New York, the

Victoria and Albert Museum, and the Israel Museum in Jerusalem (Final Human Enhancement programme, 4).

Dunne's background also includes working at Sony Design in Tokyo, and completing a PhD in Computer Related Design at the Royal College of Art (Final Human Enhancement programme, 4). Gillian Crampton Smith explains this development further in her forward to the book, Hertzian Tales (1999 edition):

Initially funded by a generous grant from the Silicon Valley company Interval Research Corporation, the Computer Related Design Research Studio at London's Royal College of Art was founded to investigate how skills and knowledge of artists and designers might be applied to the design of information technology systems and products. Bringing together a variety of perspectives - architecture, industrial and graphic design, psychology, engineering, and fine art - the studio now collaborates on projects with companies and organizations worldwide. This book is the first of several bringing the work of the studio to a wider audience (Dunne, Hertzian Tales, vii).

Dunne's close association with fine arts displaces his vision of commercial design towards a vision of conceptual products. Even though Dunne utilises fine art, he argues that the concept of the Post-Optimal Object is not art, but design which is inspired by art (Dunne and Raby, Critical Design F.A.Q., 3). This will be discussed in more detail in Chapter One and will be accompanied by additional terms that Dunne introduces, such as critical and conceptual design, in support of the concept of the Post Optimal Object.

In Hertzian Tales, Anthony Dunne, however, dismisses the importance of electronic art in his conception of the Post-Optimal Object. In this research paper I will challenge Dunne's dismissal of electronic art, which is an aesthetic

category, now referred under the broad category of New Media Art. According to Dunne, in his development of the concept of the Post-Optimal Object:

Writing on electronic art might seem a good source of ideas on the electronic object, but, surprisingly, electronic art has become so technological-driven that it seems concerned only with the aesthetic expression of technology for its own sake. Rather than relating the impact of technology to everyday life, art criticism in this area glamorizes technology as a source of aesthetic effect to be experienced in galleries. The exceptions tend to be based on electronic systems rather than objects (e.g., in the work of Roy Ascott) (Hertzian Tales, 3).

This excerpt, however, also contains points of departure in challenging this dismissal. Particularly the mention of artist and educator Roy Ascott, who was an important figure in the developmental stages of New Media Art, and influential in the 1960s. In the above excerpt Dunne also highlights electronic systems, which will be investigated in Chapter Two.

An important aspect of the concept of the Post-Optimal Object, despite its affiliation to the design of electronic objects, is its room for technological progression. Dunne acknowledges this in the 2005 preface (second edition of the book), by pointing at more recent technological developments such as Bluetooth, 3G phones, and Wi-Fi, which are an integral part of our current everyday environment (Hertzian Tales, xi). According to Dunne:

Although the technological focus of this book is electronic, I hope that its main argument, that design can be used as a critical medium for reflecting on the cultural, social, and ethical impact of technology, is even more relevant today (Hertzian Tales, xii).

The principals of the concept of the Post-Optimal Object are so well defined that it is possible to relate it to newer technological developments.

At this stage, it is also necessary to clarify what is referred to as New Media Art. In Chapter Two and Four, there will be in-depth discussion on the development and description of New Media Art. The term, New Media Art, is associated to many other art and technological practices. Mark Tribe, in his book New Media Art (2009), provides a comprehensive account of the term:

We locate New Media art as a subset of two broader categories: Art and Technology and Media Art. Art and Technology refers to the practices, such as Electronic Art, Robotic Art and Genomic Art, that involves technologies which are new but not media-related. Media Art includes Video Art, Transmission Art and Experimental Film-Art forms that incorporate media technologies which by the 1990s were no longer new (Tribe, 7).

According to Mark Tribe, around 1994 the term “New Media Art” became increasingly utilised by a large amount of artists, critics and curators, in relation to digital artworks which involved interactivity, virtual reality, and the web (6). Tribe also acknowledges that older categorical names for computer and electronic based art are often used interchangeably. These include “Digital Art”, “Computer Art”, “Multimedia Art”, and “Interactive Art” (Tribe, 6).

For Tribe, New Media Art is not only about the utilisation of technology, but it should also display “conceptual sophistication, technological innovation or social relevance”, in achieving a successful work (Tribe, 7). In Dunne’s account of art and technology, the conceptual and social importance associated to New Media Art, by a New Media Artist and critic like Tribe, is ignored. This forms part of the motivation of this research paper.

The term, New Media Art, is very broad and may refer to anything from Netart to interactive virtual environments. For the purpose of this research paper, I will look particularly at New Media Artworks, which explore similar environments and objects to that explored in Dunne's concept of the Post-Optimal Object. This would refer, particularly, to New Media interactive digital artworks and installations which utilise everyday objects.

It is also important to note that, in this research paper, many terms of categorisation, which fall under the broad category of New Media Art, will be used interchangeably. This is due to the various academic texts which are utilised in this research paper. It is common for discussions, within certain chapters of this paper, to take on different names which refer to the umbrella term, New Media Art. The common older names, utilised throughout this research paper are: art-and-technology; digital art; and interactive digital art.

In order to achieve the objectives of this research paper, I have chosen to analyse the theoretical and practical aspects of both the concept of the Post-Optimal Object and New Media Art. The concept of the Post-Optimal Object is developed in Dunne's text, Hertzian Tales, where there are six essays, in the form of six different chapters, which introduce the concept. In addition to Hertzian Tales, another important text includes, Difficult Forms: Critical Practices of Design and Research (2007) by Ramia Mazé and Johan Redström, which expands on Dunne's approach to design. This text looks at the concept of the Post-Optimal Object in relation to its affiliation with critical and conceptual design. These texts are utilised, in Chapter One of this research paper, in the analysis of the concept of the Post-Optimal Object.

A much greater challenge is that of describing and analysing New Media Art, as it is related to a very broad area of aesthetic practice. In addition to Tribe's text entitled New Media Art, Christiane Paul's text entitled, Digital Art (2008), also plays an important role in the analysis of the topic. However,

the New Media Art analysis, of this research paper, is most indebted to the text entitled, Systems of Art (2008), by Francis Halsall. Halsall offers three art historical theoretical terms, which assist in a comprehensive contextualisation of New Media Art. These theoretical terms include: the post-medium condition; the dematerialisation of the art object; and intermedia. Each of these theoretical terms plays an important role in describing the key aspects of New Media Art. These terms will be looked at in greater detail in Chapter Two.

As mentioned at the beginning of this introduction, the work entitled *Et Dukkehjem* by Rooftwo is a more recent development of the concept of the Post-Optimal Object, which possesses responsive qualities. John Marshall, who is one of the members of Rooftwo, introduced the term 'responsive' in relation to electronic object design in his PhD thesis entitled, An Exploration of Hybrid Design Practice Using Computer-Based Design And Fabrication Tools (2008). John Marshall defines the term 'responsive':

The object incorporates technologies such as sensing mechanisms or dynamic media systems and interacts with its audience or user (142).

These properties associated to the term responsive, which include sensory technology, dynamic media systems and user interaction, will be utilised in drawing a relation with interactive digital installation, a sub-category of New Media Art. This comparative analysis is found in Chapter Four.

The primary purpose of this research paper is to make evident a relationship between the concept of the Post-Optimal Object and New Media Art. Here both theory and practice will be taken into consideration. The comparison found in this research paper does not aim to blur the boundaries regarding the respective disciplines, but, on the basis of a common ground, which will be established here, encourage interdisciplinary collaboration.

The scope of this research paper will not include the history and development of design. Here, the concept of the Post-Optimal Object and the associated critical theory, as a particular form of design, will be utilised to make evident a relationship with New Media Art.

## Chapter 1: The Concept of the Post-Optimal Object

The primary aim of this chapter is to develop an understanding of the concept of the Post-Optimal Object, with the intention of highlighting the key characteristics to be utilised in the remainder of this research paper. This discussion begins by looking at the concept of the Post-Optimal Object, which was introduced by Anthony Dunne in his book Hertzian Tales (2005 2<sup>nd</sup> edition). In addition to this account, Ramia Mazé and Johan Redström offer insight to Dunne's association to critical and conceptual design. Their paper entitled, Difficult Forms: Critical Practices of Design and Research (2007), will also be utilised in support of developing an understanding of the concept of the Post-Optimal Object. A Post-Optimal Object case study, entitled *The Pillow* (1997) by Dunne and Fiona Raby, will be utilised to illustrate the arguments.

A recent development of the concept Post-Optimal Object and critical design will be discussed towards the end of the chapter. This includes the category 'responsive', in relation to electronic design, which was introduced by John Marshall in his PhD thesis entitled, An Exploration of Hybrid Design Practice Using Computer-Based Design And Fabrication Tools (2008). A 'responsive' design case study, entitled: *'Remember to Forget?'* (2006) by Aoife Ludlow, will be included.

From the analysis of the concept of the Post-Optimal Object three categories were distinguished, which summarise its fundamental principles in relation to the conceptual and practical areas of exploration. The categorisation includes: The Ubiquitous Nature of Technology; The Dematerialisation of the Object; and the Implications of the User. These categories are utilised in the concept of the Post-Optimal Object's comparison with New Media Art, which is conducted in Chapter Three and Four of this research paper.

## 1.1. Dunne's Approach to Design

According to Anthony Dunne, even though the concept of the Post-Optimal Object employs strategies from fine art, it is still a proponent of design (Dunne and Raby, Critical Design F.A.Q., 3). However, he believes that the concept of the Post-Optimal object should reject fundamental principles of the design of commercial electronic objects, which inhabit our daily lives. Dunne utilises fine art strategies, within the concept of the Post-Optimal Object, for the purpose of creating electronic objects which are speculative and provoke discussion (Dunne, Hertzian Tales, 35).

Dunne attributes his agenda for design closer to that of architecture and furniture design, rather than product design. He criticises product design for ignoring the cultural function that electronic objects play within the environment, and highlights its preoccupation with the market place (Dunne, Hertzian Tales, xv). Dunne explains this further:

Architecture has a long tradition of “idea competition” whose entries are not usually intended to be built but to publicly disseminate radical ideas about how architecture, and possibly the life it accommodates, might be differently conceived. The world of electronic product design needs a similar speculative arena, to imagine possible and impossible futures with computer technology, and to extend what people might find enjoyable to live with and what manufacturers could imagine making and selling (Hertzian Tales, ix).

For Dunne, architectural design takes into consideration the relationship between the people and the architectural structures. This research according to Dunne is necessary for electronic object design (Hertzian Tales, ix). Dunne finds inspiration from designers who date back to the 1960s. These include Andrea Branzi, Daniel Weil, Ezio Manzini, as well as other designers

associated to Italian radical design. Like Dunne, these designers were highly influenced by architecture, and explored “poetic modes” of interaction between the user and designed objects (Hertzian Tales, xvi).

A major premise, in Dunne’s conception of a Post-Optimal Object, is a belief that electronics have reached an optimal level of development. Dunne associates this period of electronic optimisation to an observation made by Peter Dormer which refers to previous periods. According to Dormer:

...what differentiates the 1980s from 1890, 1909, and even 1949 (is) - the ability of industrial design and manufacturers to deliver goods that cannot be bettered, however much money you possess....the rich cannot buy a better camera, home computer, tea kettle, television or video recorder than you or I (qtd. In Dunne, Hertzian Tales, 20).

In response to this observation, Dormer criticises retailers for combating this reality by adding “unnecessary stuff” to the designed object (Dunne, Hertzian Tales, 20). Dunne extends this argument and criticises commercial design’s approach, in its preoccupation in “technical and semiotic functionality”. Dunne uses the example of the development of miniature versions of existing products, in relation to current trends in the development of electronic products (Hertzian Tales, 1).

Dunne uses this as a point of departure, with the hope of unravelling mainstream industrial design’s power to maintain passive consumers. The concept of the Post-Optimal Objects, as established in Hertzian Tales, aims to provoke criticism and discussion towards the design of electronic objects. According to Dunne:

Hertzian Tales explore the way critical responses to the ideological nature of design can inform the development of aesthetic possibilities

for electronic products. It focuses on the role they play in shaping our experience of inhabiting the “electrosphere,” looking beyond the quality of our relationship with objects to the aesthetics of the social, psychological, and cultural experiences they mediate (Hertzian Tales, xv).

This vision of the object, according to Dunne, aims to further evoke new and poetic experiences in everyday life through conceptual products (Hertzian Tales, 20).

## **1.2. Conceptual and Critical Design**

Dunne attributes his design ethos to the vision of the Frankfurt School of Thought. In keeping with this influence, he proposes that designers should create without the need to associate value, to that required by the marketplace. In fact, Dunne suggests that this type of design should not exist within a commercial context, but rather function as a critique of commercial design. Dunne refers to this category of design as “conceptual design”, which does not refer to “the conceptual stage of a design project”, but the utilisation of fine art to disrupt preconceptions regarding our experience with electronic products (Hertzian Tales, 84). For Dunne, this criticism should be rendered towards the everyday escapism, utopianism and fantasy, which are an integral part of commercial design. Dunne suggests that gallery exhibitions are a suitable space for the public to test out these conceptual products (Dunne, Hertzian Tales, 123).

A third term associated to both the concept of the Post-Optimal Object and conceptual design, is Critical design. This interrelated term has been used to locate the concept of the Post-Optimal Object within a unique genre of design. Critical design refers to a broad category of design, which aims to subvert the common design agenda, associated to capitalist production. In

doing so, it places design under one of two categories: “affirmative” or “critical”. These categories are distinguished by whether design “reinforces” or “challenges” the norms of capitalist production, respectively (John Marshall, 96). Critical design, therefore, may be regarded as “material commentary on consumer culture” which provokes reflection on the ideological nature of design (John Marshall, 272). Critical design offers the public ways of considering the implications of electronic objects, which are part of our everyday environment, and which are ignored by commercial design. The concept of the Post-Optimal Object falls under this category of critical design.

### **1.3. Poetic and Aesthetic Design**

Anthony Dunne argues that a concept of the Post-Optimal Object may be achieved by employing the notions of the poetic and aesthetic in the design of electronic objects (Hertzian Tales, 20). In this section it is important to examine exactly what the terms poetic and aesthetic mean and refers to, in order to utilise the concept of the Post-Optimal Object in the discussions which follow. In Hertzian Tales, Dunne includes six essays, in the form of separate chapters, which further define and expand on what he refers to as the concept of the Post-Optimal Object (Hertzian Tales, xvii). In these chapters he introduces several terms in support of his argument, which will be discussed below.

#### **1.3.1 Aesthetic Experience**

Dunne’s notion of an ‘aesthetic experience’ is an integral part of the concept of the Post-Optimal Object, which pertains to a technological augmented object which leaves room for interpretation by providing alternative modes of experience and interactivity. Dunne offers an approach regarding this goal:

By poeticizing the distance between people and electronic objects, sensitive scepticism might be encouraged, rather than unthinking assimilation of the values and conceptual models embedded in electronic objects (Hertzian Tales, 22).

According to Dunne, an aesthetic experience subverts commercial design's agenda towards "transparent communication" (Hertzian Tales, 35). Dunne argues that the common approach in commercial design aims to humanise technology. He uses an example of "transparent interfaces" as part of this humanising process (Hertzian Tales, 21). For Dunne, transparent interfaces are most suitable when associated to user-friendliness, which plays a suitable role within the productive and efficiency driven workplace. However, Dunne sees this initiative as falling short when one considers the "less utilitarian areas of our lives", such as our living environments (Hertzian Tales, 21). In validating his argument he employs the work of Paul Virilio:

'interactive user-friendliness'...is just a metaphor for the subtle enslavement of the human being to 'intelligent' machines"...This enslavement is not, strictly speaking, to machines, nor to the people who build them and own them, but to the conceptual models, values, and systems of thought the machine embodies (qtd. in Dunne, Hertzian Tales, 21).

Dunne argues that user-friendliness has the ability to 'naturalise' the values which electronic objects embody, which conceals the ideological nature inherent in design.

Dunne's notion of the 'aesthetic experience's' alternative mode of interaction is closer to 'user-unfriendliness'. For Dunne, user-unfriendliness should not merely be reduced to 'user-hostility'; however, poetry provides a 'constructive' user-unfriendliness. One of the most important aspects of user-

unfriendliness, in the design of electronic objects, is its ability to evoke attention to the relationship between the users and object (Dunne, Hertzian Tales, 35). For Dunne, qualities such as ‘estrangement’<sup>1</sup> and ‘alienation’ should be employed as a means to poeticise this distance between people and electronic objects (Hertzian Tales, xviii). These qualities “counteract the familiarization encouraged by routine modes of perception”, and result in an aesthetic experience, which provokes speculation regarding our relationships with electronic designed objects (Dunne, Hertzian Tales, 35).

Dunne associates the ‘aesthetic’ and ‘poetic’ experience, which is a primary aim of his concept of the Post-Optimal Object, to the notions of estrangement and alienation. Estrangement and alienation are guidelines of design, which provoke the audience to reflect on their experience with the designed electronic object. These terms and experiences are also associated to user-unfriendliness, where such user-object interaction promotes discussion on these modes of design.

### **1.3.2. Terminology Associated to the Post-Optimal Object**

Dunne introduces many terms and approaches, which provides a means, for designers, to achieve the concept of the Post-Optimal Object. In his six essays, which expand on the concept of the Post-Optimal Object, the following terms are introduced to support his ideas: “(In)Human Factors”, “Para-Functionality”, “Psychosocial Narratives”, “Real Fiction” and “Hertzian Space”. Many of these terms and approaches reverberate with the discussion above, and are inter-related. The term “(in)human” factors directly refers to Dunne’s concept of user-unfriendliness, which is described above, and “para-functionality” refers to the ‘aesthetic experience’ of estrangement and alienation. In his explanation and illustrations of these terms, Dunne also

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<sup>1</sup> The terms, ‘alienation’ and ‘estrangement’, were introduced by the Russian formalist poets, who were active in the 1920s.

employs examples from various other disciplines including art, architecture, poetry, film, and literature.

In illustrating the term “para-functionality”, Dunne utilises the design principals of “Chindogu”. According to Dunne, a Chindogu, which is a Japanese form of design, is achieved by combining everyday objects which result in the surreal and the absurd. Dunne points out:

Their individual elements are recognizable, but the reason for combining them is at first bewildering. The meaning behind the object is derived from “sense-fiction”: the objects make functional sense, but are still useless (Hertzian Tales, 45).

Dunne compares Chindogu to the works of Fluxus, where functionality in objects and design are often meant to be satirical and humorous. Like Fluxus, Chindogu creates new objects by combining familiar and everyday objects, in often ‘estranged’ ways. Dunne utilises these principles, in order to approach the design of electronic objects, which question the ways in which we experience them. Such user-object interaction is an important characteristic of “para-functionality”.

Another important term, which Dunne introduces in order to expand on the concept of the Post-Optimal Object, is “psychosocial narratives”, which explores the nature of user-object relationships more directly. Dunne introduces the term as follows:

“Psychosocial narratives” refers to the unique narrative potential of electronic products, the world of desires and fiction that embraces consumer goods, the socialization that the use of electronic products encourages, and the idea that behaviour is a narrative experience arising from the interaction between our desire to act through products

and the social and behavioural limitations imposed on us through the conceptual models they impose” (Hertzian Tales, 69).

To reiterate this, Dunne uses the example of telephone etiquette, which associates the behavioural to an everyday electronic object. “Psychosocial narratives” also offer new modes of relation towards electronic products, which go beyond that experienced by typical consumer products. Here, the users of these conceptual products are encouraged to act as “a protagonist and co-producer of narrative experience”, as these designed objects encourage new behavioural interactions, which question user-object etiquette (Dunne, Hertzian Tales, 69).

In exploring the idea of the user as a protagonist, Dunne also introduces the notion of (ab)user-friendliness, which aim to subvert the typical commodified experience with a fictional experience. According to Dunne:

These Stories form part of a pathology of material culture that includes aberrations, transgressions and obsessions, the consequence of and motivations for misuse of objects, and object malfunction” (Hertzian Tales, 72).

In illustrating this, Dunne comments on the conceptual nature of artists, John Cage and Nam June Paik. According to Dunne:

Both artists show behaviour towards technology that invite others to follow. Concerned with software not hardware, they invent new uses for existing technologies and promote interaction with “designed” objects that subvert their anticipated uses. In doing so, they challenge the mechanisms that legitimise the conceptual models embodied in the design of the product or system (piano, television, or tape machine) (Hertzian Tales, 72).

Cage and Paik, who are also associated to fluxus, allow Dunne to illustrate how design may be used to alter the intended use of objects. These artists are renowned for combining everyday objects, in their artworks. Cage used objects such as nuts and bolts attached to a piano, in order to create a “prepared piano”, whereas Paik created a work, which involved simply placing a magnet on top of a television, in order to distort the reception (Fig. 1). The point of these examples, for Dunne, is that objects should not be seen as an end product such as hardware, to use his analogy, but through new modes of interaction, approach the idea of software, which offers new behavioural roles between the user and object (Dunne, Hertzian Tales, 72).



**Fig. 1. Nam June Paik. *Magnet TV*. 1965, New York/DACS, London (Greene, 25).**

**Photo: Peter Moore**

In Hertzian Tales, Dunne also explores the invisible aspects of technology and electronic objects. The term “Hertzian Space”, according to Dunne, looks at the material and visible aspects of electronic objects, in

relation to the immaterial and invisible. If we take a cell phone, as an example, it has a physical material aspect, as well as aspects such as electromagnetic radiation, which is immaterial and invisible. Dunne argues that, electromagnetic fields have been neglected in relation to aesthetic exploration (xviii). An important term which Dunne associates to “hertzian space” is “dematerialisation”. According to Dunne:

Dematerialization, therefore, means different things depending on what it is defined in relation to: immaterial/material, invisible/visible, energy/matter, software/hardware, virtual/real (Hertzian Tales, 13).

Dunne uses the term dematerialisation in two ways. Firstly, in relation to hertzian space, this term is used to draw attention to the greater environment as carrier of information, which communicates with various other technological devices, such as Bluetooth (Hertzian Tales, 15). Secondly, this term is used to emphasise a shift in importance from hardware to software. In this scenario the functionality and experience, mediated by the object, becomes highlighted.

#### **1.4. Categorisation of the Concept of the Post-Optimal Object**

Before I attempt to categorise the theoretical and practical aspects of the concept of the Post-Optimal Object, it is necessary to look at an example of the concept of the Post-Optimal Object. During the categorisation, this example, of the concept of the Post-Optimal Object, will be used to motivate and illustrate the proposed arguments

In Hertzian Tales, Dunne introduces five proposals of the concept of the Post-Optimal Objects to illustrate his argument. The proposal that I have selected from this source is entitled *The Pillow* (1997). This work explores an aesthetic response to the informational and communicational aspects of our

everyday environments. More recent works by Dunne and Raby also include the exploration of technological aspects, such as bio-technology and robotics, for example.



**Fig. 2. Dunne & Raby. Still from *Pillow Talk* video. 1997, (Dunne, 129).**

*The Pillow*, which was also documented in a film entitled *Pillow Talk* (Fig. 2), is made up of a plastic inflatable pillow, which contains an embedded LCD screen. The LCD screen is enclosed by a translucent plastic block, which has eight holes allowing for partial visibility of the screen. These holes expose circular portions of the LCD screen, which displays coloured patterns and at the same time illuminates the translucent plastic block. These coloured patterns respond to electromagnetic fields in the environment, and reflect radiation from objects such as cell phones and television signals (Dunne and Gaver, "The Pillow", 1). Dunne and Gaver expand on the relevance of this work:

Thus the Pillow raises issues about our existence in an omnipresent sea of electronic information. It questions the notion of privacy: even if we may not contribute to the myriad streams of data which surround us, we cannot avoid them, as other people's information invade our homes and even our bodies. From this perspective, the Pillow is confrontational, facing us with the literal intrusiveness of information. (Dunne and Gaver, "The Pillow", 1)

Dunne describes this project as "a contemplative object", which exposes the informational nature of our hertzian environment (Hertzian Tales, 124). This work arose out of Dunne's research regarding hertzian space. Dunne expands:

I began the investigation with the realization that hertzian space is not isotropic but has its own electromagnetic "climate" that is related to an electro-geography defined by wavelength, frequency, and strength, and it interacts with urban and natural environments... (Hertzian Tales, 124).

This work brings to light, the often unrecognised invisible nature, of the ubiquity of information which exists in our environment. This area of speculation also poses implications with visible items of everyday technology, such as cell phones, which are also carriers of invisible information.

#### **1.4.1. Three Categories of the Concept of the Post-Optimal Object**

From the various discussions in this chapter, I have isolated several points of summary, which may be drawn in order to categorise the concept of the Post-Optimal Object. This task will assist in highlighting the theoretical and practical aspects of this genre of design, which will be utilised in other chapters of this research paper for the comparison with New Media Art. Here I

have introduced three broad categories, which combine common principles of the concept of the Post-Optimal Object. These include: the ubiquitous nature of technology, the dematerialised object and the implications for the user.

#### **1.4.1.1. The Ubiquitous Nature of Technology**

This category emphasises the importance of technology in the conception of the Post-Optimal Object. Dunne initially considered electronic objects, but also argues that this approach to design may involve newer developments in technology. The term ubiquitous, in this discussion, refers to the ever-present nature of communication technologies, which are evident in our living spaces, as well as the 'electro-magnetic climate', which potentially shares information with some of these technological objects. The concept of the Post-Optimal Object also extends to question our relationship with these technological objects.

With *The Pillow*, the electronic object included the combination of a plastic pillow and an LCD screen, which served to visualise the electromagnetic fields present in the environment. Here the viewer is presented with coloured patterns, which responds to radiation from other technological objects. This work provokes the viewer to consider our shared relationship with technological objects; and the information they transmit and receive, within living spaces.

The following points may be summarised:

1. Like architecture, electronic objects should extend themselves to towards a cultural function, which speculates on the relationship which humans share with technological augmented objects.
2. The concept of the Post-Optimal Object is concerned with the role that electronic objects play in everyday life.

3. The concept of the Post-Optimal Object may involve the absurd combination of technology and everyday objects.
4. The concept of the Post-Optimal Object is concerned with the ubiquitous nature of technology in our greater environment.

#### **1.4.1.2. The Dematerialised Object**

This category considers the nature of the concept of the Post-Optimal Object, which emphasises the object as material criticism towards commercial design. The dematerialised object is closely related to Dunne's association to critical and conceptual design. By rejecting commercial design's preoccupation with such goals as invisible interfaces, the concept of the Post-Optimal Object aims to expose the ideological nature inherent in design.

*The Pillow*, as an example of the concept of the Post-Optimal Object, rejects commercial design's agenda, which focuses on innovation in technical or functional aspects of products. It uses unrelated everyday objects such as a plastic pillow and an LCD screen, to create a work similar to Dunne's influences, which include Chindogu and Fluxus. Such an absurdly designed object would also draw attention to design, and provoke speculation.

Instead of technical sophistication as its primary design agenda, *The Pillow* draws attention to the 'electromagnetic climate'. Here it aims to question the idea of privacy within an informational environment, and at the same time expose the intrusiveness of this information.

The following points may be summarised:

1. The concept of the Post-Optimal Object provokes criticism towards commercial electronic design.

2. The concept of the Post-Optimal Object evokes the ideological nature inherent in the design of electronic objects.
3. The concept of the Post-Optimal Object is concerned with the conceptual models, values and systems of designed objects.
4. The concept of the Post-Optimal Object allows a shift from the producer and thing to the concept and idea.

#### **1.4.1.3. The Implications of the User**

A central aspect of the concept of the Post-Optimal Object is its consideration of fine art strategies, which are utilised in what Dunne refers to as an 'aesthetic experience'. Here electronic objects should employ notions, such as estrangement and alienation, in order to provoke a more poetic mode of interactivity. The concept of the Post-Optimal Object should also question the socialisation of electronic objects, allow the user to take on the role of a protagonist and consider new relationships with these objects, which occupy our daily lives.

*The Pillow*, which visualises the electromagnetic climate, offers the user a unique experience associated to the amount of radiation given off by other electronic objects in the environment. This estranged experience is dependent on the user's environment and their concern with the object. The user may decide to place this object in an environment with a large amount of radiation, or very little; or alternatively alter an existing environment to form an interaction with the object. Here the user has the ability to be co-producer of the object's interactive experience.

The following points may be summarised:

1. The concept of the Post-Optimal Object explores alternative modes of user-object interaction.

2. The concept of the Post-Optimal Object may also allow the user the role of being the protagonist and/or co-producer of interactive experiences.
3. The concept of the Post-Optimal Object may allow the user to be an (ab)user of electronic objects.
4. The concept of the Post-Optimal Object may blur the boundary between real and fiction.

### **1.5. A 'Responsive' Post-Optimal Design**

As established in the introduction of this paper, the concept of the Post-Optimal Object was coined in 1999, and much has changed in the last ten years. This includes technological developments, as well as the interest of many artists and designers, from various backgrounds, who have embraced this genre of design. In this section I would like to look at a recent development regarding the concept of the Post-Optimal Object, which includes 'responsive' qualities.

John Marshall curated the research symposium, entitled '*In the Cross-border of Digital Media and Physical Form*' (at the International Ceramic Research Centre, Guldagergaard, Denmark), as part of his PhD course work. The findings from the symposium were documented in his PhD thesis, which is entitled, An Exploration of Hybrid Design Practice Using Computer-Based Design and Fabrication Tools. John Marshall's aim for his research included developing terminology for the different approaches within design practice, which was evident in the symposium, in order to form categories of distinction. In this work, he introduced the term: responsive. Responsive, according to Marshall: "incorporates technologies such as sensing mechanisms or dynamic media systems and interacts with its audience or user" (John Marshall, 142). This category plays a pivotal role in relating the concept of the Post-Optimal

Object to interactive digital installation, which will be the objective of Chapter Four.

In his thesis, however, John Marshall does not refer to the concept Post-Optimal Object, but utilises Dunne's research and frames the design works as critical design. In a more recent design project, which John Marshall completed together with design partner Cezanne Charles, he utilises the term, Post-Optimal Object. This work, which will be discussed in Chapter Four, also complies with the categorisation, responsive, which was developed in his research.

John Marshall's overall research was motivated by a recent trend in the willingness of practitioners to work across what would be regarded as designated disciplinary borders. John Marshall believed that this was influenced by computer-based design tools (10). In completion of the research, he was able to reaffirm such predictions but also discovered aspects which he did not expect.

Other object-based or spatial technologies not yet associated with industrial manufacture" were discovered. "These include: motion capture, the use of embedded sensors and actuators and Radio Frequency Identification (RFID) tags or transponders that turn physical objects into tangible or spatial interfaces (John Marshall, 10).

These developments point to a category of critical design, which Marshall introduces and referred to as, "responsive". An important aspect of this discovery, for the purpose of this research paper, is the role of the audience, which approaches that of a participant.



**Fig. 3. Aoife Ludlow. *Remember to Forget?* 2006, Guldagergaard, (John Marshall 203).**

The work that I would like to highlight from the symposium is entitled: '*Remember to Forget?*' (2006), by Belfast-based Aoife Ludlow. An important aspect of this work, in relation to the previous discussion, is that it falls under the category, 'responsive'. This work consists of a jewellery box with a projecting light, as well as items of jewellery. These items of jewellery contain embedded technology such as RFID (radio frequency identity) tags which record how long each item of jewellery was worn. The greater the duration of the jewellery being worn, the brighter the jewellery box glows (John Marshall, 203). According to Marshall:

'Remember to Forget?'...explore notions of memory, change and habit. ...This work adds another communicative/reflective layer to the experience of wearing jewellery and the traditional interaction between person, object and container....Ludlow claims that interactions with jewellery objects, while they are being worn, are often subconscious or habit-related. Often the most conscious interaction occurs at the point

of putting on or taking off the jewellery, rather than whilst it is being worn. (202-3).

The 'responsive' nature, associated to *Remember to Forget?*, is evident in the requirement of a participant's role in relation to this work. Here the recorded duration of the jewellery been worn predicts the amount of light projected, from the jewellery box. Another important defining aspect of a 'responsive' designed electronic object, is that it incorporates sensing mechanism. Here the RFID plays the crucial role in bridging the communication between the user and object, where it records the amount of time that the user wears each item of jewellery.

Before concluding, it is important to note that the responsive electronic object offers the concept of the Post-Optimal Object, an additional characteristic, which can be placed under the category, the ubiquitous nature of technology:

This includes:

1. The concept of the Post-optimal Object may incorporate sensing mechanisms and dynamic media systems which interact with users.

In this chapter, Dunne's concept of the Post-Optimal Object was looked at in detail. This included his relationship to commercial design, where he avoids such goals as technical and functional innovation, with the aim to develop electronic objects which provoke discussion. The aesthetic experience, for Dunne, is intended to evoke estrangement and alienation, which is closer to user-unfriendliness. These terms are associated to poetic modes of interaction, which are meant to lead the audience to question the ideological nature of design.

From the discussions in this chapter, three main categories of the concept of the Post-Optimal Object were extracted to make evident its relationship with New Media Art, which will be attempted in Chapter Three and Four. These categories include: the ubiquitous nature of technology; the dematerialised object; and the implication of the user. In illustrating and motivating the categorisation in this chapter, *The Pillow* was utilised as a case study.

Finally, the term 'responsive' was introduced in relation to electronic design. This term, which incorporates aspects such as sensory electronic mechanisms; dynamic media systems; and the user's input, also plays an important role in making evident the relationship between the concept of the Post-Optimal Object and New Media Art.

## Chapter 2: The Contextualisation of New Media Art

In this chapter, the primary agenda will include the contextualisation of New Media Art. This contextualisation of New Media Art will aid in its comparison with the concept of the Post-Optimal Object, which will follow in Chapter Three and Four of this research paper.

This chapter begins with a broad overview of New Media Art, which highlights its developmental stages and ends with the analysis of three art historical theoretical descriptions, which categorise New Media Art. The critical text employed in this chapter include, Digital Art (2008) by Christiane Paul; and Systems of Art (2008) by Francis Halsall. Systems of Art provides the three art historical theoretical terms, which contextualise New Media Art. In support of Halsall's text, two essays by Edwards Shanken, will be employed within the respective discussion. These include, Cybernetics and Art: Cultural Convergence in the 1960s (2002), and Art in the Information Age: Technology and Conceptual Art (2002).

The contextualisation of New Media Art will also assist in developing an understanding of this discipline. Halsall's selection of the three art historical theoretical terms, play a crucial role in this research. The first art historical description is the dematerialisation of the art object, which acknowledges a shift in the importance from the object to the system of ideas that the object represents. Shanken points out that in the development of art and technology, evident in the 1960s, such systems of ideas were associated to the concept of software. In relation to the second historical description, the post-medium condition, the object adopted the conceptual idea of software, which may be understood in relation to the post-war historical convergence with cybernetics and information systems. Finally, the third art historical description, entitled intermedia, points to the importance of the audience in the process of an artwork.

For the purpose of this research paper, I would like to focus mainly on the development of art's exploration with technology, which occurred in the 1960s. Many of these developments to come in later decades were reliant on this period as a foundation (Paul, 21). Since then there has been a surge in technological developments, which have become part of our daily environment.

## **2.1. The Development of New Media Art**

Even though Paul's book is entitled Digital Arts, it complies with Mark Tribe's argument, which associates the term, digital art, under the broad category of New Media Art. Paul expands:

The terminology for technological art forms has always been extremely fluid and what is now known as digital art has undergone several name changes since it first emerged: once referred to as 'computer art (since the 1970s) and then 'multimedia art', digital art now takes its place under the umbrella term 'new media art' which at the end of the twentieth century was used mostly for film and video, as well as sound art and other hybrid forms (7).

Paul also argues that the term 'digital art', refers to a range of artistic practices and works, which are rooted in various technological and art-historical lineages, which will be looked at in this chapter. Paul, however, distinguishes between two broad categories regarding the use of technology in digital art. The first category involves the use of digital technologies as a "tool" in digital art, where digital technologies are used to make art objects such as photographs and prints. The second category involves the use of digital technologies as a medium where information is stored and retrieved. The second category is associated to interactive participatory digital art works.

(Paul 8) This research paper is concerned predominantly with the second category.

In her introduction to Digital Art, Christiane Paul highlights the 1990s as a period of technological acceleration within everyday culture. For Paul, this period marked an important time where digital technologies became affordable and global connectivity, through digitalism, became increasingly accelerated. Paul points out, however, that this technological development was grounded sixty years earlier, and artists have been experimenting with technology ever since (Paul, 7).

According to Paul, digital arts have been influenced as much by science and technology, as by art-historical lineages. Paul adds:

The technological history of digital art is inextricably linked to the military-industry complex and to research centres, as well as to consumer culture and its associated technologies (8).

Charlie Gere, in his essay entitled When New Media Was New: A History of the use of New Technologies in Art in the Post-War Era (2004), reiterates this, and points out that the use of new technologies in artistic practice can be traced back to technological developments since the Second World War (Gere, 47). According to Gere, various predecessors to the modern computer can be traced back to the early 19<sup>th</sup> century. But, he also argues that it was the progression around the Second World War that led to a computer which, like the ones we use today, is electronic, binary and digital (Gere, 47).

Gere argues that information theory and cybernetics, in light of the post war era, played an important role in art's exploration with technology. Here, Gere emphasises artists' experimentation with "interactivity, multimedia,

networking, telecommunications, information and abstraction”, which influenced the development of electronic and digital media art. (Gere, 50)

Paul references three important art-historical movements, which include Dada, Fluxus and Conceptual art, which played an influential role in the development of digital art (11). From these movements, New Media Art adopted an emphasis on “concept, event, and audience participation”, which negated the material specific object, which was associated to modernist art (Paul, 11).

Towards the later part of the 1960s, Paul highlights two exhibitions, which according to her, may be considered as a precursor of digital art installations today (Paul, 16). These are *Cybernetic Serendipity* exhibited in 1968 at the Institute of Contemporary Arts in London, and the exhibition entitled, *Software*, which was exhibited at the Jewish Museum in New York in 1970, curated by the important figure Jack Burnham, who will be discussed other sections of this chapter. Rachel Greene provides a comprehensive account of the exhibition, entitled *Software*:

The curator of ‘Software’, Jack Burnham, who embraced cross-pollination between artists and computer scientists - showing work by computer innovator Theodor Nelson and Nicholas Negroponte (b. 1943) alongside those by self-styled ‘artists’- employed computer idioms when referring to the concept and thematic structuring a work as its ‘software’, and the external object form (if there was one) as ‘hardware’. ‘Information’ took its name from the curator’s sense that art was at an impasse, paralysed by world events and weighed down by materiality, and also that art was something very separate from entertainment-based spectacle. (23)

An important aspect of this exhibition was its inclusion of works by leading conceptual artists. These artists, who did not use technology, found an affiliation to the term software, which resulted in a shift from the importance of the material towards the process and ideas of the artworks.

## **2.2. System Aesthetics**

In his book entitled, Systems of Art, Francis Halsall utilises three important art historical descriptive terms, in order to illustrate systems theory and systems aesthetics, as a medium. These include the dematerialisation of the art object (coined by Lucy Lippard), the post-medium condition (coined by Rosalind Krauss) and the term 'intermedia' (coined by Dick Higgins). Halsall subsequently argues that system aesthetics provides new media with a critical discourse for contextualisation. Halsall expands:

Systems aesthetics and the vocabularies of systems theory, I argue, provide the basis for such an "appropriately robust and convincing" theory of new media art. They do so by expanding the discourse on new media beyond a discussion of a narrow set of art practices corresponding to a limited set of media into a discussion about systems art more generally. Systems theory and systems aesthetics thus employs the idea of system as medium to inscribe a coherency into what would otherwise seem to be utterly disparate works. This opens these works up to art historical analysis and provides continuity with historical precedents, which may, in the first instance, appear materially incomparable. (123)

Paul also agrees with Halsall, and stresses the importance of systems aesthetics, in providing a "critical discourse" on New Media Art (18).

The term "systems esthetic" was coined by the highly influential writer, critic and curator Jack Burnham, and discussed in two of his articles, which

were published in Artforum, entitled, Systems Aesthetics (1968) and Real Time Systems (1969) (Paul, 18). Halsall goes on to point out that, Burnham observed a “paradigm shift from object to systems” and anticipated that this would become dominate in aesthetic practice (99). Halsall summarises:

Burnham’s conception of systems aesthetics was an attempt to think together, under the rubric of systems, issues regarding artistic, technological and social conditions shared by a variety of groups including artists, scientists and social theorists. It was, in part, an account of artistic responses to new technologies manifested, for example, in early computer and video art. (103)

With regards to the development of art-and-technology, artists were particularly interested in cybernetic and information systems. Halsall also points out that the use of systems as a medium is often associated to artists who have embraced new technologies (100).

### **2.2.1. The Dematerialisation of the Art Object**

Lucy Lippard coined the theoretical term, referred to as the “dematerialisation of the art object<sup>2</sup>”, in her book entitled, Six Years: The Dematerialization of the Art Object (1973). This term was based on her observation, of a shift in the modernist notion of an art object, which was associated to a specific medium. During the years between 1966 and 1972, Lippard noticed that the traditional idea of a singular art object shifted towards a “work which explored its relationship with its various systemic environments”, in which the meaning of the work resided (Halsall, 115). An important aspect of ‘the dematerialisation of the art object’ is a shift from the object to the idea. According to Lippard:

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<sup>2</sup> This art historical term, dematerialisation of the art object, is often associated to conceptual art.

Conceptual art, for me, means work in which the idea is paramount and the material form is secondary, lightweight, ephemeral, cheap, unpretentious and/or “dematerialized” (vii).

This shift in the emphasis, from the object to the idea, is also related to the development of art and technology. Edward Shanken, in his essay Art in the Information Age: Technology and Conceptual Art, argues that conceptual art developed “during a moment of intensive artistic experimentation with technology”, which scholars have often overlooked (“Art in the Information Age”, 1). For the purpose of this research paper, Shanken argues that the dematerialisation of the art object, in art and technology, resulted in a shift towards the conceptual idea of software. Closely associated to this shift, from hardware to software, is a system which allows a user to exchange information.

Edward Shanken begins his essay, highlighting Marshall McLuhan’s mid 1960’s prophecy of an interconnected ‘global village’ which, according to McLuhan, is facilitated by electronic media. For many, this signified the closure of a dominant machine age technology, and pointed to the beginnings of an era of information technology. Following this Shanken, like Rachel Greene and Christiane Paul, highlights the two exhibitions, *Cybernetic Serendipity* and *Software*, which considered art-engineer collaborations. For Shanken the exhibition *Software*, by art critic Jack Burnham, marked an important point in the exploration of the relationship between art and information technology.

Shanken points out that Burnham worked with software during 1968-1969, at The Centre of Advanced Visual Studies at MIT. According to Shanken, Burnham envisaged the idea of software and information technology, increasingly becoming a metaphor for art (“Art in the Information Age”, 2).

Shanken references an important quotation from an essay by Burnham, entitled The Aesthetics of Intelligent Systems:

a dialogue *evolves* between the participants—the computer program and the human subject—so that both move beyond their original state”. He further theorized this bi-directional exchange as a model for the “eventual two-way communication” that he anticipated emerging in art (qtd. in Shanken, “Art in the Information Age”, 2).

Many of the works in Burnham’s exhibition, *Software*, were interactive two-way communication systems, which formed a connection between the viewer and works (“Art in the Information Age”, 2). This artistic shift, for Burnham, paralleled “larger social transformations”, which approached theories such as <sup>3</sup>cybernetics and information systems (Shanken, “Art in the Information Age”, 2).

### **2.2.2. Intermedia**

The art historical term, intermedia, marks a shift in the role of the audience, from that of viewer to participant. The term intermedia, was coined by Dick Higgins in his essay entitled, The Origin of Happening (1976), which was used to describe the development of the art form referred to as, *Happenings*. The artistic practice associated to *Happenings*, are renowned for their consideration of everyday objects and environments, as well as the experience of the work, rather than the aesthetic degree of the object. The idea of experience also facilitated the provision of the viewer, to become a participant within the artwork.

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<sup>3</sup> Cybernetics and information systems will be discussed further in section 2.2.3.



**Fig. 4. Alan Kaprow. *18 Happenings in 6 Parts*. 1959, Reuben Gallery, New York (Tribe, 12).**

Throughout his essay, Higgins highlights the artist, Alan Kaprow, and commends his role in the development of the art movement referred to as *Happenings*. Here, Higgins includes Kaprow's definition of *Happening*:

An art form similar to theater in that it takes place in a specific time and a specific location. Its structure and its content are a logical extension of the [performance] environment" (qtd. in Higgins, 270).

Higgins reveals that he often prefers to avoid the use of the term, *Happening*, as it was too adaptable earlier on in its development, and many artists and groups used the term to describe their work, which was very different to Kaprow's approach. To bypass this misunderstanding, Higgins subsequently coined the term intermedia, which is a term that refers to technical aspects of

a *Happening*, as developed by Kaprow. Higgins provides a definition of intermedia:

Intermedia covers those art forms that are conceptual hybrids between two or more traditional media, such as concrete poetry (visual art and poetry), happenings (visual art, music and theater), and sound poetry (music and literature). The term is sufficiently technical in effect that, though it has enjoyed some popular use, it is still applied only to the arts and, except for some careless confusion with “mixed media” (in which elements remain distinct though simultaneous), is usually applied in my original sense (271).

Higgins concludes that such a definition satisfies a technical account of the art form which is referred to as, *Happening*. *Happening* and the term intermedia are important in this chapter as they provide a suitable lineage for the <sup>4</sup>hybridity of traditional media.

In his text entitled, Background noise: perspectives on sound art (2006), Brandon Labelle goes on further to highlight the importance of *Happenings*. Unlike Higgins, who aimed to approach definitions related to *Happenings*, Labelle presents a reflective account of *Happenings*, environments, and fluxus. In his account, Labelle highlights the significance of artists, such John Cage and Jackson Pollock. Labelle expands:

Happenings grew out of a distinct moment of art-making that followed on the heels of John Cage and Jackson Pollock, and the overall shift from an art object to a greater situational event based on chance, found objects, and theatrical performance (54).

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<sup>4</sup> The usage of the term hybrid, in this context, should not be confused with the terms' association to contemporary New Media Art, which normally refers to a convergence of arts and sciences that deals primarily with environmental concerns.

Cage, who was also teaching “composition” in the late 1950s, played an integral role in the development of many artists who were associated to *Happenings*. Jackson Pollock’s work, according to Labelle, played an important role in the *Happenings*’ adoption of aesthetic elements such as “spontaneity, improvisation, and bodily action”, which are methods that “immerse” the viewer. (Labelle, 54)

Labelle observed the importance of the term, “bodies” in relation to the aesthetic practice of *Happenings*, environments and fluxus. From this observation, Labelle notes two developments regarding contemporary aesthetics: firstly, the body in the realm of performance art, where it is associated to medium, and secondly, the body within the context of participation in participatory art. In this investigation, I will focus on the latter (55).

In the context of participatory art, Labelle emphasises *Happenings*’ pivotal phase, “to partake wholly”, which refers to the affordance that this art form allows, which causes one to negate “proper manners” and lean towards the “real nature” of life. (56) Here, the term “partake wholly,” is highly significant as it, in essence, is the invitation of audience participation and the audience to be part of the art work. To reiterate these phenomena, Labelle expands:

As Kaprow suggests in his reference to “proper manners,” audience and art partake wholly so as to leave behind the “proper”: to exit the stage of “proper manners” and arrive into “real nature.” Real nature figures as the essential concerns - it is what participation uncovers, makes knowable, outlines as the art experience (54).

Labelle locates much of this aesthetic progression to the influence of Cage. Here Cage's attempt to transport music to the "rhythmic and chance oriented events of daily life," is seen as integrally related to this progression in aesthetics. (56)

The participatory characteristics of *Happening* and intermedia, will be revisited in chapter four. This discourse plays a crucial role in interactive digital arts, and will be an important area in relation to the concept of the Post-Optimal Object regarding the environment and everyday objects.

### **2.2.3. Post-Medium Condition**

The third historical description that Halsall employs is the theoretical term, the post-medium condition, which refers to the art object after modernism, which considers dematerialisation and intermedia (116). The post-medium condition was coined by Rosalind Krauss, in her text *A Voyage on the North Sea: Art in the Age of the Post-Medium Condition* (1999). Halsall highlights Krauss' alteration to the term medium, where she re-defined the term as "technical support" in relation to an artwork. Halsall further points out that this alteration of the term goes beyond referring to "material support", which traditionally refers to a specific aesthetic medium. (Halsall, 117) To reiterate this point, Halsall quotes Krauss:

'Technical support' has the virtue of acknowledging the recent obsolescence of most traditional aesthetic mediums (such as oil on canvas, fresco, and many sculptural materials, including cast bronze or welded metal), while it also welcomes the layered mechanisms of new technologies that make a simple, unitary identification of the work's physical support impossible (is the 'support' of film the celluloid strip, the screen, the splices of the edited footage, the projector's beam of light, the circular reels?) If the traditional medium is supported by a physical substance (and practiced by a specialized guild), the term

‘technical support,’ in distinction, refers to contemporary commercial vehicles, such as cars or television, which contemporary artists exploit, in recognition of the contemporary obsolescence of the traditional mediums, as well as acknowledging their obligation to wrest from that support a new set of aesthetic conventions to which their works can then reflexively gesture, should they want to join those works to the canon of modernism (117).

Halsall also points out that the term ‘technical support’ emphasises that art works are grounded “upon a set of historically situated practices” instead of a particular set of “material conditions”, which make the idea of systems as a medium inclusive within the definition (Halsall, 117). The term ‘technical support’, in association to its affiliation with new technologies, also includes, cybernetic and information systems.

In his essay Cybernetics and Art: Cultural Convergence in the 1960s, Edward Shanken reflects on the convergence of cybernetics with aesthetics. This investigation, which considers the convergence of art and cybernetic systems, add another dimension in the understanding of the art-and-technology object, which marks a shift from hardware to software. To begin with, Shanken defines the term cybernetics in terms of its origin and meaning:

The term “cybernetics” was originally coined by French mathematician and physicist André Marie Ampère (1775-1836) in reference to political science. In the 1940s, American mathematician Norbert Wiener, generally acknowledged as the founder of the science of cybernetics, re coined the term from the Greek word *kubernetes* or “steersman” — the same root of the English word “governor.” According to Wiener, cybernetics developed a scientific method using probability theory to regulate the transmission and feedback of information as a means of controlling and automating the behavior of mechanical and biological systems. (“Cybernetics and Art”, 2)

According to Shanken, a development which arose simultaneously with cybernetics was information theory, which was also focused on the enquiry regarding the behaviour of communication systems. Information theory is concerned with the process of how information:

... can be encoded, transmitted, received, and decoded. In general, the theory pertained to messages occurring in standard communications media, such as radio, telephone, or television, and the signals involved in computers, servomechanisms, and other data-processing devices". (Shanken, "Cybernetics and Art", 2)

In this relation, information theory also provides insights to how feedback loops transmit messages. According to Shanken:

A feedback loop enabled individual components of a system to dynamically communicate information back and forth. Wiener envisioned cybernetics as offering a method for regulating the flow of information through feedback loops between various interrelated components in order to predict and control the behavior of the whole system... The focus of inquiry becomes the dynamic and contingent processes by which the transfer of information amongst machines and/or humans alters behavior at the systems level. ("Cybernetics and Art", 2)

The writings by Wiener and others, who contributed to this area of cybernetics, information theory, feedback and systems, provided a source of inspiration for Roy Ascott, who explored it within artistic applications. Ascott asserted that from this investigation, art seemed to not 'reside' in the 'art object', but in an interactive system. Shanken, provides a description of Ascott's aesthetic approach:

...Ascott frequently used the words “interact,” “interaction,” “participate” and “participatory” to express the idea of multiple levels of interrelations among artist, artwork, and audience as constituents of a cybernetic system. This interactive quality underlying Ascott’s early vision of cybernetic art was founded on the concepts of process, behavior, and system. (“Cybernetics and Art”, 3)

For Ascott, a definition of art is a cybernetic system which consists of a network of feedback loops. Here art forms a single part of a larger interconnected system, related to the cultural sphere, which is in itself, a single component, of a greater network of social relations. A central aim, of Ascott’s vision for art, was for the ‘viewer’ to be able to be active in the creative process of an artwork through participation. With this relationship the artist, viewer and object form a system where information gets exchanged (Shanken, “Cybernetics and Art”, 4). Shanken points out that with such an approach to art, where participation plays a role in the exchange of information, compositional possibilities become infinite.

In conclusion, Halsall offers New Media Art a coherent discourse for its contextualisation. The writings of Shaken illustrate the three historical descriptions, which include the dematerialisation of the art object, intermedia and the post-medium condition. From this discussion, New Media Art will be discussed in relation to the concept of the Post-Optimal Object, which will occur in Chapter Three.

In this chapter the development of New Media Art, was located in post-war technological developments, convergence with everyday culture, as well as the art historical influence. In this chapter, it was discussed that, post-war technological developments, such as cybernetic and information systems, were both subject to artistic experimentation. The 1960s was highlighted, as a

decade, where momentum of the convergence of art and technological systems took place.

### **Chapter 3: New Media Art and the Concept of the Post-Optimal Object**

In the previous two chapters, the concept of the Post-Optimal Object and New Media Art were discussed and contextualised. In this chapter, I would like to use the categorisation of the concept of the Post-Optimal Object, which was established in Chapter One, and the contextualisation of New Media Art established in Chapter Two, in order to make evident a relationship between the two disciplines.

In the first section of this chapter, there will be a comparative discussion between the characteristics of the concept of the Post-Optimal Object, and the contextualisation of New Media Art discourse. This will contribute in illustrating the conceptual compatibility between the concept of the Post-Optimal Object, and New Media Art discourse.

The second section of this chapter introduces a New Media Art case study, entitled *Overflow*, by artist Laura Nova (2000). This work will be used to illustrate the arguments, which are established in the first section of this chapter. In order to fully illustrate a relationship between the two respective disciplines, *Overflow*, will be analysed in relation to the categorisation of the concept of the Post-Optimal Object. Similarly, in the final section of this chapter, a case study of the concept of the Post-Optimal Object, entitled *The Technological Dreams Series* (2007) by Dunne & Raby, will be discussed in relation to New Media Art discourse.

#### **3.1. A comparison between New Media Art and the concept of the Post-Optimal Object**

In Chapter One, three main areas of categorisation were drawn from the discussions related to the concept of the Post-Optimal Object; critical design; and conceptual design. This also included characteristics of the concept of the

Post-Optimal Object, which may be regarded as 'responsive'. These categories are entitled: the ubiquitous nature of technology, the dematerialised object and the implications of the user. In this section, each category will be discussed separately, and in relation to the historical contextualisation of New Media Art, established in Chapter Two. This includes the art historical descriptions: the dematerialisation of the art object, intermedia and the post-medium condition. The two papers by Edward Shanken, which were discussed in Chapter Two, will be revisited and play a crucial role in the development of this argument.

### **3.1.1. The Ubiquitous Nature of Technology**

The first category is the ubiquitous nature of technology and the summarised points are:

1. Like architecture, electronic objects should extend themselves to towards a cultural function, which speculates on the relationship which humans share with technological augmented objects.
2. The concept of the Post-Optimal Object is concerned with the role that electronic objects play in everyday life.
3. The concept of the Post-Optimal Object may involve the absurd combination of technology and everyday objects.
4. The concept of the Post-Optimal Object is concerned with the ubiquitous nature of technology in our greater environment.

In chapter two, the writings of Paul, Gere, and Shanken were employed to emphasise that the use of computers in art arose from a greater surge of post-war technology, which has now become a part of our everyday environment. Artists, from the beginning of these developments, began to experiment with aspects regarding the nature of these technologies. Gere went on further to argue that the technological developments, which arose around the Second

World War, have progressed to the type of computers that we have today (Gere 47).

These computational technologies are not just restricted to the computers that we use as part of our daily activity, but have also become part of our everyday environment and exist in products, which range from washing machines to portable music playing devices. This ever increasing reality is associated to what new media theorists regard as ubiquitous computing. Martin Lister defines ubiquitous computing as:

Term used to describe the diffusion of computing technologies throughout our environment through increasingly miniaturisation and the development of 'smart' (i.e. predictive) computing applications. Therefore the idea that computers will soon be an embedded function of our physical environments (391).

The ubiquitous nature of technology plays a crucial role in the concept of the Post-Optimal Object. Dunne's vision, associated to ubiquitous nature of technology, is directed towards the development of critical electronic objects, which form part of our everyday realities. This vision aims towards the development of conceptual objects, which provide an 'aesthetic experience' to the user. As developed in Chapter One, the concept of the Post-Optimal Object and critical design rejects strategies of commercial products. This form of criticism does comply with the agenda and area of concern regarding New Media Art. Paul supports this claim, which was mentioned in Chapter Two, regarding the technological history of digital arts. She locates this history within the technological development of the military-industry complex and that of consumer culture (Paul 8). Dunne's concept of the Post-Optimal Object therefore offers New Media Art discourse a critical view of ubiquitous computing, in relation to electronic products and consumer culture.

In chapter two, the term intermedia was discussed in relation to its influence in the development of New Media Arts. This also provides insight into New Media Art's compatibility with the idea of ubiquitous computing, which pertains less to the technological but the cultural. From this discussion it was highlighted that intermedia, which describes technical aspects of *happenings*, was associated with the exploration of artists and environments. Here the combination of everyday objects, environments, and the participatory role of the audience were all important aspects explored in *happenings*.

With both the concept of the Post-Optimal Object and New Media Art, the participant's experience with the work is vitally important. With the concept of the Post-Optimal Object a designed object should provoke alternative modes of user-objects interaction and facilitate characteristics such as alienation and estrangement. With New Media Art, the participant should "partake wholly" through the informational exchange, facilitated by an interactive system.

### **3.1.2. The Dematerialised Object**

The second category is the dematerialised object and the summarised points are:

1. The concept of the Post-Optimal Object provokes criticism towards mainstream electronic designed objects.
2. The concept of the Post-Optimal Object evokes the ideological nature inherent in the design of electronic objects.
3. The concept of the Post-Optimal Object is concerned with the conceptual models, values and systems of designed objects.
4. The concept of the Post-Optimal Object allows a shift from the producer and thing to the concept and idea.

In categorising New Media Art, Halsall included the art historical theoretical description, the dematerialisation of art object, which marks a shift in importance from the material to the idea or process of the work. In Chapter Two, Jack Burnham's seminal exhibition, entitled *Software*, was discussed. Here, it was established that the idea of dematerialisation, in the context of art and technology, is evident in a shift towards the conceptual emphasis of software, rather than material aspects of hardware. An important aspect of the emphasis on software, in relation to New Media Art, is its ability to facilitate a system which allows for the exchange of information between the art work and viewer, or to be more precise, the participant. In Chapter Two, the term software was also discussed in relation to the title of Jack Burnham's exhibition. Here, the term software, was seen as a metaphor for art in the information age, where the system of ideas included cybernetic and information theory (Shanken, "Art in the Information Age", 1).

Dunne uses the term, dematerialisation, in reference to the concept of the Post-Optimal Object. However, his usage of the term is far more ambiguous than that associated to Lippard's dematerialisation of art object. As stated in Chapter One, Dunne uses the term dematerialisation in two ways, which include both the invisible nature of the electromagnetic environment and the nature of the object, which is meant to act as a form of material criticism (Hertzian Tales, 13-15). Here, the second usage of the term, dematerialisation approaches Lippard's definition.

Dunne's utilisation of the term dematerialisation, in the context of the electromagnetic environment, is closer to the idea of the ubiquitous nature of technology. For Dunne, this informational environment is both susceptible to surveillance and it is also intrusive at the same time. This was highlighted in Chapter One, in relation to the case study entitled, *The Pillow*. As discussed in the previous section, the ubiquitous nature of technology is part of New Media Art's conceptual terrain. The ubiquitous nature of technology in relation to

New Media Art will be further discussed in Chapter four, with the aid of a case study.

Dunne's second association of the term, dematerialisation, is associated with the concept of the Post-Optimal Object's ability to form a critique on commercial design. This relates to Lippard's theoretical definition, of the dematerialisation of the art object, which Halsall uses as an art historical description of New Media Art. Here, the emphasis is associated to the work's systemic idea and less on the material aspects of the work. With New Media Art discourse this relates to the idea of software, which acknowledges cybernetic and information systems. However, with the concept of the Post-Optimal Object, the system is associated to principals of commercial design, which are subverted. Here the material aspect of the work is subject to a form of material criticism.

### **3.1.3. The Implications of the User**

The third category is the implications of the user and the summarised points are:

1. The concept of the Post-Optimal Object explores alternative modes of user-object interaction.
2. The concept of the Post-Optimal Object may also allow the user the role of protagonist and co-producer of interactive experiences.
3. The concept of the Post-Optimal Object may allow the user to be an (ab)user of electronic objects.
4. The concept of the Post-Optimal Object may blur the boundary between real and fiction.

As part of the conceptual development of the Post-Optimal Object, Dunne also introduces the term, "psycho-social narrative", which aims to offer the

user of the electronic object an experience where they may be seen as a “protagonist and co-producer” of the work (Hertzian Tales, 69). For Dunne the notion of a psycho-social narrative pertains to alternative behaviours associated to the common socialisation process of electronic products. This is also related to Dunne’s other term, (ab)user friendliness, which was discussed in Chapter One.

The concept of the Post-Optimal Object’s affordance to its audience to take on the role of protagonists relates to the New Media Art precursory movement, *Happening*. As discussed in Chapter Two, *Happenings* are renowned for audience participation. Kaprow, who was highlighted in Chapter Two, compared *Happening* to theatre, which is associated to a particular time and place. Labelle also highlights the importance of the body in *Happenings*, which included both the artists and audience. He also emphasises certain conceptual aspects of *Happenings*, such as, “partake wholly” and “real nature” (54). For Kaprow, these conceptual terms facilitate interaction between the audience and artists, which is equally important in the completion of the artwork.

In the next chapter, this similarity between the protagonist and participation, which are related to the concept of the Post-Optimal Object and New Media Art, respectively, will be discussed in greater detail.

In this section, the categories of the concept of the Post-Optimal Object, were discussed in relation to the contextualisation of New Media Art. These arguments play an important role in making evident a relationship between these two disciplines. Here many similarities of the respective disciplines’ conceptual and practical area of exploration were identified. This discussion will be extended in the remaining sections of this chapter, which will include case studies to illustrate the established arguments.

### 3.2. 'Overflow'

The first case study, selected for this chapter, is entitled, *Overflow* (2000) by artist Laura Nova. This work is an example of New Media Art installation. *Overflow* will be discussed in relation to the characteristics of the concept of the Post-Optimal Object. The central aim here is to illustrate how a New Media Artwork, such as *Overflow*, intersects with characteristics of the concept of the Post-Optimal Object. The arguments below do not intend to describe this work as a Post-Optimal Object, however it serves to draw parallels between common areas of exploration.

*Overflow* consists of a CD player, speakers and various other electronics embedded into a “vanity sink.” As documented on this website:

Installed in a women’s bathroom, this sink turns on sound instead of water. Each faucet plays a separate audio track, one laughing and the other crying. The viewer is lured to explore the unexpected as he/she encounters the seemingly unassuming sink. These faucets can also be used to adjust the volume, enabling the viewer the opportunity to mix the sound in numerous configurations according to personal preference. Exposing a private experience in a public space, the audience is engaged in a wide range of emotional responses — from laughter to tears. (lauranova.com)



**Fig. 5. Laura Nova. *Overflow*. 2000 (lauranova.com).**

The first, and perhaps more superficial, similarity between this work and that of the concept of the Post-Optimal Object, is the absurd combination of everyday objects and electronic augmentation (Fig. 5). Dunne utilises Fluxus and Chindogu in order to illustrate such combinations. *Overflow's* combination of faucet with the audio, which is experienced through interaction, is also reminiscent of the participatory nature evident in fluxus and *happenings*. A significant aspect of this work, in keeping with these art historical precursors, is its location, which occurs in a women's public bathroom (Fig. 6).



**Fig. 6. Laura Nova. *Overflow*. 2000 (lauranova.com).**

Another highlighted characteristic of the concept of the Post-Optimal Object, is its shift from the producer and thing to the concept and idea. This relates directly to the art historical term, the dematerialisation of the art object, which Halsall extends as a description which contextualises New Media Art. *Overflow* requires a participant to mix the audio documentation of the private experience of laughing and crying with the public experience of the washing of hands. This poetic intersection is not restricted to the object, or the sonic narration, but extends to the experience, which allows the participant to draw meaning from the work.

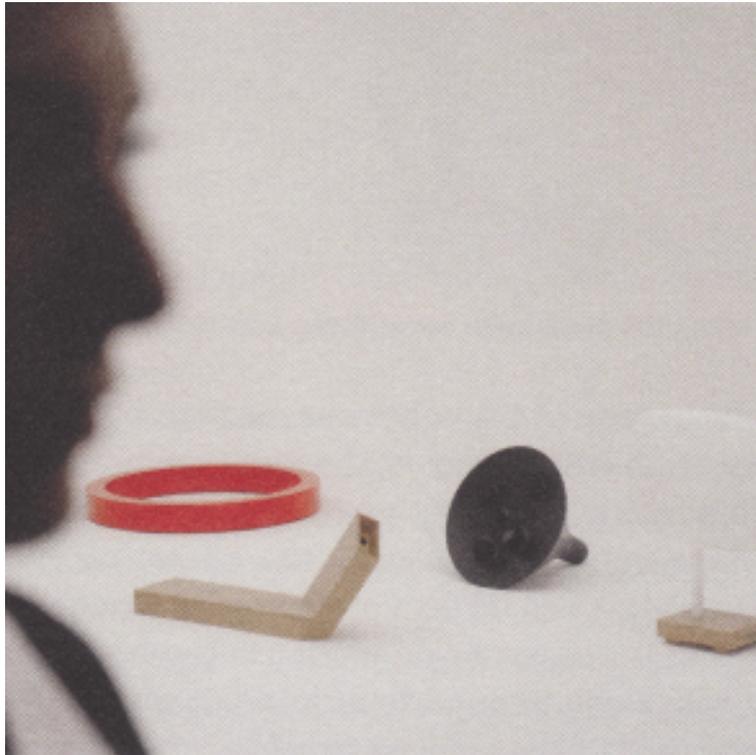
*Overflow* also displays properties such as the notion of aesthetic experience, user-unfriendliness, estrangement and alienation, which are related to the concept of the Post-Optimal Object. With Dunne's vision, the term user-unfriendliness negates the idea of 'transparent communication' and provokes the audience or participant to question their engagement with the

work. In relation to the meaning of *Overflow*, sufficient room is left for the participant to engage with, which is provoked by the estranged combination of faucet and audio.

Another common characteristic between *Overflow* and the concept of the Post Optimal Object pertains to the role of the user, as a protagonist and co-producer of the interactive experience. *Overflow* disrupts the etiquette and socialised behaviour associated with bathrooms, which involve washing one's hands. Here, one's interaction with *Overflow* evokes the idea of public and private behaviour as a narrative, where the participant extracts sound instead of water, which she controls in relation to volume and the mix between the audio, which includes that of laughing and crying. This engagement relates to Dunne's notion of psycho-social narratives. The concept of the Post-Optimal Object's consideration of user as a protagonist relates to *Overflow's* user-object experience, which invites the participant to 'complete' the art work, in the sense that their actions mediate a unique exchange of information.

### **3.3. 'The Technological Dreams Series'**

*The Technological Dreams Series* (2007), by Dunne & Raby, consists of four different robots. Each robot has unique behavioural characteristics. This work responds to the idea that robots will eventually "do everything for us" and aims to question the types of relationships which might emerge from our engagement with these robots, as well as, provoke a discussion on how we would like these robots to relate to us (Dunne & Raby, "The Technological Dreams Series"). This work is part of the permanent collection at the MoMA, New York.



**Fig.7. Dunne & Raby. The Technological Dreams Series: no. 1 Robot. 2007. Geneva (Dunne, AC|DC, 194).**

**Photo: Per Tingleff**

Robot 1. explores similar themes to *The Pillow*, which was looked at in Chapter One. This includes the intrusive nature of the informational electromagnetic climate. According to the website documentation:

Robot 1: This one is very independent. It lives in its own world getting on with its work. We don't really need to know what it does as long as it does it well. It could, for instance, be running the computers that manage our home. It has one quirk; it needs to avoid strong electromagnetic fields as these might cause it to malfunction. Every time a TV or radio is switched on, or a mobile phone is activated, it moves itself to the electromagnetically quietest part of the room. As it is ring shaped, the owner could, if they liked, place their chair in its

centre, or stand there and enjoy the fact that this is a good space to be in (Dunne & Raby, “The Technological Dreams Series”).

Robot 3. (Fig. 8), however, possess totally different behavioural characteristics:

Robot 3: More and more of our data, even our most personal and secret information, will be stored on digital databases. How do we ensure that only we can access it? This robot is a sentinel, it uses retinal scanning technology to decide who accesses our data. In films iris scanning is always based on a quick glance. This robot demands that you stare into its eyes for a long time, it needs to be sure it is you. On another level, it asks what new forms of furniture might evolve in response to future technological developments (Dunne & Raby, “The Technological Dreams Series”).

According to Dunne & Raby, *The Technological Dreams Series*, provokes us to consider robots as “subservient, intimate, dependent, [and] equal”. Such alternative behavioural qualities are strategically considered in order for the user to question the relationships that they may want to have with robots, which will soon inhabit our living environments (Dunne & Raby, “The Technological Dreams Series”).



**Fig.8. Dunne & Raby. *The Technological Dreams Series: no. 3 Robot*. 2007. Geneva (Dunne, AC|DC, 195).**

**Photo: Per Tingleff**

*The Technological Dreams Series* is concerned with technological convergence in everyday culture, and specifically looks at possible futures regarding robots within living spaces. Dunne & Raby's emphasis is not only restricted to their utilitarian function, but also includes evoking our interaction with these robots, and a behavioural level. In keeping with the vision of the concept of the Post-Optimal Object, this work questions our potential imagined experiences with the robots. As discussed in Chapter Two, Christiane Paul and Charlie Gere locate the development of art and technology to the convergence of post-war technology within everyday culture. This aesthetic area of response is compatible to *The Technological Dreams Series*, and relates to the theme of the ubiquitous nature of technology.

*The Technological Dreams Series* also requires participation. In the excerpt from Dunne & Raby's website, it was suggested that one may decide where to place the robot and how one could use it. The documentation of Robot 3., from the same source, also requires participation, where one has to maintain eye contact with the robot. This emphasis on participation may be compared to intermedia and *Happenings*, where audience participation plays an important role in the work.

In this chapter, the aim was to utilise the information from the previous two chapters in order to discuss similarities between the two disciplines. This objective serves to make evident a relationship between the two disciplines. In the first section of this chapter, the three categories of the concept of the Post-Optimal Object were discussed in relation to the three art historical descriptions which contextualise New Media Art. The case studies, entitled *Overflow* and *The Technological Dreams Series*, were used to support the arguments established in this chapter.

## **Chapter 4: Interactive Digital Installation and A ‘Responsive’ Post-Optimal Object**

Chapter Four may be considered as an extension of Chapter Three. In Chapter Three, however, the aim was to make evident a relationship between the concept of the Post Optimal Object and New Media Art discourse. In this chapter there will be a focus on a contemporary genre of New Media Art, known as interactive digital installation art. This will be analysed, in light of John Marshall’s categorisation of a responsive Post-Optimal Object.

In the first section of this chapter there will be a focus on interactive digital installation, in relation to New Media Art. This will also expose more recent aspects of New Media Art discourse, and builds on the discussions established in Chapter Two. To support this analysis of contemporary New Media Art and interactive digital installation, there will also be the utilisation of writings by new media theorists. The critical texts in this section, will include, New Media Cultures (2004), by P. David Marshall; and New Media: A Critical Introduction (2003), by Martin Lister, *et al.*

The last section of this chapter will be dedicated to comparing the concept of the Post-Optimal Object, with ‘responsive’ characteristics, to interactive digital installation. These characteristics will be discussed in relation to two case studies, which will be utilised to illustrate the analysis. This includes an interactive digital installation artwork by Lozano-Hemmer entitled, *Standards and Double Standards* (2004), and a Post-Optimal Object, which has ‘responsive’ characteristics, entitled *Et Dukkehjem* (2008) by Rooftwo (which includes John Marshall).

### **4.1 Interactive Digital Installation Art**

Interactive digital installation is a contemporary genre of New Media Art. Media theorist, Martin Lister includes “digitality, interactivity,

hypertextuality, dispersal and virtuality”, as being the defining characteristics of term new media (13). Digitality and interactivity are the main aspects of interactive digital installation in New Media Art. In this section, the term interactive digital art will be used as a synonym to interactive digital installation. However, in addition to the common properties, interactive digital installation extends to include an emphasis on the environment which contributes aesthetically to the work (Paul 71).

To begin, it is necessary to consider a definition of interactive digital art, in order to analyse its characteristics. This discussion will aid in relating these characteristics to those associated with the concept of the Post-Optimal Object, which is responsive. Lizzie Muller, in her essay entitled Living Laboratories: Making and Curating Interactive Art (2006), offers a definition to Interactive digital art:

The experience of art is always active, and in a fundamental sense interactive, consisting of the interplay of environment, perception, and the generation of meaning in the mind of the audience. However, with the advent of computer-based interactivity, a new kind of art experience has come into being. In computer-based interactive artwork, the activity is not only psychological, but also constituted through exchanges that occur materially between a person and an artefact. Audience and machine are working in dialogue to produce a unique artwork for each audience encounter (Muller 2).

Muller provides a successful definition of interactivity, as she recognises that the term interactive is not technologically determined, and the word ‘interaction’ arose from disciplines such as psychology. According to new media theorist, P. David Marshall:

[Prior to new media the term interactivity] was connected to two areas: group psychology where new therapies were developed that expanded beyond the cure through interaction with others; and in education where the effort was to improve the learning experience (14).

This lineage of interactivity is evident in Anthony Dunne's association of the word, which is purely psychological. However in New Media Art and culture this term is extended. Christiane Paul's definition of interactive digital art considers interactivity in light of new media culture. Paul defines interactive digital art:

With regards to digital art, however, interactivity allows different forms of navigation, assembling, or contributing to an artwork that go beyond this purely mental event. While the user's or participant's involvement with a work has been explored in performance art, happenings, and video art, we are now confronted with complex possibilities of remote and immediate intervention that are unique to the digital medium (67).

Paul successfully defines interactive digital art and highlights two of its important characteristics. The first is the "digital medium", which allows for interplay of information, and, secondly, the dependence of a participant. The last definition that I would like to highlight is by Simmon Penny who like Paul, emphasizes the input of a participant. According to Penny:

An interactive system is a machine system which reacts in the moment, by virtue of automated reasoning based on data from its sensory apparatus. An Interactive Artwork is such a system which addresses artistic issues. A painting is an instance of representation. A film is a sequence of representations. Interactive artworks are not instances of representation, they are virtual machines which themselves produces instances of representation based on real time inputs (1).

Penny's definition, which appears in his essay entitled From A to D and back again: The emerging aesthetics of Interactive Art (1996), acknowledges the importance of sensory apparatus which facilitate real-time exchange of information from a participant. All three definitions play an important role in unveiling the characteristics of interactive digital art and interactive digital installation.

#### **4.1.1. New Media Characteristics**

In this section, I would like to focus on the notion of interactivity, in relation to new media, which is extended from its psychological connotations, which Muller acknowledges. The purpose of this discussion is to illustrate that interactive digital art shares the key characteristics of the 'responsive' electronic object, which John Marshall introduced in his PhD thesis. The main characteristics of the term 'responsive', in relation to design, involve sensory mechanisms, dynamic media systems and user participation. These three characteristics will be discussed in relation to new media theory.

It is necessary to begin by analysing the term dynamic in relation to new media theory. According to Paul:

The digital medium is also dynamic and can respond to a changing data flow and the real-time transmission of data (68).

Here, the dynamic digital medium allows for the real-time changes initiated by the participant, through electronic sensory mechanism.

The process of digitisation involves the reduction of information into binary units, which results in the compression of information; the ability to access information at high speeds and in non-linear ways; and simpler ways of data manipulation. Lister extends this discussion:

Analogue media tend towards being fixed, where digital media tend towards a permanent state of flux. Analogue media exist as fixed physical objects in the world, their production being dependent upon transcription from one physical state to another. Digital media may exist as analogue hard copy, but when the content of an image or text is in digital form it is available as a mutable string of binary numbers stored in a computer's memory. (16)

Lister goes on to argue that the digital platform allows a merge of several medias, for example photography, music and video. These previously distinct medias may be digitised, and placed in the same database, for real-time execution. This is a common characteristic of new media, and is associated to the term convergence. Convergence is defined:

Term used to describe the ways in which previously discreet media forms and processes are drawn together and combined through digital technologies (Lister, 385)

New Media Art often utilises more than one media within a single work. It is common for a New Media work to involve moving images, still images and sound, for example. The process of digitalisation facilitates this combination of previously distinct media.

The other important area of discussion within the topic of new media is interactivity, according to Lister it is:

[A] powerful sense of user engagement with media text, a more independent relation to sources of knowledge, individualized media use, and greater user choice. This facilitates an 'environment' where

the user has the ability to 'intervene' in and change the images and text that they access. (21)

The interactive aspect of digital media and the digital platform provides a dynamic interplay of navigation, assembling and contributing, which the participant may intervene, through real-time input via various sensory mechanisms (Paul 67).

P. David Marshall extends the argument of the interactivity's relation to new media, by providing insight to the subjectivity of the 'user' of dynamic new media systems. According to Marshall:

...the essential feature of new media is connected to the capacity of the individual to transform the media form" (P. David Marshall, 25). From this relationship we find a cultural shift in both identity and subjectivity of the user (P. David Marshall, 24).

In explaining this subjectivity, P. David Marshall utilises terms such as 'prosumer' and 'produser'. These terms are hybrids of previously distinct terms such as "production and consumption" and producer and consumer (25). According to Marshall:

Encoded into the new media is the capacity to transform the actual flow and presentation of the material itself (P. David Marshall, 13).

P. David Marshall's insight, regarding the subjective nature of the interactive 'user', also sheds light on the characteristic, referred to as a 'dynamic' experience, which is often associated to new media.

In this section, the new media term, dynamic, was discussed in relation to other new media terms such as, digitality, convergence and interactivity. It

was established that these aspects of new media contributed to the storage of different types of media, which through sensory mechanisms allow a user to participate. Participation, according to the earlier discussion, facilitates the ability to alter the flow of media, through navigation, assembling and contributing, in real-time (Paul 67).

#### **4.2. Relating the Two Disciplines**

In the final section of this chapter, I would like to compare two works. These include an interactive digital installation art work by artist, Rafael Lozano-Hemmer entitled, *Standards and Double Standards*, and a design installation by the duo Rooftwo (Cezanne Charles and John Marshall), entitled *Et Dukkehjem*. It was pointed out in Chapter One, that Rooftwo describe their practice as hybrid art and design, and consider *Et Dukkehjem* as a Post-Optimal Object. A significant aspect of *Et Dukkehjem* was its date of completion, which is the same year John Marshall introduced the term 'responsive' in relation to electronic design. These works were completed in 2008. *Et Dukkehjem* is an example of the concept of the Post-Optimal Object, and illustrates its potential in being 'responsive'.

These case studies, will aid in illustrating the argument in the previous sections of this chapter, which pointed to the similarities of the characteristics of 'responsive' design to that of interactive digital installation art, which is a genre of New Media Art.

#### 4.2.1. 'Standards and Double Standards'



**Fig. 9. Rafael Lozano-Hemmer. *Standards and Double Standards*. 2004, Basel, Switzerland ([www.sfsu.edu](http://www.sfsu.edu)).**

The Mexican-Canadian electronic media artist, Rafael Lozano-Hemmer (born in 1967 in Mexico City) currently lives and works in Montréal and Madrid. Lozano-Hemmer works predominantly within disciplines which include architecture, technological theatre and performance. This work characterises Lozano-Hemmer's main area of practice, which is referred to as: theatrical interactive installations in public spaces. These works employ:

robotics, real-time computer graphics, film projections, positional sound, internet links, cell phone interfaces, video and ultrasonic sensors, LED screens and other devices. His installations seek to

interrupt the increasingly homogenized urban condition by providing critical platforms for participation. (Wikipedia)

The work, *Standards and Double Standards* (Fig. 7), “consists of leather belts, suspended at waist height from robotic servomotors mounted on the ceiling of the exhibition room”, which follows the participants. (Levin, 548) This work explores conceptual ideas of surveillance and paternal authority. (Levin, 548) A crucial aspect of this work is the utilisation of a computer vision-based tracking devise. Here the buckles of the belts rotate towards the direction of the participant’s location and movement. According to Lozano-Hemmer’s website:

When several people are in the room their presence affects the entire group of belts, creating chaotic patterns of interference. Non-linear behaviours emerge such as turbulence, eddies and relatively quiet regions. One of the aims of this piece is to visualize complex dynamics, turning a condition of pure surveillance into an unpredictable connective system. The piece creates an "absent crowd" using a fetish of paternal authority: the belt. (Lozano-Hemmer.com)

In keeping with the previous section, Lozano-Hemmer’s work involves sensory mechanism, which facilitates the real-time input of the participant or participants, in order to dynamically play with the media of the works.

#### **4.2.2. ‘Et Dukkehjem’**

*Et Dukkehjem* (Fig. 8), by the duo Rotoftwo, involves interactive technology embedded into custom designed furniture. This work consists of five pieces of furniture, each named after a different character from the play, *A Doll’s House*, by Henrik Ibsen. In this work each item of furniture behaves

differently. According to the artists, the utilisation of the poem evokes an exploration of user-object relationship.



**Fig. 10. Rooftwo. *Et Dukkehjem*. Macedonia, Skopje, 2008, (designedobjects.blogspot.com).**

John Marshall lists the designed objects with their functions and names:

**TORVALD**, an armchair. When Torvald is sat on a webcam is activated and begins streaming images to the project website.

**NORA**, a rocking stool. When Nora is sat on and rocked lines from Ibsen's play are uploaded from a database via Twitter to the project website. Nora also 'tweeters' for the present audience by playing pre-recorded audio clips.

**Mrs. LINDE**, a lamp. Mrs. Linde changes from a warm to a cool light quality/color and back again in a timed sequence.

**KROGSTAD**, a table. Krogstad plays pre-recorded audio clips triggered by the audience and determined by the present state of

Mrs. Linde.

**Dr. RANK**, a rug. Dr. Rank acts as a switch changing the state of the objects from passive to active (with an audio cue). The rug will be used to define the extents of the work and cover any trailing wires.

([www.designedobjects.com](http://www.designedobjects.com))

In the above list of functions, associated to each item of furniture, sensory mechanism is utilised in order to mediate the participant's actions within the digital environment. According to John Marshall, a photocell is embedded into the armchair 'Torvald'. This electronic device, which is sensitive to light, is situated on the seat and responds when someone sits on the chair, as the light is instantly blocked off (Fig. 9). When the light is blocked off, the sensory mechanism instructs the webcam to take an image. This is, however, just one example, each item of furniture has a different sensor which responds to a different computational instruction.



**Fig. 11. Rooftwo. *Et Dukkehjem*. Macedonia, Skopje, 2008, ([designedobjects.blogspot.com](http://designedobjects.blogspot.com)).**

### 4.2.3. Comparison of the Two Works

With both works, *Standards and Double Standards* and *Et Dukkehjem*, sensory mechanisms play an integral role in using information, (in most cases this includes the participants' presence), in order to alter the media of the works in real-time.

With the work, *Standards and Double Standards*, the intended behaviour includes the rotation of the buckles of the belts, in order to follow the person within the installation space. Here the computer tracking device processes the data associated to the participant's location and movement, which in turn alters the direction that the belt buckles face. The behavioural aspects of the belts, in relation to the participant, contribute towards the intended meaning for the work, which looks at surveillance and paternal authority.

Likewise, *Et Dukkehjem* shares similar properties. With this work the user's interaction with the furniture unfolds the intricate interactive system. This work, by Rooftwo, consists of five sensory mechanisms, one in each item of furniture, which triggers five totally different digitally mediated responses. *Et Dukkehjem* has far more layers of technological functioning, however, with both works, meaning plays an equally important role. In this work, the table for example, which is named 'Krogstad', has a passive infrared sensor attached. When this apparatus detects a participant, audio dialogue of the play, *A Doll's House*, is triggered. Like, *Standards and Double Standards*, the sensory mechanism provides an instruction to the digital system, which behaves differently in relation to the presence of a participant.

Both case studies illustrate the three characteristics of 'responsive' design and the critical aspects of new media theory. With these case studies, the participant's presence, which is detected by sensory mechanism, triggers information, which causes the work to alter its state, in real-time.

- The first characteristic of the term 'responsive', in relation to design, is the usage of sensory mechanism. In both case studies sensory mechanism played the important role of detecting the presence of the participants. This also corresponds to Simon Penny's account of interactive digital art, where "sensory apparatus" is used to alter the flow of data in an interactive system. With the digital interactive artwork entitled, *Standards and Double Standards*, the sensory mechanism determined the location of the participants, in order for the buckles of the belts to follow the participants. *Et Dukkehjem*, which is an example of the concept of the Post-Optimal Object, which is responsive, utilised these mechanisms in each item of furniture, which responds differently.
- The second characteristic of the term 'responsive', in relation to design, is a dynamic media system. As discussed earlier, Paul regards the term 'dynamic' as being a crucial aspect of digital and New Media Art. This relates to new media terms such as digitality and interactivity. It was discussed that digitality involved the radical compression of information. In the case of art, this would include previously distinct aesthetic media such as video, sound, etc. With new media art these medias can exist within a common database, and become altered through participant interaction. *Et Dukkehjem* is an ideal example, as it consists of many dynamic layers. Here, each item of furniture responds differently, which includes the table triggering off audio, and the chair taking photographs, which get uploaded to the work's website, for example. With the work *Standards and Double Standards*, behaviour of the system changes according to the amount of participants present. If one person is present all the buckles would follow him or her, however, if there are several people present the buckles change direction towards chaotic patterns.

- The third characteristic of the term 'responsive', in relation to design, is its emphasis on the participant's role. This characteristic, as well as the other two, are all inter-related. Here, the sensory mechanism reduces the participant's influence on the work into data, which in real-time communicates with the dynamic media system. With both case studies the participant's presence and location determine the influence on the behaviour of the works. With the work entitled, *Standards and Double Standards*, the location and the number of participants are the important factors in the behaviour of the work, whereas with *Et Dukkehjem*, the audience's interaction with the furniture triggers off a reaction with the media system.

In this chapter, the interactive digital installation artwork, *Standards and Double Standards*, and *Et Dukkehjem*, an example of the concept of the Post-Optimal Object, which has 'responsive' qualities, were analysed by their respective characteristics. From these discussions both disciplines showed many similarities.

## Conclusion

The primary objective of this research paper included connecting the concept of the Post-Optimal Object, which is a proponent of design, to New Media Art. This connection involved illustrating that the conceptual and practical explorations of these two aesthetic disciplines are compatible. This research agenda was motivated by the recent development of the concept of the Post-Optimal Object, which included the characteristic of being 'responsive'. The main case study illustrating the 'responsive' Post-Optimal design' is *Et Dukkehjem*, by Rooftwo, which was analysed in Chapter Four.

In achieving this research objective two main routes were taken:

1. Illustrating compatibility between Anthony Dunne's concept of the Post-Optimal Object, by comparing it to the contextualised description that Francis Halsall provides for New Media Art.

This task formed the agenda for Chapter Three, where the characteristics of the concept of the Post-Optimal Object, established in Chapter One, were compared to the three art historical terms which contextualise New Media Art, which was established in Chapter Two.

In Chapter Three, the following points were concluded, which provides evidence of the respective disciplines' compatibility:

- The characteristic, attributed to the concept of the Post-Optimal Object, referred to as the ubiquitous nature of technology, also relates to the development of art and technology which resulted from post-war technology's convergence with culture.
- From this convergence, art and technology is also concerned with technological development in relation to consumer culture, which is the

primary area that the concept of the Post-Optimal Object aims to respond to, and subvert.

- The New Media Art's art historical description, intermedia, which is related to *Happenings*, emphasises everyday environments. The environment is a crucial aspect of the term 'ubiquitous' in relation to the nature of technology.
- Dunne's usage of the term dematerialisation is in keeping with the art historical description, the dematerialisation of the art object, which is associated to New Media Art. The dematerialisation of the art object, marks a shift in importance from the material to the systems of ideas, which the object embodies. The concept of the Post-Optimal Object shifts the emphasis from semiotic and functional innovation, to new modes of user-object interaction, which critiques commercial design.
- The concept of the Post-Optimal Object aims to consider the user as a protagonist and co-producer of the experience, with the object. This relates to intermedia and its association to *Happenings* and participatory arts, where the participant "partakes wholly" and is involved in the artwork.

In Chapter Three, a New Media Art case study entitled, *Overflow*, illustrated the following qualities, which related to the concept of the Post-Optimal Object:

- A combination of electronics with everyday objects such as *The Pillow*.
- The combination of faucets with the audio of laughing and crying, relates to alienation and estrangement which forms the 'aesthetic experience' of the concept of the Post-Optimal object.
- This work requires a participant, who may be regarded as a protagonist and co-producer, in relation to the experience of the work. Here the participant is free to mix the two audio tracks according to their own subjective relationship, in order to the experience of the work.

The second case study in Chapter Three, is entitled, *The Technological Dreams Series*, which is an example of the concept of the Post-Optimal Object. The follows qualities related to New Media Art:

- The work is concerned with the convergence of technology with everyday culture.
- The work involves participation. Robot 1., for example, responded to the electromagnetic climate, and encouraged a participant to follow its location, as it moved towards the area least polluted by electromagnetic radiation.

From these discussions in Chapter Three, the similarities between the concept of the Post-Optimal Object and New Media Art, prove that the conceptual and practical areas of exploration, with both disciplines, are compatible.

2. The second main route, in achieving the objective of the research paper, included a contemporary reflection of these two disciplines. Here the concept of the Post-Optimal Object, which is 'responsive', was compared to interactive digital installation, which is a genre of New Media Art. The focus in this investigation was associated to a contemporary practice of the two disciplines.

This discussion was conducted in Chapter Four. The term 'responsive', in relation to design, consisted of three characteristics, which were discussed in relation to new media theory and interactive digital art.

In Chapter Four, the following similarities between the characteristics of the term, 'responsive' and interactive digital installation art were concluded:

- A dependency on sensory mechanism and apparatus is necessary for the participant's input.
- Dynamic media systems are important to the respective disciplines. This relates to the two fundamental aspects of interactive digital art, which include interactivity and digitality. Digitality allows for radical data compression and results in previously distinct media existing within a single data-base, for real time execution. Interactivity relates to the interplay of media within a database and its flow in real-time.
- The participant's input on the dynamic media system, via sensory mechanisms, radically alters the media within the work.

The case study entitled *Standards and Double Standards*, which is an interactive digital installation, and the concept of the Post-Optimal Object case study, which is 'responsive', entitled *Et Dukkehjem*, were used to illustrate the arguments in Chapter Four.

The following observations were made:

- Both case studies involved sensory mechanisms which detected the presence of the participant.
- Both case studies consisted of dynamic media systems. With *Standards and Double Standards*, location and the number to participants altered the behaviour of the work. Whereas with, *Et Dukkehjem*, the participant's interaction with the furniture altered the behaviour of the work.
- Both case studies were reliant on participation, in order to trigger instructions to and from the dynamic systems and facilitate real-time changes.

From the arguments established in this research paper, evidence points to similarities regarding the fundamental aspects of the respective disciplines.

These similarities point to compatibility regarding the concept of the Post-Optimal Object, which is 'responsive', with interactive digital arts.

The two approaches, which were utilised in proving the objective of this research paper, provided evidence in compatibility regarding the relationship between the concept of the Post-Optimal Object and New Media Art.

Finally, even though the scope of this research project does not seek to investigate the benefits of the potential of interdisciplinary relation with New Media Art, it is clear that such an investigation would provoke a New Media artist to examine the importance of design. It is also common for many aesthetic critics to dismiss New Media Art as gimmicky; in fact Dunne dismisses New Media Art for similar reasons. Such an investigation of the concept of the Post-Optimal Object, by New Media Artists, would evoke the conceptual heritage of New Media Art. This research aims to provoke a mutual understanding between these two aesthetic disciplines, with the intention of encouraging interdisciplinary collaboration.

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