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A DEFAMILIARISATION OF THE NATURALISED USABILITY OF THE PHOTOSHOP GRAPHICAL USER INTERFACE

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A dissertation submitted to the Faculty of the Arts, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Arts.

Johannesburg, 2008

ABSTRACT

The graphical user interface of the ubiquitous Photoshop image manipulation software has naturalised image production as selection from a menu of pre-defined options. Before the birth of Adobe Photoshop in 1990, creative arts production was a specialised and predominantly time consuming craft. Today image production has been automated through a system that has democratised previously specialised production skills. New media theorists and practitioners have argued that the GUI has been designed as an environment to be looked through, instead of being looked at, critically. As a dominant postmodern cultural tool, Photoshop has consequently influenced the design of subversive artworks such as *HeritageGold* and *Autoshop*, which provide a platform for challenging the presumed universal appeal of the graphical user interface (GUI). Although much research has been conducted around the design of the GUI, and the user experience, there is a lack of critical writing around Photoshop as a cultural tool which has naturalised its usability for a presumably *universal* target audience. As an African user of technology that is based on graphical interfaces I use Photoshop to defamiliarise this naturalised interpretation and usability of software.

DECLARATION

I declare that this dissertation/thesis is my own unaided work. It is submitted for the degree of Interactive Design in the University of the Witwatersrand, Johannesburg. It has not been submitted for any other degree in any other university.

_____
(name of candidate)

_____ Day of _____, 20____

ACKNOWLEDGEMENTS

I would like to thank Desmond Laubscher and Ingrid Templer for their consistent support and motivation. I am where I am today because of you. I would also like to thank my supervisor Christo Doherty for his patience and guidance throughout the duration of my studies at Wits University. You opened my eyes to a wealth of knowledge and insight that I had never thought possible.

This paper is dedicated to all of the students at Greenside Design Center who have been inspired by the knowledge that I have shared with them over the years.

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INTRODUCTION

A few years ago my well travelled sister-in-law told me of an experience she had whilst travelling overseas on a business trip. At one of the conferences she attended a well meaning European couple approached her and asked her if she was from Africa. She replied in the affirmative, and added that she was from Botswana. At this, the couple got very excited and asked her if she happened to know a friend of theirs, whose name they mentioned. Botswana is a small country with a population of just over two million, so my sister-in-law asked where in Botswana this friend was from. The couple replied that he lived in Ghana.

The idea that Africa is one big village is not an opinion shared by the above mentioned couple alone. In fact, the idea of the whole world as one global village was suggested by Marshal McLuhan as early as 1964[1]. McLuhan also observed that the way in which one interprets a message is influenced by the medium through which it is delivered – an observation that is very relevant to the arguments raised in this paper.

When Vannevar Bush wrote about the then futuristic memex machine, in 1945, he envisaged “an enlarged intimate supplement to his memory” (Wardrip-Fruin 45) which would basically be a large desk with a keyboard and screens for projecting reading material. This displayed material could then be passed from one person to another, therefore creating many variations of one encyclopaedia of information. This transfer would occur, presumably, because all the people sharing this information would have similar memex machines. Whilst Tim Berners-Lee has been credited with inventing the hyper-linked World Wide Web, Bush's memex device played a big role in influencing its existence. It also arguably influenced inventors such as Douglas Engelbart to formulate the language, technology[2] and look of the computer user interface, as we know it today.

Today the language and look of the computer user interface have been normalised world wide, through the personal computer operating system, the internet and software applications. One such software application is Adobe Photoshop, an image and photograph manipulation application which was conceptualised in 1984. Photoshop automates, amongst others, the activity of manually painting or retouching images through the use of traditional media. Whilst the look of the user interface facilitates the quick execution of otherwise labour intensive procedures, it also naturalises user experiences for its world wide target audiences and users.

The purpose of this research is to defamiliarise the universally naturalised usability of the Photoshop graphical user interface in order to reflect on how GUIs influence interpretation. To achieve this, I borrow the term *Defamiliarisation* from Russian Formalism (1914-1930). The specific term was introduced by Russian Formalist Viktor Shklovsky, through his *Art as Technique* essay, to describe the idea that in order for one to truly appreciate the conventions used in a creative production such as literature, it is important to defamiliarise the processes that were involved in the craft. He argued that "art exists so that one may recover the sensation of life...Art is a way of experiencing the artfulness of an object; the object is not important" (qtd in Hale 20). By borrowing from the idea of this literary term I aim to critique the evolution of image manipulation practices leading to the creation of Photoshop, as well as analyse the creation of digital artworks that have developed as a result of the existence of Photoshop as a hegemonic image manipulation tool. This critique aims to highlight new ways of seeing what has been conventionalised as a universal working practice. Ultimately I aim to show the end user that the design of graphical user interfaces is as the result of the naturalisation of specific cultural practices and therefore can be used to create interventions that are culturally relevant.

Since the birth of technology, every generation has considered its technologies to be avant garde. Photography, film, architecture, and print technologies have all gone through their own stages of being new and revolutionary. Postmodern digital technologies have now also provided new platforms for new forms of avant garde cultural expression. This has been achieved, not only through the creation of faster, smaller machines, but also through combining technologies defined through science, technology, traditional literature, architecture, film and art. The personal computer, a case in point, has provided a platform for visual and digital expression that has socially, economically and politically changed the way that societies interact.

> In its fifty-year history, the computer so far has been a calculating machine, an electronic brain, a filing cabinet, a clerk, and a secretary. If we trace that history briefly, we can see how the computer has now become a medium, or rather a growing set of media forms (Bolter and Gromala 15).

Bolter and Gromala explain that as a medium, the computer both *transforms* and *transfers* messages. They argue that even though the computer was not originally designed to become a media form, it should be seen in the same light as print, radio, film and television – all media forms that have evolved and transformed the way we interpret the world today.

> Before there were computers – indeed before there were media of any kind – people were just in the world. People saw things as they really were: there were no pixels, no aliasing, and no need for Web-safe colors. Objects were present to people; the rays of light reflected by objects entered their eyes undistorted by any intervening medium (other than the air itself). Today, a good computer interface

> gets the user as close to that original experience as possible (Bolter and Gromala 49).

This is the *myth of transparency* which forms a key component of this research paper. By announcing this myth, the authors aim to denounce the belief of interface designers who are trying to convince users that looking at a computer interface is as real as looking at the real world through a transparent window. The transparency argument encourages the computer user to take a closer look at the computer as a hegemonic medium that has just borrowed from older media forms to create opportunities for new and revolutionary ways of seeing both the analog and digital world. That computer interfaces just represent real life, and can be turned off, whilst real life always carries on.

The design of the computer and its interface, have evolved over the past 60 years to become its modern incarnation – a personal use computer with a graphical user interface (GUI). During its formative years, when it was predominantly used for military purposes, the majority of the space that computer machines occupied was reserved for the mechanism. In order for one to operate the machine, they would have to understand how each cog and button functioned. Over time computers have evolved, become smaller, prettier (like the brightly coloured all-in-one iMac, introduced in 1998) and relatively easier to understand. This can be attributed largely to the graphical user interface, introduced during computer research in the 1970s and adapted for personal computer use in the 1980s to help users understand how the machine worked. This graphically represented environment however, does not simply provide a neutral visual code for the user to decipher. Instead it embodies cultural ideologies with far reaching consequences for its worldwide audiences.

The digital GUI is characterised by icons and text, which have to be deciphered by the user, in order to communicate with a binary data device. This interface can be anything from a cell phone liquid crystal display, a computer screen, to an automated teller machine touch screen in a shopping mall. “The digital interface is the medium that is placed between humans and binary data. With the computerisation of everything at the beginning of the 21st century [...] the interfaces on various devices are our best chance of acquiring a good understanding of it all” (Dabbs 6). However, Dabbs continues to explain that this well designed digital interface doesn't always work in *real life*. It is this assumption of a single universal interpretation of the digital medium that has prompted a closer look at the real life users of Photoshop.

The Photoshop GUI, which is still rooted in the metaphor of the physical (memex) desktop, is designed and programmed to be interpreted in a user-friendly way, however this preferred interpretation is not always *apparent* to, or *preferred* by, the user.

It is therefore also through addressing the inherently linked issues of *authorship* and the *user* that the user experience is investigated.

It is impossible to debate issues surrounding new media without framing them within the postmodern context – an environment characterised by copying, mixing and reconstructing a variety of media texts. “Media and information technologies have created not only a storehouse of images that has led to aesthetic practices based on pastiche and appropriation but also the environment in which cultural discourses are disseminated” (Auslander 17). This paper follows a similar path, drawing from postmodern perspectives which include pastiche and parody, which have important technological and cultural implications for the user.

Whilst the first Photoshop application was designed by two brothers, Thomas and John Knoll, one of the more current versions[3], Adobe Photoshop CS2, has been co-authored by at least 34 people. The user's authorship role on the other hand, is defined predominantly through selection from pre-defined menus and libraries within the existing application.

These authorship structures both influence and define the relationship that the user has with the application. Through questioning the neutrality of technology, the user is therefore encouraged not to view the technology solely as a means of automating traditionally specialised and labour intensive tasks, but as a medium which embodies dominant ideologies of identity and ownership. A critical look at the nature of Photoshop, its user interface and the role it plays in defining the user experience, all reveal that it is not only a new medium, but also a powerful vehicle for popular visual culture practices, which could allow for alternative user experiences.

To contextualise the above opinion, a comparative analysis is carried out between Photoshop and two digital artworks, *HeritageGold* and *Autoshop.*

HeritageGold is a software application artwork designed by a British group of net artists/activists called Mongrel[4]. This software application is based on the GUI of the first commercially distributed version of Photoshop. Whilst it follows the conventions of the Photoshop interface, its subject matter is very specific to issues of race. Interacting with the *HeritageGold* application highlights critical issues around technology's embodiment of dominant ideologies of culture and identity.

Autoshop offers the conventional Photoshop user, an experience that challenges many of the accepted norms of the Photoshop experience. *Autoshop* is a software artwork,

designed by yet another British software production company called Signwave[5], which parodies the Photoshop application. Unlike *HeritageGold*, this application does not have a library of pre-defined imagery. Instead, it has a toolbox with very unconventional tools and functionality which greatly alter the user experience.

Although the comparison of the two artworks to Photoshop are pivotal to the arguments raised in this paper, it is important to state that the intention is not to de-merit the important role that Photoshop has played in the development of computer technology and interactivity. As one of the leading image manipulation applications in the world today, Photoshop provides a familiar starting point for the general defamiliarisation of the usability of graphical interfaces for the many audiences that are exposed to them.

The Photoshop Interface has re-defined the traditionally laborious process of authorship to that of simple ‘point and click’ selection. Whilst this makes image production essentially effortless for the user, it potentially defines how the user should define production. *Chapter One* introduces the reader to Photoshop by mapping out the changes that have taken place in the history of image production and led to the introduction of Photoshop and its graphical user interface. Because the history of image production is very broad, this timeline focuses specifically on practices that led to the introduction of Photoshop as a major role player to desktop publishing practices as we know them today.

Chapter Two focuses primarily on the defamiliarisation of Photoshop by analysing two parody digital artworks. It investigates the popularised transparency of the GUI, which has led to the popularity of the 'interfaceless' environment in many interface designs. This is contextualised by borrowing the Russian Formalists’ idea of defamiliarisation and

explaining it through the analysis of Bolter and Gromala's arguments regarding user interfaces. They argue that the computer as a medium is increasingly being designed to be transparent, however digital artworks are increasingly proving that the technology can be both transparent and reflective, hence the title of their literary text, *Windows and Mirrors: Interaction Design, Digital Art and the Myth of Transparency* (2003). They argue that even though digital technology is continuously evolving, the technologists involved in creating its content are still thinking like computer scientists. They contextualise this by looking at Tim Berners-Lee, his vision for the hypertext World Wide Web system, and the 'invasion' of the Internet by Graphic Designers.

> The Structuralists were separatists, believing that form and content could and should be separated [...] They opposed elaborate visual design, which they thought impeded the flow of information. The Designers, on the other hand, were unitarians, who believed that form and content could not be separated: that a Web page communicates its message through the careful interplay of words and images (4).

This interplay of text and images is also evident in the graphical interface that Bolter and Gromala say technologists are now increasingly trying to make disappear. They contextualize this through the analysis of digital artworks exhibited at the Special Interest Group in Computer Graphics and Interactive Technologies (SIGGRAPH) art show in the year 2000. A close analysis of the look and interactivity of these artworks reveals that whilst they are designed to make the technology invisible, they also allow for reflective interaction.

In this chapter, Photoshop is critically compared to two digital artworks, namely *Autoshop* and *HeritageGold*. Based on the idea of user centred design, the comparison reflects

how these digital artworks offer alternative user experiences with strong technological and cultural implications. By using Bolter and Gromala's arguments as context, the artworks are used to show that whilst software designers aim for the interfaceless environment, they can also use the medium in a reflective manner. Through this process the naturalised usability of Photoshop is defamilarised.

The viewpoint that technology is not neutral is increasingly shared by many in the global village. One of the many is Lev Manovich, who observes that "...throughout the twentieth century, countries other than the United States were first to critically engage with new technologies developed and deployed in the United States" (13). This observation is critical in observing the relationship between the technologist and the user. Manovich explains that with the speed at which new technologies are developed, they tend to become 'invisible' so quickly, that nobody (in the United States) bothers to analyse their international implications. Because of the ubiquitous effects of globalisation however, end users are not confined to the United States. As a result user experiences must be considered and critiqued on a global scale.

Chapter Three explores this idea of technologies that are developed in a specific cultural context and then disseminated internationally for 'the User'. It provides a critique of the concept of a universal user through the analysis of *Photoshopping*.

Photoshopping describes the look of an image after it has been digitally manipulated using image-editing technology. The most common *photoshopping* of an image is done as a way of spoofing or creating a satirical statement about something. This critical look at *photoshopping* demonstrates the ideological powers of artifacts (produced through Photoshop), which can either shape communities or hinder the flexibility of interpretation.

In order to discuss *photoshopping* in relation to the user, it is important to address the usability of the Photoshop environment. The use of Photoshop tutorials is examined in order to highlight usability issues that may arise for a user who is not familiar with the culture of Photoshop.

Basile Zimmermann, a researcher and musician at the University of Geneva, states that because of the complicated nature of technology, “If a technical object is used, and if its content cannot be modified by its user, its content will be –during its use– imposed on the user” (When the Chinese...). Zimmerman's views provide a vital argument for how technology can work within non-Western cultures. Through what he terms the accumulation process and the struggle against difference he tackles issues of cross cultural collaboration by posing thought provoking questions around technology. His views on user experiences in this context were greatly influenced by collaborations he did with a Chinese musician in 2004. His experiences highlight some of the critique that is developing globally to confront and address the needs of users on a global scale, as a result of the world wide dissemination of new media technology. He echoes the sentiment of many other new media theorists who are highlighting a much needed consideration of the needs of non-Western users throughout the global village.

In *Three Paradoxes of the Information Age* (1992) Langdon Winner looks at the ‘progress’ of technology and provides an insightful observation on the negative implications of this progressive technology. This idea of progress has led to what Winner calls *Artifactual Ventriloquism*. These observations are linked to the proposal that the medium should allow the user to not only *reconstruct* identity, but also *deconstruct* it to create new ways of seeing for both creators and end users.

One of the proposed 'ways of seeing' is the introduction of technology that is centred on the user rather than the technology, to allow for more alignment with the user's social and cultural condition.

Users of technology have very little control over the kind of technology that they use. This is mostly because they have very little say over the content and the production of the physical product. *Chapter Four* explores the idea of the interface, with particular emphasis on how new media technology allows for constant re-definition of the capabilities of a user interface. Different examples of digital interfaces are explored to foreground the importance of intercultural designs of interfaces.

The purpose of this paper is not to propose a new version of Photoshop, but rather to provide readers the opportunity to learn from the challenges of the Photoshop user experience in order to see GUIs in a new way. The focus on the Photoshop experience is in an attempt to explore issues concerning how both creator and user see, engage with, and react towards the GUI. It questions the context within which technological developments happen, and whether constantly evolving digital media can provide alternative intervention strategies.

CHAPTER ONE: THE HISTORY OF PHOTOSHOP

As a young woman from Botswana, my first encounter with Photoshop was as a first year design student in the big city of Johannesburg, and like most of my fellow classmates I could hardly wait to learn how to use the 'cool' filters. As a young child I had been introduced to the Mediterranean art of the Cretans in a history lesson, so I was particularly keen to learn how I would be able to create my own Greek style murals by using the Fresco filter, and how just by the click of a mouse, I would be able to 'add noise' to a scanned image!
My short-lived excitement at the kind of magic that Photoshop could offer set me on my journey to find out more about this world renowned application.

This journey has led to many eye-opening discoveries about Photoshop, which not only position it as a popular image manipulation application but also a key contributor to the desktop publishing (DTP) revolution. This chapter discusses the history of image production and manipulation, from lithography to the beginning of the DTP revolution of the 1980s. This is followed by a specific account of how Photoshop originated and developed as an image manipulation technology. Finally an overview of the ubiquity of Photoshop is provided through the examination of its influence on dominant visual culture practices which have become naturalised globally.

The evolution of image production practices.

Image production technologies have evolved greatly from the days of hand generated rock paintings, the highly revered scientific painting techniques of the Renaissance fresco artists, the mass production printing presses from the industrial revolution, to today's electronic methods of production. For the purpose of positioning Photoshop in the

relevant context this evolution shall begin with the introduction of lithography as an image production technology and provide an overview of how this technology has evolved and influenced desktop publishing practices that we take for granted today. By addressing the history of today's re-fashioned image production practices – a process that delves into an exploration of the development of relatively traditional image production methods such as photography - Photoshop is positioned as a leader in image manipulation practices and a valuable desktop publishing tool.

The birth of lithography

> The history of printing is the history of production. While the duplication of the printed message remained in the hands of the monastic, there was no need for technical knowledge; the process of graphic communication was governed by individual artistry (Shlemmer 15).

Even though it was the Chinese who invented paper, it wasn't until the fifteenth century that the first printing press was designed. Before the fifteenth century[6] printing methods included writing on scrolls, painstakingly illustrating illuminated manuscripts and using wood blocks to make impressions on paper. Johannes Gutenberg introduced the first movable type printing machine in 1450. Through the use of individual letters cast in metal, he was able to create a type printing system that was more flexible than previous printing methods.

Lithography as a printing technique was invented in Munich in 1798 by Alois Senefelder. The technique was developed around the idea that if the artist could draw (backwards) directly onto the surface of a flat stone, then they could transfer the image onto a chosen substrate (usually dampened paper), without needing to use the (then prevalent)

services of a letterpress engraver.

The image was drawn onto the stone using a greasy ink. When the stone was dampened with water and inked, the ink would only adhere to the greasy sections of the stone, allowing for the reversed image to be transferred onto paper. The advantage of using this system was that the artist could re-use the stone to make more than one reproduction of the same image. The technique has evolved and improved from the days where it was done through a process of drawing onto stone to today where most of the printing and production processes have become automated and digitised. The technique has gone through a great evolution process which, when scrutinised, has influenced (and continues to influence) the automated processes that are standard practice in desktop publishing today.

Lithography as an image reproduction tool has been widely used, since its inception, to reproduce books and other printed media. However with the developments in technology which have taken place since the late 18th century, other processes such as photography have revolutionised traditional lithographic practices.

These traditional lithographic practices involved the artist preparing, inking, dampening and preparing their own paper for printing. The introduction of photography in the late 1830s allowed the reproduction of more impressions of the original image, complete with tonal variations, through an equally detailed process of *photolithography*. Shapiro (1:7) explains the rigorous reproduction process followed by French chemist Alphonse Louis Poitevin[7] as follows;

> Poitevin coated the stone (grained for halftone pictures) with a solution of potassium bichromate and albumin, equalized the coating with a tampon, dried,

> exposed under a negative, washed with water, rolled up with greasy ink (or rolled up first and then washed) which only adhered to the parts which had become insoluble by exposure to light but did not adhere to the moist parts. The stone was then etched and printed by the usual lithographic method.

This was a complex process which required much skill, precision and scientific knowledge from the photographer, in order to produce optimum results.

Towards the end of the 19th century, lithographers introduced the use of zinc plates in place of stones. They discovered that by using thin zinc sheets, they were able to use a quicker rotary press method to reproduce even more lithographs in a shorter period of time. By the beginning of the 20th century lithographers were able to choose between producing designs that were either generated by hand, or through photographic means – a process that allowed the lithographer more choice in terms of image reproduction.

> As the lithographic process changed, so changed the lithographers. During the dominance of stone lithography artistic ability was an essential personality trait of a good lithographer. With the disappearance of stone lithography and the ascendance of photomechanics, artistic ability in the traditional lithographic sense became unnecessary (Shapiro 1:12)

With the evolution of reproduction technology, it became clear that different skills were needed to fulfil the new reproduction requirements and cater for the increasing printing and publishing demands brought about by the Industrial Revolution. The high demand for posters, newspapers and books could now be met through mass printing with both text and imagery- a development that introduced with it the need to involve more than just the lithographer and typesetter in the reproduction process.

The production team

As the demand for printed material increased throughout the 20th century, many advertising agencies and art departments in large organisations were established to deal with the demand. In order to successfully produce and print pictorial reading material using the developed printing technology it soon became evident that the imagery and text had to be sourced, prepared and assembled before being printed – a process that involved more than a lithographer and a photographer. An outline of the roles and responsibilities of the key creative input involved in the production of graphic material in the 20th century is provided below. These special skills were prevalent *before* the introduction of digital printing technologies introduced much later in the 20th century.

The responsibility of producing printed material such as books and poster fell to the teams that worked in studios. Even though all of them were considered artists in their own right, the final artwork materialised as a result of a collaborative effort between different specialists. Illustrators, Photographers, Typesetters, Lettering artists, and Paste-Up artists were just some of the people involved in visualising one finished design.

The Photographer

The act of taking a photograph involves the process of choosing the most convenient moment to press the shutter. The photographer is involved in a subjective process of choosing the optimum light and angle options in order to ‘capture’ a moment in time. The job of the photographer was mainly to source, take and process images required for the job. Often the photographer’s job extended to that of Retoucher, where the photographs are cleaned in preparation for reproduction. Depending on the nature of the job, this retouching process usually included removing dust and scratches, as well as airbrushing the positive print in order to remove imperfections or achieve a desired visual style.

Perhaps the biggest challenge for the photographic artist was to correct ‘mistakes’ on the positive print. This involved many processes, including manually cleaning the negative to avoid unnecessary alterations on the positive print, *dodging* the print in order to lighten or darken the tones in the image or even adding a vignette to make the edges of one’s image fade softly into the paper. This last effect is explained by Don Nibbelink from the Kodak Company as follows:

> There’s no mystery about it: An image of the head and shoulders is simply projected through an oblong hole in an opaque cardboard held underneath the enlarger lens so that the print borders remain unexposed. Keep the cardboard in continuous motion during the exposure so that the “fade out” between the exposed and unexposed portions of the print will be gradual. The best vignetting effects are usually obtained with high-key portraits of women and children. It’s far too delicate a treatment for a man! (142)

Finally the photograph, if black and white, would have to be converted into a series of halftone dots in order to prepare it for printing. In the case of colour photographs, the image would have to be separated into its constituent colours before being converted into halftone dots. Once printed, the image would be ready to be pasted up into a composition.

The Typesetter

Typesetting can be traced back to the introduction of Johann Gutenburg’s typographic printing press, where individual letters were cast in lead, and manually set into lines before being printed. This method of typesetting is often referred to as Hot Metal composition because hot metal alloys were poured into casts to make the individual letterforms. The job of setting the cast letterforms into lines of text and inking them and

was carried out by workers who had been trained accordingly. The introduction of photography however afforded the use of Cold Typesetting and composition, which basically involved photographically exposing the negatives of letterforms onto film. This was a laborious process which required skill and patience on the part of the typesetter. Because of this, and the fact that the process required access to specialised technology, this ultimately entrenched the typesetting profession as a specialised one.

These two methods of typesetting compositions were very common until the middle of the 20th century. However, newer technology was consistently being investigated. It was in the early 1960s that the word processor was introduced, allowing typesetters to use keyboards to input text (negatives) onto photosensitive tape. This photosensitive paper was then developed to produce sets of copy. In the reproduction process, the job of the specialist typesetter was to carefully prepare and set the type in a format that was prescribed by the client. This copy was then passed onto the paste-up artist to cut up and incorporate into a layout.

The Paste –Up Artist

The process of pasting up involved compiling all the copy and imagery into position, before final reproduction. Because the final compositions were sometimes referred to as 'mechanicals', the artist was also referred to as a Mechanical artist. The mechanical paste-up process involved the artist drawing columns and grids on a paste-up board, to serve as a guide for the copy and imagery. The artist then calculated how much copy would fit into a single column, as well as how this would be affected by leading and the point size of the typeface.

Once all of this was determined, all the illustrations and columns of copy would be

carefully cut and pasted down onto the board using a special adhesive wax. This wax allowed the artist to peel off and re-stick sections of text and imagery where changes were necessary. Mistakes were either cut out or scraped off, lines were manually drawn in using steel rulers and technical pens called rapidographs, and border tape was stuck down to create decorative borders on layouts. Once the layout had been completed it was considered camera ready, meaning that it could be photographed and transferred onto plates for final printing.

What you see is what you get

Apart from the laborious process that was used to finally create any kind of layout including imagery and type, there was the constant frustration of not knowing how the final design would turn out until the final paste-up was completed. Artists needed a system that would take the hard work (and guess work) out of the production process. It became increasingly evident that word processors and photocopiers were not enough. The answer to their problem lay with computer programmers who had been continuously working on creating improved word processors.

In 1970 Xerox, who until then had been involved in selling photocopiers, formed the Xerox-Palo Alto Research Center (Xerox-PARC) in order to research the possibilities of new *digital* technology. In 1973 the researchers at Xerox-PARC introduced the Alto computer. This computer signalled the introduction of the personal computer with its own monitor and keyboard, and allowed the User to utilise a bitmapped screen to input text, view it on screen, and print it.

> The Alto was not a microcomputer as such, although its working components did fit in a minibar-sized tower that fit under the desk. Its most striking feature was its

> display, which was the same size and orientation as a printed page, and featured full raster-based, bitmapped graphics at a resolution of 606 by 808. Each pixel could be turned on and off independently, unlike typical terminals of the time which could only display fixed text characters, and unlike the vector-based NLS [oN-Line System] which could only display text and straight lines. It also had a keyboard and a modernized version of Englebart's mouse, again with three buttons. The mouse cursor itself became a bitmapped image, and for the first time took the familiar diagonal-pointing arrow shape we know today, as well as morphing into other shapes depending on the task being performed (Reimer, A history of...2005)

According to Reimer, Xerox PARC followed this hardware development with the introduction of SmallTalk – a user interface that used an object oriented programming language. The combination of the Alto computer and the visual programming language was the beginning of What You See Is What You Get (WYSIWYG), which basically meant that the User was able to easily determine and print what they saw on screen, therefore eliminating the guesswork. In 1975 the MITS Altair 8080 personal computer was introduced, potentially allowing non-typesetter individuals to further experiment with typesetting using a platform that was less restrictive. The disadvantage of the technology however, was that it was expensive for the average individual, so the skill remained very exclusive.

The Apple Computer company was founded by Steve Jobs and John Worniak in 1976 when they introduced the Apple I computer, however it wasn’t until the release of the Apple II computer with its colour graphics capabilities, that the company gained popularity.

> In December, 1979, Steve Jobs and a group of Apple Computer engineers toured the Xerox PARC laboratories and witnessed Xerox's research into the GUI as demonstrated on the Alto computer. It was this moment the Steve Jobs decided the future of computers was in the GUI, rather than the standard text-based interface. In return for $ 1,000,000 USD of pre-IPO stock, Xerox granted Apple Computer three days access to the PARC facilities. During this time, Apple Computer engineers studied the intricacies of the GUI or "WIMP" interface, and came away with the basis for Apple Computer's first GUI computer, the Apple LISA (History of Apple...).

In 1983 the Apple Computer company released the Lisa (Local Integrated Software Architecture) computer. Although this computer was popular because of its graphical user interface, it was discontinued after a couple of years because of its hefty price-tag. It was also in 1985 that Steve Jobs left the company that he had founded, six years before. It would take more than a decade for Jobs to come back, and declare a power-sharing relationship with Microsoft which made some applications readily available and accessible to the home user of a personal computer, irrespective of whether they used an Apple computer or a Microsoft one.

About Photoshop

The familiar act of selecting prescribed image manipulation filters and effects from pre-defined menus has contributed to the popularity of Photoshop as the image manipulation software of choice, however this is not necessarily how the software application came to be. When Thomas Knoll experimented with displaying grayscale imagery on a black and white bitmapped screen, in the early 1980s, he did not envisage the birth of a commercial image manipulating application that would challenge global image production

practices forever.

What follows is an insightful Photoshop timeline, from the Knoll brothers' days of experimenting with the limitations of their father's Apple II computer, to the introduction of Photoshop 7.0 (which is also known as *Liquid Sky)*, in 2002. The exclusive choice to limit this discussion to Photoshop 7.0 is driven by the fact that this was the last version of the application to be released before the introduction of Adobe Creative Suites (introduced in 2003). These suites introduced a more integrated package of Adobe print and web software which included Illustrator, InDesign, and Photoshop. Illustrator is a vector based application which was first released in 1985, by Adobe, in order to sell their PostScript compatible LaserWriter printer. At the time that this Postscript technology was introduced, Illustrator was the only commercial font creation application that was compatible with Adobe's new printer software. InDesign is Adobe's layout application which was released in 1999 to rival QuarkXPress, which had dominated the desktop publishing market since its release in 1987.

The introduction of Adobe Creative Suites packages also saw the eye icon, which had been used to identify the Photoshop application, being replaced by a feather icon. At the same time, the face icon[8] that had been used to represent the Illustrator application was also replaced by a flower icon. In April 2007, Adobe introduced the third version of Creative Suite, taking image manipulation and publishing capabilities to even newer heights.

In 1984, when Thomas and his brother John Knoll started experimenting with putting grayscale images onto the newly released Macintosh computer (based on Apple Computer's Lisa computer), they probably had no idea of how their experiments would

result in a world famous image manipulation application. What was clear however was that this new Macintosh computer with its black and white graphical interface was a revolutionary change to the command line based DOS system that had been introduced earlier in 1981 by IBM.

Through their experiments the brothers, who had a background in programming and computer graphics research, came up with a program that would allow the user to display colour and grayscale imagery using a technique of small dots called *dithering*. They called this program, which was created using command line programming, Display.

After adding a few more features, with the help of his brother John, Thomas managed to sell their Display application to a scanner company called Barneyscan who decided to distribute the software as an accompanying tool to their scanners. It wasn't until 1988 that the Knoll brothers managed to convince Adobe, a company that was at the time busy developing PostScript technology for large commercial printers, to invest in their software.

By the time Adobe released the first commercial version of Photoshop in 1990, they had successfully partnered with Apple Computers to create printing software that would support their PostScript technology. Photoshop was therefore released for users who had Apple Macintosh computers which supported the PostScript-based LaserWriter printer. Steve Jobs, co-founder of Apple Inc. sums it up well by explaining,

> The Mac was the first computer that was commercially available with a graphical user interface. We were doing typography on screen, while with PostScript Adobe was doing type on the printed page. John [Warnock[9]] had a developed aesthetic sense, too. We meshed together well (34).

When Photoshop 1.0 was released commercially, John Knoll had managed to convince his brother that it would be beneficial to turn the program into one that would allow people to manipulate digital images ‘just like they would in the darkroom' (How Adobe’s…2007). However, as Schewe (3) points out, the people at Adobe were not impressed by these 'gimmicky' darkroom inspired plug-ins – the very features that would eventually become some of the most powerful aspects of Photoshop.

In 1991 Photoshop 2.0 (nicknamed *Fast Eddy by* Adobe's product manager, Steven Guttman) was introduced by Adobe. As well as providing improvements on the *Colour adjustments*, *paintbrushes*, and *soft edge mask* functions introduced with version 1.0, this one added *Paths*, *Duotones*, and the *Pen tool*. It also included support for CMYK, a move which Schewe identifies as a big turning point for the desktop publishing revolution because it now allowed Photoshop users to perform colour separations in a similar way to that practiced through analog printing technologies. Until then, digital technologies were only able to support the RGB colour system because of its compatibility with scanners and printers.

Before Adobe collaborated with the Knoll brothers, they had joined forces with Apple in order to come up with an affordable office laser printer that would rival IBM's expensive 3800 laser printer. The subsequent introduction of the Apple LaserWriter printer allowed the collaborating companies to develop their PostScript printer to a point where it could scale and output type at a high (300dpi) resolution without losing image quality.

After the collaboration between Adobe and Apple, and the introduction of the PostScript driven LaserWriter printer, the big challenge that the company faced was to maintain the quality of the prints, even when not using a high resolution device. Until this point, most

companies had accepted that laser printing was exclusive to commercial printers, and anything smaller would have to settle for the dot matrix print quality which was not as good. The difference with the LaserWriter however, was that it *did* support laser printing technology and the team expected it to work just as well as commercial machines. This was eventually achieved in 1984.

When Adobe decided to acquire Photoshop, their plan was to use it as an add-on to their vector based Illustrator application, to help sell their vector based PostScript printing technology. The introduction of Photoshop 2.0 in 1991 however, challenged this mindset because of the new CMYK colour potential as well as the software's added ability to recognise and rasterise Illustrator files. This breakthrough now meant that a layout with images could be created on screen, complete with type, and be printed at a high resolution of 300dpi – through the use of these compatible applications.

In 1994 version 3.0 of Photoshop was released. This also included the introduction of a Windows, Solaris and IRIX version of the software. This signalled two very important milestones – the introduction of a graphical user interface to previously command line systems, as well as the function of *Layers* in Photoshop. Through the introduction of *Layers*, users were now able to overlay different images and text digitally during the image editing process. Users were now being afforded the opportunity to do the job of a paste-up artist using an automated, less stressful medium.

In 1990 Ted Nelson's vision of a networked world of hypermedia was eventually realised when Tim Berners-Lee introduced the World Wide Web. Six years later Photoshop 4.0 was released, complete with a function that allowed connection to the Web through a link on the application.

Perhaps one of the most significant additions to Photoshop happened with the introduction of the *History* function in 1998, with version 5.0. This function allowed the User to experiment, make mistakes and undo them a multitude of times before committing to a final solution. The messy job of the paste-up artist was officially over!

Versions 6 and 7 of Photoshop, released in 2000 and 2002 respectively, also introduced new tools and added extra functionality. Before the introduction of Photoshop 6, users had little control over how the colour of their image was previewed in the workspace. This was because colours were normally displayed according to the screen settings of the computer, and one needed to understand how the technology worked in order to physically alter the screen's colour settings. The new colour management feature meant that documents could maintain their original colours and therefore provide more accuracy even for the novice Photoshop user. This version also provided the user with more control over what happened to the *Layers* that were first introduced with Photoshop 3. This included the ability to create special effects such as *drop shadows, glows* and *embossing* on different layers, as well as to have the option of working on an opaque or transparent background.

Version 7 of Photoshop introduced with it a *File Browser* function which not only allowed the user to view thumbnails of images taken with a digital camera, but it also provided key information such as the colour profile used and the date that an image was modified. The *Healing tool* allowed the user to remove unwanted scratches from images whilst maintaining the original look of the image. Although this tool was very similar to the Clone Tool, it offered the user more precision. One of the key improvements in version 7 however was the increased compatibility with webpage elements, including the ability to work more flexibly with Adobe ImageReady. ImageReady was first released by Adobe in

1998, as an image editor for web graphics.

This concise history of the relationship between Adobe and Photoshop positions the birth of Photoshop as the experiments of two brothers which led to the merging of two companies driven by the desire to improve printing technology. The introduction of PostScript challenged the existing dot matrix and laser printing technology of the 80s, and the Knoll brothers happened to team up with the right company at the right time to launch their software application. Therefore the Knoll brothers created their software for image manipulation purposes, and Adobe partnered with them in order to promote their PostScript printing technology. The two ultimately came together so well, they created a world renowned product, Adobe Photoshop.

The ubiquity of Photoshop

One of the main reasons why Photoshop became so popular at the time of its release was because of the way in which it was initially marketed. Around the time that Photoshop 1.0 was finally released, other companies which had also realised the potential of digitised desktop publishing were also working on systems that would get rid of the tedious act of manual paste –up procedures. These included applications such as Photomac, ColourStudio and PhotoStyler. Aldus' PhotoStyler, for example, initially proved to be stiff competition for PhotoShop, but this was neutralized when Adobe bought the Aldus Company and made Photoshop the main focus for image manipulation practices.

What made Photoshop even more successful with users was that unlike BarneyScan who had shipped the first version of Photoshop to accompany their scanners, Adobe immediately positioned their version as a simple application to be used and printed by

individual users. The graphical interface of the application allowed even untrained users to be able to navigate the digital environment, without having to decipher and input rows of complex code.

It wasn't until the introduction of Photoshop 4.0 that users of the software started having problems navigating the Photoshop graphical interface. The reasons for this are revealed by Jeff Schewe, a photographer who documented the first decade of Photoshop in *10 Years of Photoshop. The Birth of a Killer Application* (2000).

The first five years of Photoshop reflect a journey of constant additions and reviews to the application. Notably, all these developments were carried out by engineers. After the success of Photoshop 3.0 most of these technologists reached a plateau and left to pursue other interests. At this point the first interface designer was introduced to the team and he immediately introduced new key commands and standardised behaviours for the application. Before the new version 4.0 was released to the public, Schewe was one of the three people invited for a Usability test. He describes the experience;

> I was stationed at a computer with a video camera aimed at me, told to launch the program, and left to explore it. They wouldn't tell me much of anything, but they did ask questions. I was supposed to intuitively grasp the changes, of which there were many...Somewhere along the line, the full impact of the proposed changes hit me: Users were going to face major behavioural differences in the way Photoshop worked" (6).

Schewe goes on to explain that although users were initially unhappy about having to adapt to a new system, version 4.0 was a great financial success – something he attributes to the revised usability of the Photoshop interface.

The intuitive usability of the Photoshop GUI can be largely attributed to the consistent look and functionality of the interface since the introduction of version 4.0. Even though every revision of Photoshop introduces extra features aimed at improving the usability of the application, its core functionality is largely defined through the interface design conventions established by the Apple computer company. This usability however, is not without its challenges. In the following chapters Photoshop is defamiliarised in order to challenge its ubiquity.

CHAPTER TWO: THIS IS NOT PHOTOSHOP

The title of this chapter is adapted from a famous 1928 painting by Surrealist Rene Magritte (1898-1967). This painting entitled *The Treachery of Images (La trahison des images)* shows a very realistic painting of a tobacco pipe, below which is inscribed; *This is not a pipe (Ceci n'est pas une pipe*). This painting, which represents a pipe, causes the viewer to pause and reflect on why the artist would make such a seemingly contradictory statement. Eventually the viewer realises that indeed they are not looking at a pipe, but rather a *representation* of a pipe, made possible through layering different hues of paint onto a substrate until the desired illusion is created.



Fig 1. *The Treachery of Images.* René Magritte, 1928–29. Oil on canvas. Los Angeles County Museum of Art, Los Angeles, California

As the viewer interacts with the Magritte painting, they are forced to question their ingrained perceptions of representation and perception. Although Magritte's Surrealist approach to painting was considered avant garde at the time, eleven years before he created the painting the Russian Formalists, through a critic named Viktor Shklovsky[10], had already introduced a technique for analysing representation through a process called *Defamiliarisation.*

Defamiliarisation and new media

Defamiliarisation or *ostranenie* is a term that was coined in 1917, during the period of Russian Formalism. This term is commonly described as a process of making familiar objects strange. The purpose of this chapter is to investigate this term further and contextualise the use of a term that is traditionally linked to literary texts, in order to analyse digital technologies. In order to achieve this, two digital artworks are critically analysed to provide the user with new ways of seeing that which is familiar.

Russian Formalism was predominantly concerned with literature, and introduced a new way of viewing traditional approaches to writing. Just like other forms of creativity, such as fine art practices, literature has also gone through different periods of transformation. Whilst literature practices of the eighteenth century were very traditional and concerned with morality, the nineteenth century introduced a more romanticised and sentimental literature and art style known as Impressionism. This period was characterised by a lot of positivism, where it was believed that creating meaning was a purely subjective process. The 1800s also signalled the introduction of photography – a medium that threatened the popularity of the painted image. The Impressionists challenged the popularity of this new medium by painting realistic portrayals of day to day life using methods that could not be achieved through normal photography. These included the use of colour, exaggerated brush strokes, as well as the depiction of continuously changing light sources, as the painting developed.

When the Formalists began to critique literature at the beginning of the twentieth century, they took on a more purist approach, where they strongly believed that literature had to be released from its formerly established conventions.

The Russian Formalists[11] in particular, felt that they needed to define literature in a new way. This decision led to the introduction of the term *Literariness,* by Roman Jakobson. This term, first introduced in Jakobson's *The New Russian* essay*,* referred to the way in which literature had the ability to turn what had become a naturalised language of prose into a reflective and poetic language.

> The literary work was neither a vehicle for ideas, a reflection of social reality nor the incarnation of some transcendental truth: it was a material fact, whose functioning could be analysed rather as one could examine a machine. It was made of words, not of objects or feelings, and it was a mistake to see it as the expression of an author's mind (Eagleton 3).

Through their efforts, the Russian Formalists aimed to challenge the idea of the author as a creator of heroic literature, and instead promoted the concept that great authorship could only be defined by the literature. The hero was the literary text, not the author, and by focussing on the this text 'ordinary language was intensified, condensed, twisted, telescoped, drawn out, turned on its head' (Eagleton 7). In short, what the Formalists referred to as *automatised* language was made strange and unfamiliar. It was defamiliarised. This idea of defamiliarising texts was particularly endorsed by Viktor Shklovsky as explains in his *Art as Technique* essay (1917).

> Art exists that one may recover the sensation of life; it exists to make one feel things, to make the stone *stony.* The purpose of art is to impart the sensation of things as they are perceived and not as they are known. The technique of art is to make objects 'unfamiliar', to make forms difficult, to increase the difficulty and length of perception because the process of perception is an aesthetic end in itself and must be prolonged (qtd in Hale 20).

This Modernist concept of defamiliarisation is therefore relevant and applicable when reflecting on the focus of this paper. By adopting this concept, Shklovsky's defamiliarisation concept forces the user to strip away all learned assumptions about the application and see Photoshop as though they were encountering it for the very first time. The user is encouraged to alter their perception of convenient image manipulation functions that are made available at the convenient click of a computer mouse. Instead they are encouraged to rethink the functionality of an interface that has eventually become unquestioned and familiar to them.

Photoshop is considered to be a Postmodern medium which had appropriated traditional image making techniques of photography and fine art. Through Photoshop, the user is able to create a new cultural expression that although has been defined by old media forms, still manages to have a very new present and future. Whilst this *digital* medium borrows from *analog* media, the two are not the same. As Manovich explains in *Avant Garde as Software*;

> The old media avant-garde of the 1920s came up with new forms, new ways to represent reality and new ways to see the world. The new media avant-garde is about new ways of accessing and manipulating information. Its techniques are hypermedia, databases, search engines, data mining, image processing, visualization, simulation (Manovich, Avant Garde as…2002).

In *The Language of New Media*, Manovich provides an introduction to the relationship between old and new techniques, and reminds the reader that what we consider new today is influenced greatly by the “experimentation practiced by the avante garde of the 1920” (15). That we are unfortunately involved in a culture of uncritical use of opportunities afforded to us through the critical expressions of our predecessors.

He continues;

> Today, as more artists are turning to new media, few are willing to undertake systematic, laboratory-like research into its elements and basic compositional, expressive, and generative strategies. Yet this is exactly the kind of research undertaken by Russian and German avante-garde artists of the 1920s ..., as they explored the new media of their time: photography, film, new print technologies, telephony. Today, those few who are able to resist the immediate temptation to create an “interactive CD-ROM,” or make a feature-length “digital film”, and instead focus on determining the new media equivalent of a shot, sentence, word, or even letter, are rewarded with amazing findings” (15).

Today, those who can resist the temptation of “just photoshopping it” will be rewarded with amazing findings.

These 'amazing findings' can be explored through a process of 'refashioning ' old media through a process that Bolter and Grusin (2000) call *Remediation*. The Remediated present and future, according to Bolter & Gromala, should allow for transparency *and* reflection. They argue that the creators of applications such as Photoshop are too preoccupied with trying to achieve *transparency*. They want the viewer “to stand in the same relationship to the content as she would if she was confronting the original medium” (45, 2000).

Even though the opinions of Manovich, Bolter and Gromala support the idea of defamiliarisation, Shklovsky's seemingly simplified views, during the Formalism years (which also signalled the start of the Russian Revolution) have not gone unchallenged. In the preface of *Russian Formalism* (Elrich 1969) Rene Wellek points out that

> Russian Formalism keeps the work of art itself in the center of attention: it sharply emphasises the difference between literature and life, it rejects the usual biographical, psychological and sociological explanations of literature. It develops highly ingenious methods for analyzing works of literature and for tracing the history of literature in its own terms.

Victor Erlich, who studied under Jakobson, takes a critical look at Shklovsky's opinion that 'Art is always free of life' and warns that this should not be taken literally because art and literature do not happen in a vacuum of Formalism defined aesthetics – they are greatly influenced by cultural context and the societies within which they take place. As an African designer who is constantly appropriating and assimilating Western ideas of technological developments, I am particularly interested in Elrich's viewpoint. Even though I borrow from the original concept of defamiliarisation as it provides a relevant foundation for de-naturalising the Photoshop user experience, I share Elrich's sentiment and address issues of cultural context in a later chapter.

As new media writers and practitioners Manovich, Bolter, Gromala and Grusin all reference the media revolutions that were happening in the 1920s. Even though they do not specifically refer to Defamiliarisation in the Formalist sense, their argument, observations and provocations, advocate for the defamiliarisation of new media forms in order to use them to their full potential.

Interfaces, Windows and Mirrors

> The term 'interface' has various differing meanings within the extensive field of modern computing. For a hardware engineer, it refers to the plug-and-socket arrangements that are set up between machines. For a system integrator, it

> refers to the data-cabling standard. However, for the graphic designer (and software programmer too) it's the stuff that you see on a computer screen (Dabbs 6, 2001).

Although Dabbs provides a very simplified explanation of an interface, he makes a very common, yet provocative statement in the introduction to his book on *Interface Design.*, where he claims that 'a good interface is clear, elegant and transparent'. It is this popular perception of the interface that shall be defamiliarised, in order to foreground the normalised usability of the Photoshop graphical user interface. To achieve this, 'the myth of transparency', a concept introduced by Bolter and Gromala in their text, *Windows and Mirrors* (2003) is examined. They argue that interface designers and technologists are consistently adding new features and functionality to existing technologies in order to keep ahead of the competition and what they believe are the users' needs. All of this however, is done to make users see the world exactly as it is in real life, except that technology, with its graphical interfaces is being used as a vehicle to do this.

The Magritte painting can be used to illustrate what the two authors are calling a myth. Even though the painting is a representation of an object that we see and use in real life, it is not real. The canvas has been used as a platform to re-present the pipe in order for us to experience it in a different way. We can put it up in a gallery or museum, we can copy it through photography and post it on websites, we can talk about it and write about, but we can never smoke it because it is not a pipe.

Bolter and Gromala examine how interfaces were originally designed to be looked through, like windows, instead of being looked at, like mirrors. This then resulted in the creation and normalisation of an interfaceless[12] and transparent environment. This

interfaceless environment has increasingly become a common feature for interface designs. A close scrutiny of the language and visual design of user interfaces shows that they have generally been designed as environments to look *through* superficially, rather than *at,* critically. Graphical user interfaces for computer operating systems (such as those for the Macintosh and Windows operating systems) and software which operates within these operating systems are designed around the legacy of the office metaphor, with desktops, files, folders and even windows. As a result, users are conditioned, through repetitive use of a set visual system, to eventually not see the interface.

This observation is particularly evident where seasoned users make use of the shortcuts that are offered through operating systems and software applications. Through repetitive use of the technology, these users have become familiar with the positioning of iconography, drop down menus, tools, ribbon bars and dialog windows. They have also familiarised themselves with quicker methods of accessing and manipulating data, through keyboard shortcuts. This eliminates the need to use the mouse and graphical icons as navigation tools – a process that greatly contributes to the 'disappearance' of the interface as it takes away the use of a key component of the conventionalised keyboard, screen and mouse system.

As an educator myself, I am often tasked with introducing my own students to operating systems and software applications – a process which involves explaining how the office metaphor works 'just like in real life, except that the trash can appears on the desktop instead of on the floor'. During such interactions with students, functions such as creating a New Document, Copying and Pasting, as well as Saving a document are often introduced as basics, and students are encouraged to learn the shortcuts (Ctrl+N, Ctrl+C, Ctrl+V, Ctrl+S). As new students, eager to learn new techniques, they hardly ever

question this method of learning how things work, presumably because they are impatient to embrace a new, quicker method of working with a medium. In *The Design of Everyday Things*, Donald Norman describes this kind of unquestioned information absorption as procedural knowledge;

> Whenever information needed to do a task is readily available in the world, the need for us to learn it diminishes...Procedural knowledge is difficult or impossible to write down and difficult to teach. It is best taught by demonstration and best learned through practice. Even the best teachers cannot usually describe what they are doing. Procedural knowledge is largely subconscious (56-58).

Whilst this procedural interaction has become habitual for new users of technology, Bolter & Gromala argue that the interface which is continuously being designed to 'disappear' can, and should, also be viewed as an environment that allows for 'reflection'. In short, user interfaces should be seen as both *windows* and *mirrors*. They argue that computers do not always want to be 'invisible' and cite examples of digital artworks[13] whose interactive environments can be seen as both transparent and reflective in one.

This distinction provides a key context for the defamiliarisation issues raised in this chapter, particularly in relation to the two digital artworks discussed next. *HeritageGold* and *Autoshop* are two digital artworks which parody the look and functionality of the Photoshop GUI. Whilst the two artworks *look* like Photoshop, they are not created to defamiliarise Photoshop. Instead, as a designer who uses Photoshop, I am personally using the overlapping similarities between the three applications, to contextualise the idea of Defamiliarisation. Mongrel, for example, are conveniently using the familiar Photoshop interface to show the arbitrariness of racial classification.

Mongrel's *HeritageGold*

Mongrel is a British group of informally trained digital artists who have been involved in digital based projects amongst marginalised communities around the world. Their highly satirical yet reflexive work includes *HeritageGold*, *Colour Separations* and *Hairy Mps.* The latter is a website and installation through which users are encouraged to monitor the hair growth of their favourite members of Parliament. This hair growth is directly proportional to the Parliamentarian's attendance records at their job. The growth process is also emailed to the Parliamentarians being observed, accompanied by suggestions on what to do to assist the growth. Visitors to both the website and installation have access to these emails, and are encouraged to print out progress pictures of the Parliamentarians, pin them up and write comments below them. A very clever way of getting members of Parliament to be accountable, and the general public involved with issues that affect them directly.

HeritageGold is a digital artwork in the form of an image manipulation software application and is designed to address issues of race and identity. This is evident soon after one activates the application. Although the GUI is very similar to that of Photoshop, the menu bar has options such as *Social Status* and *Racialisation* which provide an indication of the focus of the application. For the user who may be familiar with the Photoshop interface, there are familiar capabilities such as *Level adjustments* and *Colour balance*; however these have been renamed to align with the purpose of the digital artwork to options such as *Fleshtone adjustment* and *Whiteness/Blackness* respectively. The familiarity for the Photoshop user lies with the positioning of these options in the original application, as well as the abbreviations for the keyboard shortcuts which accompany each menu option.

Like other image manipulation software applications, *HeritageGold* contains sample images. These are eight portraits of Black, Brown, Yellow and White men and women. According to Mongrel, these images represent the genetic heritage of the different members of the group. These are African (black), East Asian (brown), North European (Yellow) and South Asian (White). To accomplish the look of each of these stereotypes, Mongrel digitally merged over 100 portraits of their friends and families.

HeritageGold is arguably the closest that digital artists have come to creating an application that critiques the current transparency-seeking Photoshop GUI. The navigational system and overall look of the interface is based on that of Photoshop 1.0, from the layout and functionality of the toolbox icons to the quantity of drop down menus. In the example below, the *Social Filter* option (found in the *Racialisation* drop-down menu) provides the user with options that include *Add Cash*, *Disease* and *Minimise Class*. The equivalent of this option in the Photoshop menu would be the *Filters* option, and this would contain functions to blur, sharpen or simulate an existing artistic finish on the image.



Fig 2. *HeritageGold* screenshot.

For the user who has been familiarised with the Photoshop user interface (and it's keyboard shortcuts), the navigation of the *HeritageGold* application may be a familiar

one, involving the opening of an image (Ctrl+O) which is then displayed in a window, ready for manipulation.

The first ‘problem’ that may arise for this user however, is that the toolbox, although present, does not readily display the available tools. Instead, the tools are hidden behind an ambiguous image of a partially naked character. The user has to move their mouse over this character in order to select a tool; however this action doe not reveal the tools, as expected. Instead the user is confronted with a view of the same character, which resembles a film negative. The corresponding tool is only revealed once the cursor is moved over the actual image to be edited.

Questions then arise; why this character in particular? Why obscure the tools? Once such questions develop, the user is then forced to reflect on their reliance on an interface that they had previously seemed very familiar to them. Alternatively they then become involved in a practice that requires random selection, which adds an interesting dimension to the image editing process, given the context of the images.

Because of the nature of the application, the usability of the interface is not confined to the toolbox options. The interface is designed to encourage the user to engage with the sample images which have been specifically chosen to reflect racial diversity. In Fig 3 the user is confronted with a White female and a range of *Heritage* options to choose from. Should the user decide to end their use of the application by selecting the *Fail* option (Ctrl+Q), they are confronted with a dialogue box that questions this decision.



Fig 3. *HeritageGold* screenshot.

Through the conventional Photoshop application the user who decides to exit the application is confronted with a dialogue box that verifies the intent of the user. This is done through offering the user an option to save their work before quitting (YES), to ignore all editions made to the image (NO) or to ignore the quit command and return to the previous action performed (CANCEL). It is this alternative that is parodied in the example that follows. Through a selection process the user is given the option to save the soul of the woman – a decision that has moral implications for the user since it fundamentally places them in a position of divinity.

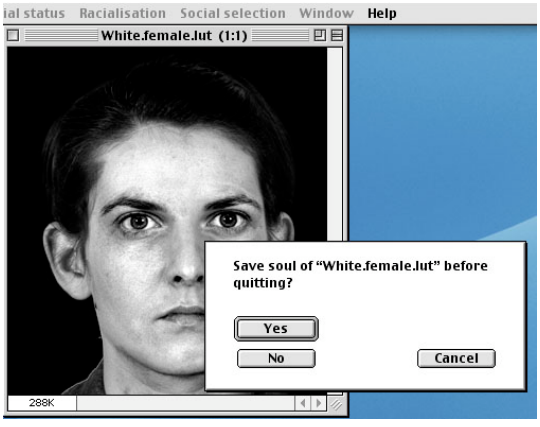


Fig 4. *HeritageGold* screenshot.

The three scenarios discussed on the previous page facilitate to frame the *HeritageGold* user experience as very different to the Photoshop experience. Whilst the user is faced with subjective decisions in each instance, the context of the resolutions taken adds a heightened sense of accountability for the user. In comparison, the Photoshop selection decisions are of a cosmetic nature whereas in *HeritageGold* they are racial or cultural and purposely designed to evoke strong emotional responses from the user. The decision to alter someone's *HIV status*, for example, will surely have more moral and social implications than whether or not to use the *Photocopy* filter.

In short, the transparency of the Photoshop experience is exposed whilst the *HeritageGold* experience is reinforced as more reflective, in comparison.

The appropriation of the Photoshop 1.0 interface by the Mongrel group resulted in the creation of a digital artwork. Instead of viewing this as copying and possibly infringing on Adobe's intellectual property, the artwork has provided the opportunity for reflection on the use of Photoshop as more than just engaging with a digital medium. It provides the opportunity for the user to recognise that it is not just a combination of clickable image editing options, but a cultural form which is embodied with meaning.

Signwave AutoShop

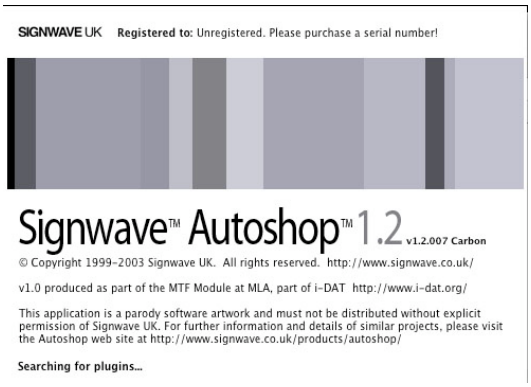


Fig 5. Signwave *AutoShop* application screenshot

This is a parody software application which, like *HeritageGold*, borrows from the Photoshop 1.0 interface. Unlike *HeritageGold*, however, this artwork even parodies the name of the application. Signwave *Autoshop* was created by programmer Adrian Ward, using his Apple Mac computer. He explains his work as follows, “my programs make pictures, generate music, write poetry, scramble data across a network, copy themselves to the video buffer to become self-portraits, crash the computer. Yes, I have tried writing Kamikaze Mac applications” (How I drew...1999). Like the name suggests, the *Autoshop* 'application' is therefore programmed to perform a series of automated creative tasks. Although these tasks happen in a Photoshop inspired interface, the user quickly realises that they have little control over how these tasks actually occur.

The first indication of this automation is noticed when one creates a new document. Although the option is located in the conventional place that one would locate it in Photoshop (complete with a similar Ctrl+N shortcut), the user is provided with an *Initial Content* options which allows the user to define dimensions and content of their

document. In a normal Photoshop application these would provide options for the background colour of the new document, however in AutoShop the options include *Pure Chaos* and *Whatever you like from my hard disk*. Choosing this latter option begins an automatic process of searching through image files on the hard drive until a random image is selected and displayed on the screen.

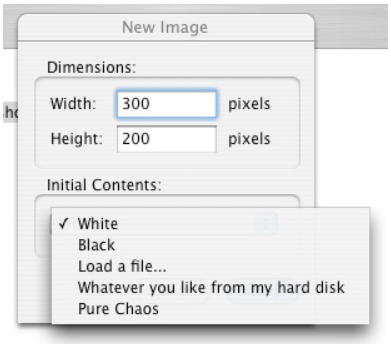


Fig 6. Signwave *AutoShop* “new image” screenshot

Once selected, the image can be manipulated using tools from the toolbox menu, as well as from *Sound, Colors*, *Text* and *Scribbles* palettes which automatically display when the application is launched.

Even though the toolbox contains some familiar Photoshop iconography, it also has some new tool options which redefine conventional interactivity. These new options are represented through icons which include a 'smiley face' icon known as the *Happiness tool*. This smiley face changes colour depending on how happy it feels about the changes that the user is making, to the image. By selecting this tool, the user can only observe as the *Happiness tool* carries out its own image manipulations through *Autopilot creativity*.

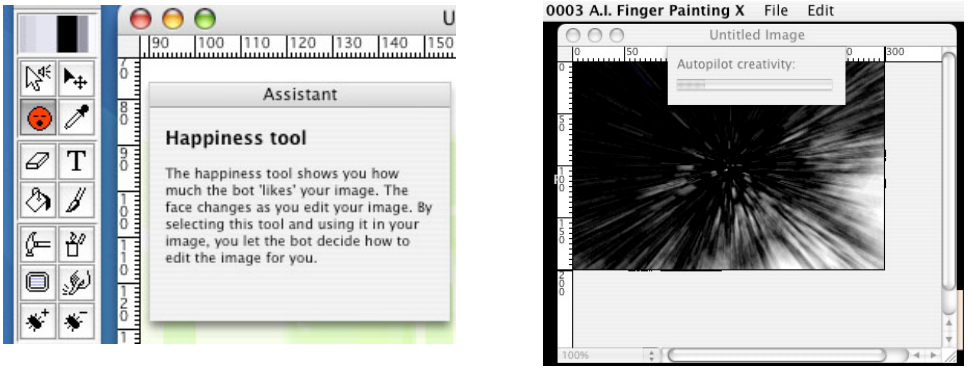


Fig 7. Signwave *AutoShop* “Happiness Tool” screenshot

Autoshop contains some conventional tools such as the *Magnifier tool* (for zooming in and out of an image) and the *Color Picker* (for selecting colours on the image). This *Color Picker* is unconventional however, because it defines the colours vaguely, such as *quite grey like* or *really white* instead of using the existing numerical colour naming convention. Other interesting tools include a *Cigarette Lighter* tool that 'melts' the image, a *Text tool* which automatically generates text for the user instead of allowing them to type in whatever they want, and *Bug Add/Remove* tools which add or remove little six legged black bugs which crawl all over the image workspace.

The *Phat Pixels* tool is arguably the most unconventional one however. Represented through a white selection arrow with a speaker icon in the corner, this tool translates pixels on the image, into sound. As the RGB values of the image change, so does the sound of each differently coloured pixel. The *Rhythm* option on the *Phat Pixels* palette allows the user to add drumming sounds to the pixels, therefore creating a visual and acoustic experience for the user.

Even though Signwave *Autoshop* is positioned as a parody application, it encourages a reflective use of the software. It purposely takes away the authorship role, from the user and reinforces the idea of computers as thinking machines which think and 'do things' for the user. This perception is contextualised and defamiliarised below.

HeritageGold and Autoshop as defamiliarisation

> Most of the time we breathe in air without being conscious of it: like language, it is the very medium in which we move. But if the air is suddenly thickened or infected we are forced to attend to our breathing with new vigilance, and the effect of this may be a heightened experience of our bodily life (Eagleton 4).

The metaphor used by Eagleton above can be used (in addition to Sklovsky's 'stony stone' analogy) to contextualise the defamiliarisation of Photoshop as prompted by the digital artworks discussed earlier in this chapter. It is through the introduction of parody applications such as *HeritageGold* and *AutoShop* that Photoshop users are made consciously aware of what the application embodies.

At face value, *HeritageGold* is just a skin[14] added onto an existing application. A closer inspection of *HeritageGold* (and Mongrel) reveals that the artwork embodies its own ideologies that extend beyond the spoofing of Photoshop.

Through a process of compositing over one hundred images, Mongrel came up with eight characters who, although recognisable as human beings, remain neutral as they do not represent a specific person. Even before one gets to essentially edit the eight sample images provided in *HeritageGold*, it is clear that they are not neutral. Firstly, the people depicted in the portraits stare directly at the user. Initially this pose may seem

coincidental; yet given the nature of the software this is not likely. Kress and Leeuwen state that “there is a fundamental difference between pictures from which participants look directly at the viewer's eyes, and pictures in which this is not the case” (117, 2006). They explain that when the represented person makes eye contact with the user, contact is established (even if it is imaginary). Using this argument, the represented men and women in *HeritageGold* make eye contact with the user, daring them to react. This expectation may not initially be clear to the user, however once the user is compelled to make a selection from the presented menus (such as deciding the Whiteness/Blackness of a Brown.female), they are forced to analyse the appropriateness of the kind of decisions they are taking for the person staring back at them.

The framing of the portraits further compels the user to question the neutrality of the images. Through the influence of social discourse, the user could potentially read these images as a form of identity code. The images could represent identity document photographs (such as passports), in which case the user would already be involved in a process of locating the nationality of each person. Another user may view the images as mug-shots, which frame the represented persona as a criminal. Irrespective of which of the two options the user chooses to frame the portraits in, the conclusions drawn places the represented person as 'Other'. As the user goes through the different menu options, their assumptions are then highlighted and heightened through the selection choices they make.

The manipulation of a mugshot through the use of Photoshop has in the past created international controversy, as illustrated through the use of a picture of OJ Simpson on the cover of two popular magazines. After being accused of murdering his wife in June 1994, a mugshot of the famous American football player was used on the cover of *Newsweek*

magazine. Soon after that the same image appeared on the cover of *Time* magazine, with the headline, *An American Tragedy*. This time however, the image had been altered to make Simpson appear darker and relatively blurry, and in association, more ominous. This controversy was further sparked by the use of a manipulated portrait of OJ Simpson (making him appear Caucasian) for *Wired* magazine in September of 1995[15].

Technology is not neutral. One just has to study Photoshop and *HeritageGold* to realise this. The *HeritageGold* artwork, for example, makes the user aware of the constructedness of representation. It is not always that users pause to reflect on why they pick one execution option over another. However as they manoeuvre through the *Social Filter* for example, they begin to realise that *Colonising* one of the characters has far more reaching consequences than adding an artistic filter whose original context is unfamiliar to the user. Through their interaction with the artwork they are increasingly being alerted to the fact that visual conventions are not neutral.

The digital artwork also makes the technology visible as a mediator of social values. As the characters' skin colour gets lighter or darker, and their features become blurry and unrecognisable due to the user's navigation, the user is confronted with many questions which ultimately force them to look closer at the interface in front of them. This reflective experience gives the user the opportunity to consciously reflect how their automated and seemingly neutral choices play a big role in affirming socially defined ideals of creativity, attractiveness and even what should go into the trashcan because it doesn't conform to hegemonic ideals defined by society.

The defamiliarisation of the *Autoshop* application is contextualised by its creator, Adrian Ward. Ward takes a very Structuralist approach to his creation of the application,

claiming that “the value of the creativity is not with the output, but with the coding”. The author is however quick to point out that even though he is classified as a programmer because of his coding skills, he sees his work as an expression of his creativity – hence the birth of *Autoshop*. He asks' “How can we justify representing an audio sound as a colour or shape on a computer system – just because the computer system allows us to? This is not rigorous. Why should a system turn a flowing grid of polygons into an array of ambient sounds - because it "can"? No” (Ward, How I drew...1999).

Because of the look of the application, the user is conditioned to look through the Autoshop interface, and see it as a window. According to Bolter and Gromala, the problem with seeing it as a mirror is that “the interface will mask the operation of the system exactly when the user needs to see and understand what the system is doing” (55). Ward seems to be aware of this – his interface provides his users with *tools* that purposely parody the old media inspired paintbrushes, airbrushes and rulers. His use of tools such as the pixel melting cigarette lighter and the happiness tool forces the (Photoshop) user to pause and question the non-traditional image manipulation tools afforded to them. Furthermore, the application automatically crashes, forcing one to interrogate what went 'wrong'. It is during this reflective process that the user is alerted to the application's interface as a mirror because they are then compelled to figure out where the problem came from. Using the *Help* menu in *Autoshop* gives the user a *Memories* dialogue box which with the words '*just trying to remember...*' across it. Without the help of the computer, the user is left to either figure out the problems by themselves or quit.

Technologists want to create a 'natural' environment, where the User does not 'see' the electronic tools of the GUI. They want the GUI to act as window. Similar to a window in

the real world, this window lets the user see through a transparent layer to the objects beyond. *Autoshop's* failure to provide a natural and familiar user experience therefore encourages users to question their assumptions of what is normal for a GUI.

The examples used to defamiliarise Photoshop are notably interventions that have been created by digital artists. New media has not only democratised access to previously specialised skills, but it has also introduced new expressions through stirring visual cultural practices and interventions.

> Like a hammer, a glue gun, or a screwdriver, they are means for building and deconstructing a given situation. Interventionists are informed both by art and (more importantly) by a broad range of visual, spatial and cultural experiences. They are a motley assemblage of methods for bringing political issues to an audience outside the insular art world's doors. They appeal to a viewer who is confronted by an increasingly privatised and controlled visual world. Homour, sleight of hand and high design are used to interrupt this confrontation and bring socially imperative issues to the very feet of their audiences (Thompson 14).

CHAPTER THREE: PHOTOSHOPPING FOR USERS?

During the period that I was a design student an incident occurred with best sums up the motivation for the following chapter. During one of the computer illustration projects I witnessed a conversation between the lecturer and a fellow student. The student wanted to find out how to use Photoshop capabilities to give his image (of a beautiful young woman) 'marble eyes'. The lecturer could not understand why the student wanted to give his character a dead, stony expression. The student on the other hand could not understand why the lecturer was against his idea of giving his character a set of large, round and very beautiful eyes.

The user has been consistently referred to throughout this paper, suggesting a homogenous grouping of users and user experiences. However as suggested through the incident described above, people will have different experiences of the same thing. Because of diverse circumstances, including cultural differences, socialisation structures and even language, the way that people perceive their environments is not always universally standard. This chapter takes a closer look at the use of the term 'user' in an endeavour to suggest that there are multiple users with different kinds of needs which cannot be ignored, even in the global village.

> As a person encounters a device or system, whether one in use or one on the drawing board, it is crucial that he or she ask what the form of this thing presupposes about the people who use it…Having begun such a dialogue with and about material things we can go on to ask what technical devices and systems presuppose about human beings (Winner 196-197)

The quotation above summarises what Winner calls *artifactual ventriloquism* – the

prominent yet unspoken ideas embedded in technologies and artefacts. He echoes the sentiment that technology is not neutral and that because of this it is important to address the assumptions that come with the design of objects that we use on a daily basis. Throughout the discussions of the user in this paper many assumptions about the Photoshop user have already been defined. Through an act of ventriloquism, the user has been defined as someone with access to the kind of technology discussed in this paper. The user has been pre-supposed as a literate individual who not only has comprehension of the English language, but also has a measure of visual literacy.

Because of the complex world that we live in, visual codes and signs play a major role in creating a universal language that can be understood by most of the audiences in the global village. This is a language of icons, symbols and indices – some of which are intuitive, and others which are arbitrary and need to be learnt. The colour red, for example, has become ubiquitous with danger and this is a visual code that is utilised worldwide on stop signs.

Visual codes can work as part of more culturally specific interfaces. The yellow cab for example, has become ubiquitous with public transport in America, however the same convention is not relevant In the South African context. In order for one to communicate with taxi drivers in Johannesburg, for example, they have to use a visual code of hand signals and expressions which are culturally contextualised. Whilst raising the middle finger will evoke very negative emotions in most cultural contexts, raising the index finger or clenching one's fist by the side of the road in Johannesburg will communicate with a taxi driver to stop and offer you a lift to your destination. Expressions such as 'short left', 'short right' ,'after robot' and 'thank you Driver' will equally allow one to interface with a taxi driver who needs to understand where passengers need to alight.

In a country where at least eleven official languages are used daily, this is an effective method of communicating with a large multi-national audience. Like any other interface, however, this is a system that has to be learnt.

The idea of an African user has also been alluded to throughout this paper. Although the use of the term suggests a persona, it would be naïve to position the African user as an individual that can be assigned a gender, race, culture and age group. The problem with defining the African user is that whilst it is possible to position this user as someone with access to digital user interfaces, this kind of classification is broad since these interfaced technologies include everything from cellular phones and automated teller machines to televisions and computers. With reportedly 3.3 billion people in Africa owning cellphones in May 2008 (Africa leads growth…), this still remains a broad target audience.
The positioning of the African user is therefore influenced by my own experience of being a young urban woman grappling with the enticement of continuously changing technologies and media, whilst facing challenges of living in a developing continent that is facing challenges of HIV/ AIDS and poverty, amongst others. A world where the African renaissance is increasingly challenged by the appropriation of Western ideas of culture and identity. A world where user interfaces can be used to address the dreams and aspirations of the so-called Third world continent.

The perception of a universal user is addressed through the discussion of the Photoshop inspired trend which is known as *photoshopping*. Photoshop has become ubiquitous with image editing and photo manipulation, to such an extent that the name has been appropriated as a generic term to apply to all digital image manipulation practices irrespective of whether they were created in Photoshop or not. The use of Photoshop has been established earlier, as a catalyst to the uncritical acceptance of automated

image manipulation practices available today. The practice of *photoshopping* is subsequently examined in this chapter to highlight how the idea of a universal user is easily perpetuated through the normalisation of seemingly neutral digital practices.

The idea of *photoshopping* is commonly viewed from two interlinked perspectives. The first use of the term is described through the use of image editing applications to cleverly combine images, usually in an act of social commentary through parody. Examples of this include superimposing the faces of weight obsessed celebrities onto obese bodies, digitally placing famous personalities in compromising positions through cleverly manipulated photographs and creating spoof advertisements of popular brands and products in an act of subversion. Global brands such as Coca Cola, Macdonalds and Absolut Vodka have fallen victims of the latter example. This popular use of *photoshopping* is encouraged through the many Photoshop communities that have developed, particularly on the World Wide Web, to support the practice.

A quick search for the term Photoshop, through the many search engines on the internet reveals millions of results, many of which are related to advertising the latest versions of the application, sharing photography tricks or providing tips and techniques through tutorials. For the latter option, websites such as www.worth1000.com, www.good-tutorials.com, and www.tutorialized.com provide a host of step by step instructions on how to achieve a particular visual effect. Although these effects vary from site to site, certain trends are consistent throughout all of these tutorials. All of the sites contain tutorials on how to re-mediate text so that it mimics bitmap images instead of conventional vector type. Text effect tutorials transform two dimensional typefaces into shiny metal, see-through, three dimensional globules of gel, and impressive flaming letterforms. Common tutorials for editing images include how to create nostalgic looking

sepia images, dreamy vignettes on intimate photographs, and how to retouch photographs to make them look like they were originally photographed in the ideal lighting conditions.

The instructions laid out for individual tutorials contribute to the uncritical use of Photoshop because they essentially set a precedent on how to use the application. An investigation of the online Photoshop tutorials reveals that they show the user what to do, but do not explain why. The emphasis is usually on how to achieve an effect through the quickest method, and this in itself leads to the re-definition of the function of particular tools.

The example below shows screenshots from a short tutorial on how to create a 'Sin City effect' by altering a photograph. The image used is a screenshot of Uma Thurman from the *Kill Bill* film. Instructions (for beginners) are *Find picture and open picture in Photoshop > Duplicate layer. Emphasize blood on Uma's face > On duplicated layer use Adjustment/black and white. Erase blood on b&w layer > Insert new laer [sic] and with 1px draw some white lines, and go to filters and choose blur/motion blur*. An example of the final effect is shown through a screenshot from the 1976 *Taxi Driver* movie, starring Robert DeNiro.



Fig 8. Before and After examples of 'SinCity effect'



Fig 9. The ‘SinCity effect’ as seen in the Taxi Driver film

Even though this is a tutorial for beginners, there is already an assumption of prior knowledge from the user. For example, it is assumed that the user will know what to do to ‘emphasise the blood’. In some tutorials screenshots of the actual toolboxes are provided in order to facilitate the location of the different functions and to provide ‘cut and paste’ options of values that have already been pre-defined by the creator of the tutorial. The step by step instructions are however similar to those on other websites, where the user is instructed on what to do. Very little information, if any, is provided regarding the context within which the effect is created. In this example the user may be left wondering if the use a Noir effect on a Kung Fu (slash Samurai slash Spaghetti Western) genre movie is intended as pastiche or if the examples were randomly selected.

The tutorial foregrounds the issue of control because there is no content management system to monitor the kind of content that individuals post on their websites. The nature of the World Wide Web allows anyone with access to the technology to share their experiences. Feedback on these tutorials is provided only if the website provides the facility. Visitors to the website can then write about their experiences, as well as provide alternative solutions on the site. Although this could help the user to solve the problems they encountered, these solutions are still ‘codified’ as they are written and not visualised.

Because computers are digital tools, all the information inside them is made from mathematical codes and values. As a result, the graphical interface is a facade that hides the complex mathematical code. When images are scanned into Photoshop, the scanner translates the image into bitmaps. These bitmaps are essentially a grid of pixels, each with a numerical value assigned to it. Visual effects are created when the values of these individual pixels are changed, often through multiplying the value of each pixel. Users however, are not usually aware of this because they have become accustomed to a visual way of reading user interfaces.

In Chapter one, Nibbelink described how vignettes were created by projecting an image through an opaque piece of cardboard, which underexposed the edges of the image, resulting in a blurred effect. In Photoshop a similar effect is achieved because once the relevant filter is selected, the computer calculates different values for the pixels at the edge of the area of the image selected. Manovich explains this remediation as avant garde becoming software, because the old technique of creating a vignette has been codified. Because of new media technology old image production techniques have now become digitised and procedural actions.

Consequently, when users refer to tutorials on the net, they are involved in a process that encourages them to change the value of different pixels, through the use of sliders or manually inputting numerical values into a field. This action is uncritical because the user does not know how these values were determined. Once the effect is achieved, the user becomes involved in yet another uncritical act of decoding the image because they essentially achieve a visual style through a dictated mechanical method, instead of through a conscious act of intent.

In the worth1000 website, users are confronted by screenshots of cleverly manipulated imagery which they are encouraged to vote for – a simple process with far reaching connotations. Anyone (with access to Photoshop and the Internet) is allowed to submit their photoshopped images to the site, at no cost. These entries can be submitted into different categories, from beginner to advanced. This categorisation is closely monitored and defined. Entries have to earn their way to the advanced levels by accumulating votes and points. The best images are displayed in the *Galleries* page where visitors to the site may peruse the entries and get a sense of the quality of *photoshopping* that is considered appropriate.

With about 300 000 visitors a month, and 5.3 million visitors in 2003 alone, this is a large number of people being introduced to the possibilities of *photoshopping*. According to statistics released by *Alexa*, an online web information company, at the beginning of 2008 Americans accounted for 19.5% of the users of the worth1000 website, in August 2008 the figure has gone up to 31.6%. Of the remaining 68.4% of global users of the site, 5.1% are from the United Kingdom. None of the African counties feature on the top 25 list, however they presumably make up the remaining 16.1% of 'other countries'.

Even though this is a very small percentage for 54 African countries to be sharing with the rest of the world, it is an important statistic that can be used to contextualise user needs. The large number can be attributed to many factors, but notably access to both the internet and Photoshop technology plays a big part in defining this. Even though Photoshop is a ubiquitous application, affordability remains a problem.

The ubiquity or affordability of a product or service does not always imply that it will be successful. The image below is a screenshot from a Coca Cola website that was

designed to document how ‘chilled’ the world is. Although it was created to allow users to express how they felt at a particular point in time, the colours also serve as an indication of where the users are concentrated, throughout the world.

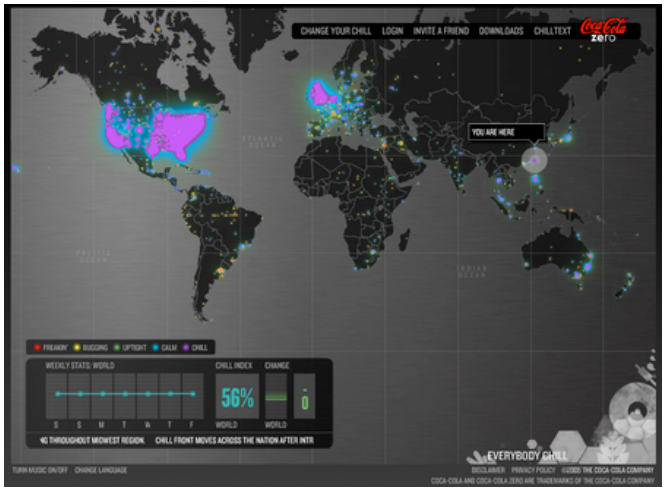


Fig 10. Coca Cola World Chill website

As with any other contest, the worth1000 website provides terms and conditions of use. These include a clause that disallows annoying overuse, lack of realism, being off topic and submission of lazy entries. One of the criteria defining a lazy entry, for example, is explained as ‘the abuse of program filters’, where using a simple filter to change the appearance of an image is frowned upon. Perhaps as a way of ensuring that *simply* adding filters to an image is unacceptable, the website also offers the user a variety of tutorials which go through step by step instructions on how to photoshop images.

These kinds of tutorials are also available in Photoshop oriented print publications such as Photoshop Creative (for Adobe Photoshop inspiration and advice) and Advanced Photoshop (for Adobe Photoshop professionals) - both of which are United Kingdom publications. These tutorials are accompanied by a free cd which contains all the working files needed to complete a specific tutorial. The user then follows the step by step guide

to mimic a style of photoshopping. Through these tutorials, the user is increasingly being indoctrinated about how Photoshop *should* work and this arguably perpetuates a stereotype and benchmark of the 'correct' use of Photoshop.

The second common reference to the term *photoshopping* is as a way of describing images that have been visibly edited using the tools of an image manipulation application. This use of the technology is often viewed in a negative manner because one can usually see the tell-tale signs of the different filters and effects that have been applied to the image.

When reference is made to *photoshopping* in this context, it is often from the perspective of users who are familiar with the conventions of applications such as Photoshop. Because of their frequent use of the technology they have become so accustomed to using the effects that they are able to spot them at first glance.

Although the use of such styles is frowned upon on sites like worth1000, the irony of this negative response to the photoshopped image is that novice users are ridiculed for using the very services that the application is designed to make accessible. This accessibility has been entrenched through the release of applications such as Photoshop Elements (introduced in 2001). This is an image editing application, similar to Photoshop, but with less features. Through this application, users can apply Filters such as Mosaics and Blurs to their photographs, clean their photographs (like remove 'red eyes' from their photos), and even create slideshows of photographs that one can then share through email. The application has been designed to allow novice users to have access to the popular tools and functions that are available through Photoshop. The practice of photoshopping is therefore encouraged through this simplified version of Photoshop.

The Photoshop disasters web log, www.photoshopdisasters.blogspot.com is testimony of the kind of scrutiny that manipulated images are put through. The purpose of the blog is to encourage users to submit examples of the bad usage of Photoshop and then comment on other images that have been posted up on the site. The submissions include everything from an image of a well known African American singer whose skin and hair look a few shades lighter than how she looks in real life, to images where the viewer has to move in very close to the screen to see the small spot on an image where the slightly crooked line suggests the tell-tale signs of 'bad' usage of the *Clone* tool.

In essence this establishes the belief that there is a standard or level at which correct image manipulation is set. The question therefore is, who sets the standard, and when is it considered *inappropriate* photoshopping? Is correct usage about using the tools, striving for a level of 'realism' that hides the alterations that have been made to the image or correctly mimicking a fine art technique?

The user does not have to be a fine artist or photographer to understand how the interface works, however it is important to have a context when working with any medium. In digital photography, for example, the default colour mode of photographs is RGB, however once the user is ready to print their images they are usually encouraged to use a CMYK colour mode. This is because when printing, the colours are made up of inks whereas the colour for photography is made up of the values of light. When photographs are taken, the digital camera automatically captures the RGB values of the light. The manual process for taking and developing photographs is a lot different, as described by Schlemmer;

> Photography is the result of the sensitivity of silver compounds to light. When silver bromide, deposited on a gelatine (film) surface, is exposed to light, it undergoes a chemical change that causes it to become developable. The

> developing process (immersion in a chemical solution) causes the exposed bromide to reduce to metallic silver, forming an image relative to the intensity of the light to which it is exposed (17).

With the advent of digital photography, one can simply aim their camera at a subject, click a button and download images to a computer. After a quick look through the photograph thumbnails the user can delete unwanted images or use the computer to correct any mistakes that occurred during the process of taking the image. We are in an age where one is not required to understand Schlemmer's jargon in order to make the perfect image however, they do need to know how to use Photoshop. This is what Manovich defamiliarises as part of the radical change that has taken place between old and new media;

> …what was a radical aesthetic vision in the 1920s had become standard computer technology by the 1990s. The techniques which were harnessed to help the viewer to reveal the social structure behind the visible surfaces, to uncover the underlying struggle between the old and the new, to prepare for rebuilding a society from the ground, became the elemental work procedures of the computer age.

Bolter and Grusin also speak of the change from old to new media. They addressed the immediacy of new media by coining the term *Remediation* in the year 2000. They explain how digital media, although considered new, is as a result of the re-fashioning of old media. Therefore, Photoshop is a remediation of photography, which in turn is a remediation of painting. So we cannot look at new media without referring to old media.

This opinion does not imply that the user must become an understudy to a master

painter or manually paste up text and images to create a layout. Instead, it is expressed to encourage the user to understand where their chosen medium comes from and why it works the way it does today.

The user need not be a mathematical genius or go back to the Modernism era in order to appreciate how a particular filter is created. However, by understanding why certain functions happen the way they do, the user is in a better position to appreciate the naturalised environment they are working in. Bolter and Gromala explain how,

> …what is considered "natural" can change…For some the term *natural* is simply a way of indicating that the interface is easy for a beginner to learn or efficient for an experienced user. But even by this definition, the idea of natural is not constant, because what is efficient or easy in an interface depends on what the interface is for (52).

This can be illustrated through the Adbusters magazine, a collection of images and articles which are aimed at promoting social activism amongst consumers. As an interface, this publication is the propaganda tool that turns passive consumers into activists against big multinational Corporations, through a process called Culture Jamming. Consumers who read the publication are sensitised to initiatives such as Buy Nothing Day and TV Turnoff Week. They explain their philosophy as follows;

> We want a world in which the economy and ecology resonate in balance. We try to coax people from spectator to participant in this quest. We want folks to get mad about corporate disinformation, injustices in the global economy, and any industry that pollutes our physical or mental commons (www.adbusters.com).

Through interfacing with the multitude of parody tv and print ads produced through and

inspired by, Adbusters, the user is compelled to change their perception of a consumerist culture that they had come to view as a normal part of living in a globalised world.

The advantage of a graphical interface is that it hides all the complex coding that is behind the functionality of the application, leaving the user with a simple pictorial environment to work in. Because of the look of the interface, the user is encouraged to follow the visual cues and complete their intended task. In Photoshop users are provided with Help menus to assist them in their exploration process, but essentially they are guided by the GUI. The user should therefore be able to look at the interface as a medium that reflects the real world from a specifically intended perspective throughout the period of interactivity, instead of only when something goes wrong.

The design of the Photoshop interface does not provide the user with an immediate explanation or cultural context for the way it looks. The medium has been remediated to a point where users are familiarised with understanding how the interface works, instead of why it does. By encouraging critical use of the technology, the user can then be in a position to optimise their use of the application.

The usability of Photoshop

The nature of Photoshop allows for the user to customise certain functions in the application; however the interface is not designed to encourage this. Although Photoshop has many built-in filter options, for example, the user has the option to create their own. This is achieved by choosing Filter > Other > Custom in one of the drop-down menus and then inputting numbers into a table until the desired effect is achieved. For the user who understands how filters work, this is a good opportunity to push the limits of what the application offers. For the novice user however, this becomes yet another trial and error

attempt at using Photoshop.

Usability tests are a common practice in the assessment of the effectiveness of new digital devices. In chapter one, Schewe described how he had been a participant in a usability test for the new Photoshop 4.0 application. As part of the exercise, he was encouraged to verbalise his thoughts and actions as the new interface designers observed and documented his interaction process. The whole process was video taped. In a similar manner to Schewe's Usability test experience, this chapter points a 'video camera' at how Photoshop has grown to have such a dominant impact on user experiences throughout the globe.

The Lisa computer, introduced by the Apple computer company, is popularly known as the first commercially available computer with a graphical user interface and a mouse. In 1983 this computer was marketed to users, however two years later in April 1985 it was off the market. This interface has significantly influenced the look and functionality of GUIs as we know them today.

The use of a desktop metaphor for operating systems and the applications they host was introduced by the researchers as Xerox PARC, commercialised by Lisa, and conventionalised through the Apple Macintosh interface. Users were introduced to working on the desktop, saving files inside folders and emptying trashcans. Users were also introduced to obtuse functions like opening windows on the aforementioned desktop and highlighting information by creating a *dark* selection over it. It is this kind of interaction which highlights the fact that although GUIs are designed to be intuitive, they also require a lot of *learnability* from the user.

The look and functionality of the Macintosh operating system has been designed according to the *Apple Human Interface Guidelines*, a manual produced by the Apple Computers company, in order to aid interface designers when they create interactive environments. These guidelines are made accessible to interface designers with every introduction of a new operating system and are consistently updated to keep up with technological needs of the users. This document[16] states that, "it is important to strike a balance between the metaphor's suggested use and the computer's ability to support and extend the metaphor" (39)

The student who referred to the doe-eyed expression as 'marble eyes' may have come across as naïve in the European context of using the metaphor, however in Botswana someone could have offered to show him how to use the *Bloat* tool in order to achieve his objectives. Someone else might have sneered at his desire to use a 'cheesy' Liquify effect, whilst another would have cautioned him against the overenthusiastic use of a simple filter.

Ultimately, user interfaces, whether in digital environments or not, should allow for users to see them as environments that are ideologically framed to re-present the real world to the user in a very specific context. Dr Frank Thissen, a multimedia lecturer and author, sums this up as follows:

> Generally we do not notice our own culture because we experience it matter-of-factly, because everyone acts more or less the same way. Only when we are confronted by a different culture…do we discover – often painfully – that our values and ways of behaving are not natural for other people (252).

CHAPTER FOUR: INTERFACING WITH USERS

Interfaces are designed to communicate between the user and a device, and are meant to be easily explored and understood by the user. In order to achieve this interface designers observe their target audience and try to design in a way that would come across as familiar to the user's normal activities. User expectations are therefore a major consideration when designing the ideal interface.

According to technologists, a well designed interface is a usable and transparent interface. According to digital artists and new media theorists like Bolter, Grusin and Gromala, this is not necessarily true. This chapter explores these contradicting opinions through the exploration of user interfaces. Through this exploration the conventional design of user interfaces is challenged and defamiliarised.

Designing digital Interfaces

The interface is the connecting medium between the user and the object. Through the interface, the user is able to complete the task at hand. In digital interface design this interface can be a Photoshop application, which allows one to adjust the brightness or contrast of an image before it is printed or emailed to someone else. The recipient of the email interfaces with their web mail application to decode the image so that they can view it on screen and print it. The laser printer acts as an interface between the user and the printed page, as it converts on-screen digital pixels into ink on a page.

It has been established earlier, that interfaces use metaphors in order to facilitate understanding of a technology or medium. These metaphors are usually based on the usability of everyday objects so that when they are digitised, one can still recognise the

functionality. Interface designers do this in order to make the interaction familiar, so that users are not distracted from the job at hand. New media practitioners say that interfaceless environments are giving the user the wrong impression because when they disappear, the user is fooled into thinking that they are dealing with the original medium.

The trashcan is used as a metaphor for deleting unwanted files. Because of the abilities that remediation affords users, the functionality of the metaphor can be extended, and this can cause confusion for the user. The digital trashcan, for example, is designed to retain many more items than a real one, and do so without any concerns about environmental hazards. The same metaphor can also change form to become an eject symbol on the Mac operating system. On the Windows operating system however one cannot eject an external hard drive by putting it into the trash can.

In the image below, the metaphor of the desktop has been taken literally and the navigation hotspots of the site have to be hunted for, in a similar way to how one would search a messy desktop. The scale of the imagery has also been manipulated to give the impression of viewing objects on a page. The illusion is continued on the biography page on the right, which shows a scrapbook, complete with torn out pages and a pesky fly.



Fig 11. Desktop interface screenshot. www.jkrowling.com

This is an example of how the interface ‘disappears’ – until something goes ‘wrong’ and the user has to decipher the interface.

In the image below the metaphor of the trashcan is changed. When the user moves their mouse over the sharpener, the corresponding text reveals that this is a rubbish bin. Once selected, this leads to the link on the right. Users however cannot ‘drag and drop’ anything into this rubbish bin. Instead they are encouraged to take pieces of paper out of the bin to read all the ‘rubbish’ that people have said and written about JK Rowling.



Fig 12. Rubbish bin screenshots. www.jkrowling.com

In the bid to reach different target audiences, the website provides two types of viewing options for the user – the accessibility enhanced (flash enabled) version and the text only version. The image below (fig 13) shows the text only version of the wastepaper basket in Fig 12. Viewing these two versions of the website in succession reminds the user of the constructed nature of the graphical user interface.



Fig 13. Rubbish bin page, text version. screenshots. www.jkrowling.com

Are you sure you want to quit?

Digital interfaces do not always work the way that the user expects them to. This may be because the tool has been used for the wrong function, or that the computer is still performing another function. The hourglass icon on Windows computers and the spinning wheel in Apple operating systems are commonly displayed to illustrate that the computer is ‘still thinking’, and that the user should be patient. However, sometimes the interface is *intentionally* designed to function in an unexpected way in order to give the user a different social, cultural or even political perspective.

Revenge of the Icon (Fig. 13) is a short animated clip that represents a graphic war between icons on the Windows XP user interface. What starts off as a typical desktop interface turns into an icon battlefield as the MSN icon - the little blue man, starts to pull off his head. The Paint icon - a see through tumbler with paintbrushes inside it, falls over and the paintbrushes turn into deadly missiles. One of the well-aimed paintbrushes turns the MSN man into a ball of flames, as he tries to seek refuge behind the Recycle Bin. The Outlook icon viciously punches the Internet Explorer icon, and every time Outlook lands a punch, the Explorer 'e' grimaces in pain. One by one, the icons on the desktop get drawn into this fight. The whole battle is brought to an end by the Diablo icon, which

turns into a large dragon that swallows all of the fighting icons.

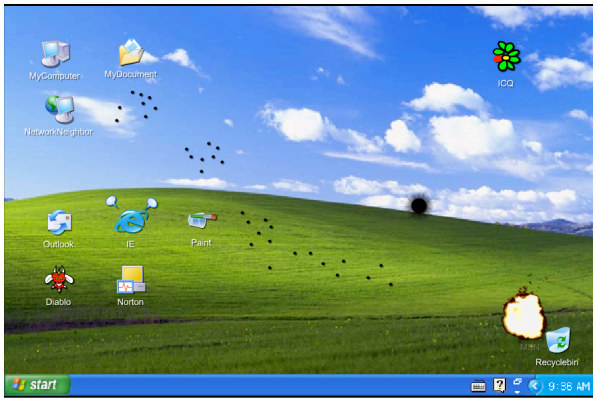


Fig 14. Revenge of the icon screenshot

Whilst this is an amusing animation to watch, it is a simple yet effective way of forcing the user to reflect on how they have been conditioned to see the user Interface. Irrespective of whether the user is using a PC or Mac, the symbolic, iconic or metaphoric icons on the desktop are usually dormant pictograms that the user has to select in order to access files or work on a software application. However, the pictograms in *Revenge of the Icon* seem to break with convention. They hop around the screen unprovoked; they appear to have human emotions-they feel pain, anger and the urge to retaliate. They do not behave the way that GUI icons are *supposed* to behave. Desktop icons generally highlighted, bounce up and down, or perform simple rollover actions when selected.

Revenge of the Icon icons have a completely different life of their own, which prompt renewed interest around the conventional look and function of the GUI. The user is now forced to look closer and more critically at the once static, two dimensional graphics which until then had been recognisable as graphic icons. The battle virtually turns the screen into a three dimensional environment. The background image, which until then was just a static picture of green fields, begins to resemble a physical battleground littered with the charred remains of the once immortal icons. The computer interface

gradually becomes 'interfaceless', where there [are] no recognisable electronic tools, no buttons, windows, scroll bars, or even icons as such (Bolter and Grusin 23).

The use of interventions through interfaces that do not work the way they are supposed to is what separates the Structuralist technologists from the Postmodern digital artists. Through the appropriation of existing new media technology, these artists have actively challenged the carefully constructed aesthetics of interfaces. This use of media intervention tactics is summed up by Nato Thompson, the Director of the Massachusetts Musuem of Contemporary Art, as follows:

> Tactics can be thought of as a set of tools. Like a hammer. A glue gun or a screwdriver, they are means of building and deconstructing a given situation. Interventionists are informed both by art and (more importantly) by a broad range of visual, spatial and cultural experiences. They are a motley assemblage of methods for bringing political issues to an audience outside the insular art world's doors. They appeal to a viewer who is confronted by an increasingly privatised and controlled visual world. Humour, sleight of hand and high design are used to interrupt this confrontation and bring socially imperative issues to the very feet of their audiences (14).

Thompson's reference to intervention tactics is an introduction to the works of interventionists who decided to take their art out of galleries and into the streets, in order to engage better with their target audiences. Tana Hargest is a fine artist and CEO of Bitter Nigger Inc (BNI), a fictitious corporation aimed at making the future 'race-free'. Through the use of a website and an information kiosk Hargest sells the idea of a new paradise similar to Disneyworld, called New Negrotopia (2004), where visitors can travel through their racial history and learn to live beyond racial classification. By taking this

artwork out to the streets and soliciting investors, Hargest aims to confront racial tensions. The bright citrus colours of her stand and her playful caricature style of imagery creates a friendly interface which hides the serious nature of her theme.

Interfacing with the public is an intervention tactic that has been used in South Africa and yielded interesting results for both artists and users. In 2001, Justin Nurse made international headlines when he was sued by South Africa's leading brewery group, SAB Miller, for creating a spoof of their Black Label beer. He changed the brand to Black Labour (White Guilt), and emblazoned the bold statement on t-shirts which he sold nationwide. In January 2002 he received legal correspondence from SAB ordering him to "deliver up for destruction all T-shirts bearing the offending logo" (Nurse 10). He explains his actions and refusal to comply with SAB:

> Using a beer brand to make a point about labour exploitation seems ambiguous at first. We could have argued that the Black Labour design was about the fact that Black Label's (and SAB's) white bosses felt guilty about Apartheid ("White Guilt"), and thus employed an affirmative action policy that promoted black workers at SAB ("Black Labour"). While that argument would have linked the brand with the satire, it wasn't what we meant.

Nurse insisted that his appropriation of the Black Label trademark was to make a social commentary about how the change in the political landscape of South Africa (post 1994 elections) had not really changed the lives of South Africans. Black people, who make up the majority of the population, remained poor whilst white people remained rich hence the "White Guilt". Nurse lost the case, but appealed in 2003. In 2005 the Constitutional Court of South Africa ruled in his favour and in turn allowed him to continue his intervention strategies for societal change.

In order for one to create an interface they do not always have to use parody, satire or humour. In 2006 digital artists, Marcus Neustetter and Stephen Hobbs from the Trinity Session in Johannesburg embarked on a cross cultural public art project of remediation through visual communication. In their artist statement which they produced for the subsequent installation at the *Dak'Art Biennale* in Dakar, they explain:

> During site research for an urban regeneration project on the border of Hillbrow, Stephen Hobbs and Marcus Neustetter were confronted by two francophone immigrants who warned them that entering Hillbrow with a camera was not safe. Drawing their inspiration from this encounter Stephen Hobbs and Marcus Neustetter […] interviewed a group of Senegalese immigrants asking them to draw maps of Dakar, which Hobbs/Neustetter would use to navigate the city during their two week residence in May 2006 (2007).

Using the hand drawn maps that the Senegalese immigrants had created as an interface, Neustetter and Hobbs travelled through the streets of Dakar and located friends and family of the Senegalese diaspora living in Johannesburg.

On their return, the two interventionists took their documentation of the experience and shared it, not only with other creatives, but also with members of the Senegalese community living in Hillbrow, Johannesburg.

Interfaces can be both digital and analog. Throughout this paper, reference to interfaces has focussed predominantly on the look of the digital interface as a way of making new media technology accessible to users. This chapter aimed to look critically at the remediation of the digital (screen) user interface by digital artists and other interventionists. The idea of an African user has also been explored, without necessarily creating a persona or stereotype of this user. The exploration of the needs of an African

user is a lengthy but necessary process, which can only be achieved through the collaborative efforts of technologists, artists and designers. Through the subversive work of the Justin Nurses of this continent as well as the cultural research, urban regeneration and education projects by Trinity Session[17], and even The Shuttleworth Foundation[18] users can begin to critique the familiar as it is reflected back at them through new interfaces.

CONCLUSION

When I first set out to research Photoshop, my understanding was based on my own use of the application. I started using Photoshop with version 5.5 and although I sometimes wondered why it was 5.5 and not 1 or 10, I did not bother to find out why because I was more interested in learning how to use the cool filters.

My initial research on Photoshop involved reading through the Help menu to try and find out what it was *really* about. Even though this process allowed me to find out many new features in Photoshop, it also proved to be very challenging to try and figure out what some of the instructions meant. I often found myself going back and forth between hyperlinks, losing my place in the process. I also scrolled through much of the text, stopping occasionally if a familiar word stood out for me. At the end of the process I realised that I was more frustrated than enlightened about an application that I thought I knew how to use rather well.

Searching for Photoshop on the World Wide Web did not help much because it resulted in a similar process of getting side tracked by keywords and even more links to similar information that was worded slightly differently in another website.

The history of Photoshop is not just about how different image editing tools have improved since the introduction of Adobe's Photoshop 1.0 in 1990. It is a story of how image production and technological innovation have come together to create a cultural tool which has become a natural component of popular culture throughout the world.

Photoshop has become an intrinsic part of our day to day lives, whether or not we are

aware of it. As we watch television, read magazines, glance at billboards on the street, search through the internet and print documents through our laser printers in our homes and offices, we are continuing the legacy of Photoshop. Unfortunately we are not always aware of this because it has become such a normal part of our day to day lives.

Chapter one provided an overview of how Photoshop came to be. Through tracing back the steps of image production the existence of Photoshop has been contextualised as a derivative of image production techniques which culminated with the introduction of the desktop publishing revolution at the birth of the age of personal computers. Because of the context within which Photoshop came to be, it was important to trace the history of image production to the birth of lithography.

Printing for reproduction purposes existed before the introduction of lithography, particularly through letterpress techniques. When lithography was eventually invented by Alois Senefelder, at the end of the 18th century it signalled the beginning of larger things to come. The Industrial Revolution introduced the opportunity for mass production, which in turn necessitated more printing. Competition increased and people began to realise the need to advertise. The lithographic printing technology had to evolve to keep up with the requirements for printing in colour and accommodating photography, which was introduced in the 1830s.

Although the Arts and Crafts movement protested the popularity of the Industrial Revolution, the machine won and the need to meet the demands of the new printing revolution increased. Printing for reproduction purposes in the first half of the twentieth century was predominantly achieved through the collaborative efforts of an illustrator, a photographer, a retoucher, a typesetter, a paste-up artist and a printer. The print and

digital technology experiments of technologists and engineers in the 1980s changed this so that the majority of the work was computerised.

The creation of Photoshop by the Knoll brothers in the 1980s has played a very big role in the introduction of this desktop publishing revolution. By collaborating with Apple and Adobe, the Knoll brothers created a technology that has been copied by many, but still remains a leader in image manipulation practices throughout the world.

Today we refer to New Media and new media technology. This terminology suggests that there was Old Media. The 1920s are considered to be the experimental years for media, including fine art, literature, film and theatre. In Avant Garde as Software Manovich explains:

> Looking retroactively on the 1920s from the viewpoint of today we realize that the key artistic innovations of the 1920s were all done in relation to what was then "new media": photography, film, new architectural and new printing technologies. "New Vision" was the new language for photo media; Soviet-montage school and classical film language were the new languages for film media; "New Typography" (Tschichold) was the new language for print media, "New Architecture" (Le Courbusier) was the new language for spatial media (i.e. architecture).

What was also new at this time was the Russian Formalist's idea of Defamiliarisation. Coined by Viktor Shklovsky in 1917, this literary term was created to define the new approach that the Formalists were taking, towards literature. It is this term that I use to speak about the Postmodern medium, Photoshop. Manovich uses the term briefly, in Avant Garde as Software;

> Post-modernism naturalizes the avant-garde; it gets rid of the avant-garde's original politics and, through repeated use, makes avant-garde techniques appear totally natural. From this point of view, software naturalizes the 1920s radical communication techniques of montage, collage, *defamiliarization*, etc., just as it has done in music videos, post-modern design, architecture and fashion.

The title of this research paper states that the Photoshop GUI has been naturalised. By defamiliarising it I have unnaturalised the use of the Photoshop GUI so that users are encouraged to start questioning their actions. Throughout the paper, terminology such as airbrushing, dust and scratches, paste up, dodging and camera ready have been used as a way of explaining different processes involved in image making. These terms have been converted to options on a Photoshop user interface.

The design of interfaces is about creating transparency, so that the user focuses on the job at hand instead of looking at the tools that make their job easy. Users do not stop to question why the ‘cut and paste’, or even why they eject their external hard-drives by dragging them into a trashcan on the desktop. The user only looks at the interface critically, when something goes wrong.

Defamiliarisation is about prolonging the user experience in order to create a deeper appreciation of what is happening. In the *Screen Design Manual*, Thissen provides the reader with three user groups, namely Beginner, Advanced visitor and Expert. The difference between the Beginner and the Expert is that beginners ask questions like “What is going on here?” and “Does this interest me?” The Expert user on the other hand asks, “Where do I find…?” This is an important observation, particularly with regards to defamiliarisation. The Beginner is curious and wants to learn. They want to understand

more about the interface that they are being introduced to. The Expert user is more interested in how to get the job done in the quickest way possible. The beginner views the interface in a reflective way because they are conscious and curious about the reaction that they will get because of their action. The Expert user looks through the interface as if they are viewing the actual object in real life. Their use of keyboard shortcuts adds to the disappearance of the screen.

The problem with viewing represented objects as though they are real is that one begins to view them like they would view the original object in real life. Real life however, is embodied with social norms and standards. Real life has people with different cultures and different belief systems. Real life cannot be shut down and restarted at will. Real life cannot be Photoshopped.

Whilst users are caught up in the world of uncritical use of technology, it is the digital artists who have decided to use new media to create interventions that 'speak' to the passive villagers of the Global Village. By appropriating new media technologies they create social commentary and create opportunities for reflective uses of new media objects and technologies. Digital artists, Mongrel explain their work as follows;

> Our aim is to use our work to get media systems taken more seriously by critics, commentators and the wider participants of the net (you and me, mums and dads) for it's own cultural potential and to be accepted by the wider art world as an artistic genre instead of just a functional means of communication, archiving and bureaucratic management (www.mongrel.org)

It is through digital artworks like *HeritageGold* and *Autoshop* that digital artists resist the status quo. By drawing from interfaces that have been normalised for the user through

guidelines dictated by multi-national corporations, these digital artists start to empower users to think for themselves. They therefore use the technology as a vehicle to express themselves instead of relying on the technology to define their thinking.

By parodying Photoshop, the digital artists are using the ubiquity and familiarity of the application to their advantage. Users who are familiar with the Photoshop interface will try to find a visual equivalence between *HeritageGold*, *Autoshop* and Photoshop, and through this interaction they will be forced to critique the user interface.

The introduction of OpenSource technology and software has provided access for many users, who otherwise would be limited by the proprietary restrictions that accompany most ubiquitous products and services. Although *GIMPshop* closely resembles Photoshop and can therefore be used alternatively, it was not discussed in the paper because it does not challenge the transparency of the interface. It is only through challenging the immediacy of perception that we can defamiliarise new media technology.

> We created the computer to serve us. The notion that it might become our master has been the stuff of science fiction for decades, but it was always hard to take those stories seriously when it took heroic efforts just to get a computer to do basic chores. As we start to accept the World Wide Web as a natural part of our daily existence, perhaps it is time to revisit the question of control. My hope is that with an understanding of history and a dash of Thoreauvian scepticism, we can learn to use the computer rather than allowing it to use us (Ceruzzi 312).

My quest to defamiliarise Photoshop has taught me that by learning *why* to use the computer interface instead of just *how* we will be in a better position to create

interventions that speak to the user in a language they understand, irrespective of where they are in the global village.

NOTES

[1] Marshal McLuhan. *Understanding Media*, 1964

[2] Douglas Engelbart designed the first computer mouse in 1964

[3] The more recent version, Creative Suite 3, was introduced in 2007

[4] www.mongrel.org.uk

[5] www.signwave.co.uk/go/products/autoshop

[6] The printing period before the 15th century is also known as **incunabula**, which refers to its infancy period.

[7] invented collotype and carbon processes for photomechanical reproduction

[8] Adapted from Sandro Botticelli's painting, of *The Birth of Venus* (1486).

[9] Co-founded Adobe Systems in 1982, with Charles Geschke, to explore printing technology.

[10] Sometimes spelt as Sklovskij

[11] Including Roman Jakobson, Yury Tynyanov, Osip Brik and Viktor Shklovsky

[12]Where tools and icons become unrecognizable as such.

[13] Bolter and Gromala discuss many artworks including Text Rain by Camille Utterback, and Wooden Mirror by Daniel Rozin

[14] A customised graphical interface put on top of an existing program. Skins can be customised, to align with the functions and commands of an application.

[15] According to a Wired Magazine article by Mathew Honan, this image was not designed as a critique of the TIME magazine cover, however the overwhelming coincidence of the image manipulation of OJ Simpson for a magazine cover permits this interpretation. http://www.wired.com/techbiz/media/magazine/16-09/st_15ojsimpson#

[16] At the beginning of this paper I stated that the critiques carried out in this research will be limited to Photoshop 7. The Apple Human Interface guidelines document referred

to in this context is for Mac OS X. Even though Photoshop 7 was compatible with OS 9.1 and 9.2 it is compatible with OS 10.1.1 and higher. This is to ensure that the arguments raised in the chapter are not based on an archaic document which may render the arguments obsolete.

[17]*Communal computing and shared space of usage: a study of Internet cafes in developing contexts* by Jason Hobbs and Tegan Bristow.

[18]Established in 2001 by Mark Shuttleworth to provide Technology education to South African youth, using OpenSource software

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