Less realism: more meaning: evaluating imagery for the graphic designer

Stuart Medley

Edith Cowan University

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Less Realism: More Meaning
Evaluating imagery for the graphic designer.

This thesis is submitted in fulfillment of the requirements for the degree of Doctor of Philosophy, Edith Cowan University, Faculty of Education and the Arts.

Stuart Medley, B.A.

November 2008
USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.
Abstract

'Typography' as a defining term has become interchangeable with 'graphic design', and while font choice and application is seen as of paramount importance, image choice, virtually half of the communication design equation, is neglected in the theory and in practice is left to the instinct of the designer.

In this thesis I try to find approaches for graphic designers to understand image to the degree that they understand type. These approaches are tested through assignments for graphic design students and the results recorded and analysed.

I seek to address the paradox that we are able to communicate more accurately through less accurately rendered images. I will explain how the human visual system, evolved over time by looking only upon the natural world in all its reality, can look upon a stick-figure and make an emotional and intellectual connection. I examine the design implications of this strange faculty of the visual system. Gombrich, Arnheim and others have explored realism in, and applied psychology to, art in order to become better art historians. I explore the implications in the more pragmatic, economically imperative field of design of moving away from realism in the visual aspects of communication.

Theories on the psychology of seeing are brought to graphic design for two principle tasks. Firstly, to show how the visual system works and how it has historically been put to work in graphic communication. Secondly, to attempt to quantify means to understand, classify and teach the 'image' aspects of graphic design to begin to approach the extent to which typography is understood, classified and taught.

The thesis examines the history of image in design; using modernism as the benchmark of 20th century graphic design and its ill-informed reliance on realism through photography; I show examples to illustrate the potential of moving away from realism; and through student assignments I quantify the role of image in design.
Declaration

I certify that this thesis does not, to the best of my knowledge and belief:
i) incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education;
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Stuart Medley, November, 2008.
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Introduction

The short history of graphic design since the Bauhaus reveals a preponderance of photographic images used to express the non-textual elements of visual communication. The dominance of the photograph has only begun to weaken in favour of illustration in this last decade (Klanten & Hellige, 2005). This change is beginning to be reflected in the western world's juried design annuals. This thesis asks if photographic or realistic images are the best way to communicate an intended message to an audience. I look at the use of images in visual communication, specifically in graphic design: Firstly, to find out why this bias towards photography ever existed, and secondly to see if this bias was warranted.

This is a thesis about graphic design. Specifically it seeks to find out how best to design images to convey an intended meaning. This is an aspect of graphic design that has been left alone by most design theorists. In this thesis I wish to explain some fundamental differences between images which are realistically representational and images which communicate effectively. Realism and communication, I have found, are two different purposes that only sometimes overlap. Paradoxically, it may even be that one can communicate more accurately using less accurately rendered pictures.

In this thesis I will show that graphic design theory is scarce, but where it deals with images rather than type, it is almost nonexistent. This absence of theory leaves the way open for an in depth study for graphic designers and design educators about the way images

1. In the leading trade journal of visual communication in the U.S., Communication Arts, the design annual of 2000 showed some 55% of chosen graphic designs contained photographic imagery. This compared with 25% of designs containing illustrated imagery, and 20% whose content was type only. In the 2007 design annual, 40% of graphic designs contained photographic imagery compared to 42% with illustrated imagery and 19% that had type only. Surveys conducted within my own national design industry reveal both this bias towards photography and the recent contraction of photography compared with illustrated or drawn pictures in graphic design. The Australian Graphic Design Association (AGDA) annual of 2000 showed some 77% of awarded Australian graphic designs contained photographic imagery. This compared with 32% of designs containing illustrated imagery, and 9% whose content was type only. This reflects a long trend that may just be changing. In 2008, 53% of graphic designs in the AGDA annual of that year contained photographic imagery compared to 30% with illustrated imagery and 16% that had type only.
communicate. This thesis attempts to be such a study. 'Graphic design' may be thought of as a broad field concerned with the arrangement of words and pictures in order to communicate something. I will show that the predisposition of design theorists and educators, as well as design professionals is to concern themselves primarily with type and secondly, if at all, with image. Lupton and Miller in Design Writing Research (1999) are among the few graphic design theorists to address this imbalance: "a divide persists between words and pictures, high academia and low mass media, authors and designers" (p.91). Even in design, a relatively image-heavy discipline and a relatively new field for theoretical interest, the textual aspects are easily the most explored. Max Bruinsma, while editor of Eye Magazine remarked upon the 'second class' status of images when compared to text in visual communication:

To acquire the status of serious conveyors of ideas, images still have to overcome the remainder of a 'class struggle' that is deeply embedded in our culture. There still is a marked 'upstairs, downstairs' division between images and words: words rule, images serve. [...] although to some it seems obvious that images are challenging the privileged status of words as the prime carriers of meaning, there is still considerable confusion about the ways in which this challenge can be met most effectively. (1998, p.3)

Perhaps image is not well understood by designers because the rules seem unclear. Certainly in this designer's experience, my colleagues like rules, as do I, as limitations to react against and to succeed in the face of, so to speak. Image seems to be far more elusive than type in regard to laying down laws to obey or to break. At least part of the motivation for this thesis was to seek out a set of rules or guidelines that might apply to imagery in graphic design. Beyond this search was a question about whether these rules could be explained effectively so that image could be taught in graphic design schools with the degree of certainty with which type is taught.

Typography is all about rules. In discussions regarding type (that is, most graphic design discussions) a key issue is the designer's choice of type. Indeed, to allow clear choice between faces, type is broken up into styles. Broad agreement can be found on some of these groups: Old style, Italic, Transitional, Modern, Egyptian, Sans Serif. Some have railed against this way of organising type. Robert Bringhurst, author of The Elements of Typographic Style (1992) would have type distinguished by movements and eras, in the way that art and architecture are defined. Poised above all of these categories in type taxonomy are the two classifications, 'text face' and 'display face'. In the naming of these is the implication that the designer is about
to make a choice: To which category does the type belong? Even the names of fonts purport to assist in the task of choosing: Galaxy Run, Entropy, Washout, Biffo, imply by their names, not merely their appearance, the uses to which they should be put; that there is a right and a wrong way of using them or, at the very least, that some uses are more appropriate than others. Strangely, when it comes to pictures, the other half of the design equation, such guidelines don't exist. The rules that designers seem to need to work within as regards typography are either not there for images or have not been so well defined.

How the research began

My interest in this particular area was triggered by some student responses to a lecture. Shown the picture below (Figure 1), the class responded by asking the 'wrong' questions. My students asked “who is this woman?”, “what has happened here?”, “Is she in pain?”, “what is she angry about?”. Apart from the last of these, the students were missing the point of the image, taken from Eric Spiekermann and E.M. Ginger's (1993) book on typography, *Stop Stealing Sheep and Find Out How Type Works*. The image had been included in the book to show the emotion, ‘anger’, which the authors went on to portray in typographic terms. Of course, my students had asked precisely the right questions in order to clarify what the image was supposed to be telling them, but the questions highlighted the disconnection between the authors' intention and the message received (or not) by their audience. It was only that I had read the accompanying text from the book that I was able to elucidate for the students. Two things occurred to me as a result of the students' questions. The picture caused confusion because of its specificity: the woman looked *too* unique, was too much her own person and therefore too much in her own predicament.
Hence the tangential questions from the students. Secondly, making a generalisation from this experience (since Erik Spiekermann is a very highly regarded graphic designer, and the aforementioned book is among the slim canon of *how-to* books on graphic design), I inferred that graphic designers will go to great lengths to choose the font that most accurately conveys their message, however, when it comes to image choice they seem to rely heavily on instinct or precedent and this may lead them widely astray of the intended response they wish to elicit in the reader.

The following week, having attempted to remove from the image the reference to anyone specific, I showed the picture at Figure 2 to the same class and prompted again for questions. When none was forthcoming I asked what was confusing them. One of the students volunteered that there was no confusion: The picture showed anger. It seems that this version avoided questions about 'who', since there clearly was no identifiable person here, but simply depicted the emotion. This image was essentially a pictogram for 'anger', even though, or perhaps because, it did not look like any specific person. In other words this picture was at the far end of image making, away from the 'real' and even bore a closer resemblance to text in its few, abstract marks. For my own part I must admit that, apart from the obvious visual differences evident between two such pictures, it had never occurred to me that there might be such a fundamental difference between how such images communicate. Following these sessions I began to develop a notion that the degree to which a picture was realistic might have some important bearing on how it was received by its viewer.

After some initial research it became clear that many more minds concerned with graphic design, and more sharply focused and more articulate than my own, had merely taken such things for granted too. Images, since they require less structured learning than reading to understand, are difficult to conceive of as problematic visual texts requiring decoding. As R.L. Gregory (1977) has pointed out, seeing is such a familiar process, that it is very difficult to even imagine it as a process.

What is this research for?

My research questions may be put as follows: Might the different levels of realism within pictures lead to different meanings? And, can the examination of image in terms of its relationship to realism also be a way of quantifying image for the graphic designer? These principle questions
lead logically to two other respective questions: If the degree of realism in a picture affects its meaning, how is it that in graphic design, where we are supposedly concerned with the meaning of visuals, we have relied so heavily on a highly realistic form; and if images can be quantified to any extent, can this metering be a way of teaching image to students of design? I will attempt to answer all of these questions in this thesis.

When I discuss realism in this thesis, I refer to attempts by image makers to capture the look of the real world. As George Hardie has observed, "'Realism' used to describe depression dust bowl photographs is different from realism meaning catching reflected light off a particular object" (personal communication, 4 February, 2009). It is this latter notion that I am concerned with. For this reason I focus on photography as the principle means of attaining such realism—I also explain and problematise photography-as-realism in the Literature Review. The question of realism or likeness has been raised in the field of art history. Gombrich (2002) and Arnheim (1954) have each made statements to the effect that realism does not necessarily equate to good art. Artists too have discovered that realism may in fact limit the possibilities of visual expression. Lowry (Figure 3) and Picasso (Figure 4) are just two examples of artists whose early work is quite realistic but whose later work, work for which each became renown, sought new ways of creating emotional impact denied by realism. Art shows us, at the very least, that realism and less realistic forms lead to different meanings. Graphic design is concerned with visual meaning and, more so than art, with didactic or persuasive meaning. Just as art has made a problem of realism then, even more so should graphic design.

Gombrich (1982, p.124) on the transposition of life into image, says it must be "caught rather than constructed [...] Here as in other realms of art equivalence must be tested and criticised, it cannot be easily analysed step by step and therefore predicted". With due deference to his
labours, I wonder if the remit of graphic design allows us to be a little more pragmatic in exploring such possible steps. Gombrich tells us that "The contrast between the prose and poetry of image making often led to conflicts between artists and patrons" (1982, p.158). Presumably because the patron was paying for something he thought he hadn't received. While art seems to have mostly freed itself of this relationship, graphic design (once known as commercial art) is very much a part of such an economy. While the "poetry" of design is a good thing in that it may draw the reader in to engage with the work, perhaps prosaic explanations of how the poetry works might be in order if only to better communicate to the client that he or she has in fact got his or her money's worth.

Those interested in graphic design as an intuitive process may regard such an analysis as akin to being a mechanic merely in order to be able to drive the car. However, when our autos break down, we need a way of fixing them. Similarly, when a student's work is askew in its visual aspects, is it not better to be able to fully describe what is amiss, and why, rather than to suggest that 'it doesn't feel right'? The former is more likely to help mend the communication and get it back on the road, heading in the right direction. Such articulation will also enable the designer to communicate more confidently with his or her client about all aspects of visual communication, rather than just the typographic half.

Pioneers in visual literacy, Fransccky and Debes tell us that, "For many years, schools have concentrated on the verbal skills—skills in reading, writing, speaking. The skills of visual literacy, though not recognized by this name, have traditionally been set aside as 'extras' or reserved for those with 'talent' " (1972, p.9). This problem exists too at tertiary level for the assessment of graphic designers, particularly at admissions interviews where typography is seen as a skill that may be taught (who can know the finer points of typography before entering a design school?) but evidence of good image making and composition are prerequisites. How many useful communicators does such an approach exclude?

This thesis does not argue that pictures are somehow more important than words. Rather, it acknowledges that graphic designers are visual people charged with communicating to and on behalf of clients, and that the client is generally the less visually literate. In this regard the thesis seeks to give to the designer some words to describe what goes on in pictures that are designed for an intended message. As designers we have had plenty of text to back us up when we argue for the use of a particular typeface or layout. Now we need words about images.
In this thesis I set out to explain why there can be a fundamental difference between realism and communication. Beatrice Warde, in her celebrated essay, *The Crystal Goblet*, states that her approach to typography is a modernist purpose, to ask not how should typography look, but what is typography’s function. To her its most important role is that “it conveys thought, ideas, images from one mind to other minds”. She says, “it is important first and foremost, as a means of doing something” (2000, p.92). Here, I try to discover if the role of particular images can be so described. This research may add to the growing interest in the image and its communicative potential. Rather than an absence of visual theory for designers, we may one day see a project as thorough in its scope to explore pictures as *Decodeunicode* (Bergerhausen, 2004) is for the characters that make up the world’s writing systems.

**Structure of the thesis**

This thesis is divided into seven chapters. The first chapter is a literature review. In it I will explore what has been discussed in graphic design theory and make clear that this discussion has continually side-stepped the role of the image. In the few instances where image has been at the centre of graphic design discourse there exists confusion as to its role and effectiveness in communicating an intended message. Design, and illustration used within it, are different to art in their intentionality. Graphic design and illustration are allied here: Visual forms created to express meanings to particular audiences. With regard to intentionality, graphic design has strong parallels with the visual literacy movement, which seeks “to understand and use visuals for intentionally communicating with others” (Ausburn & Ausburn, 1978. p.291). Accordingly, I examine some of the concerns of the visual literacy movement. I demarcate a wide gap in the theory so as to establish what a reduction in realism might allow in terms of visual communication. I study where models of understanding images have been built upon notions of realism and distance from realism, including the concept of the ‘realism continuum’.

I state from the outset that this thesis will concentrate more on perceptual responses to images than on the role of interpretation. My bias has been adopted in order to establish whether we may confidently agree, as a design community, on the ways images communicate because of their relationship to realism: To ascertain what we have in common before we decamp into visually interpretive factions. However, I will examine, under clear subheadings in the literature review, problems with each approach to understanding images.
In Chapter 2 I seek to discover how photography became the designer's *lingua franca* for images. I ask what has been the appeal of the photograph to the designer? In addition, I attempt to contextualise contemporary graphics in terms of their relationship to realism and in terms of the history of graphic design. This chapter will show that through graphic design's history there has been a general absence of any theoretical approach to image use.

Chapter 3 is an attempt to establish whether realism is the best way to communicate visible aspects of the world to the human visual system; the eyes and brain. I will explain how this system can understand non-realistic images, and that it may even have a predisposition for such images. This explanation will include propositions regarding viewing over long distances, and viewing silhouettes. Further, I will examine some recent findings about the visual system concerned with the mechanisms of seeing, and through a study of the mechanics of caricature, how images are stored in the mind and then recalled.

In my fourth chapter I deliberately target images on the opposite end of the realism continuum from photography to see what such images can help us understand about visual communication. Diagrams and information design made from pictograms and icons are examined in terms of what these can show us about invisible (and therefore, unphotographable) relationships.

In my Chapter 5 I see if the research can be used as a basis to critique the role of certain pictures in graphic design. I need to demonstrate that a recent return to illustration does not mean we are newly aware of its strengths, but that these strengths need to be articulated if we are not to again fall under the spell of photography for all design imagery.

In my Chapter 6 I see if this research on realism and its alternatives can be used as a basis to create images for graphic design. This experiment is conducted through a series of student case studies. In designing some of the student project briefs I have attempted to surmise how far to depart from realism for a particular message.

In my last chapter I focus on the research as a basis for future studies into the communicative potential for images. This includes an examination, on the terms established by this thesis, of type as image. In addition, a funded research project, based on the work conducted for this thesis, is already underway. Exploring information design, specifically as a visuality furthest removed from realism, this project seeks to link teaching and learning to design practice through an online and hard copy design journal.
The world is a world of pictures, lacking in depth or constancy, permanence or identity which disappear or reappear capriciously — Piaget

Literature review

Introduction: An absence of discourse about the image

In seeking to answer the question about how images communicate and, especially, what a reduction of reality might allow in terms of visual communication, I sought commentary in books and journals concerned with graphic design. To my surprise there was very little to be found in such volumes specific to my research questions. More alarming was that there was very little graphic design discourse about the image at all. One of the few rare exceptions is Kimberley Elam’s approach in Geometry of Design (2001). For a range of design disciplines (including graphic, architectural, and industrial) she extrapolates, from naturally occurring examples, geometry through which aesthetically pleasing visual design may be constructed. Elam implies that at the heart of every good design exists something distilled or abstracted away from the outward appearances of the world. A quite Platonic view of things not unfamiliar to the students of Modernism. However, where Elam discusses graphic design in terms of its geometry, she is concerned with composition and layout of image and type, and not with approaches to image making per se. This approach is magnified in her Grid Systems (2004), which focuses solely on graphic design, and mostly on layout of type within graphic designs.

Most writing about graphic design is in fact concerned with typography and layout only, and even these texts are few when compared with the amount of writing available to do with, say, art history or literary criticism. Most likely this is a function of age. Design theories are few and far between because design, as a labelled vocation, is young. Design theory therefore, is even more of a newcomer to the rigours of academia. Its struggle to enter this realm is itself the subject of theory and discourse. Gui Bonsiepe of the Ulm HfG (more of which later) has said, “In the field of design, intellectual formation has not a strong history, because design education grew out of craft training with a deep mistrust against anything theoretical” (2002, p.11). Donis A. Dondis, whose A Primer of Visual Literacy I shall examine in detail below, speaks of “an unspoken devotion to nonintellectualism” in the visual arts (1973, p.11) and certainly in graphic design there is a real paucity of research in general, and specifically research regarding image. Richard Saul Wurman, celebrated ‘information architect’ and convener of
the well-known TED Talks, sees an inherent shallowness in visual communication education and theory:

As the only means we have of comprehending information are through words, numbers and pictures, the two professions that primarily determine how we receive it are writing and graphic design. Yet the orientation and training in both fields are more preoccupied with stylistic and aesthetic concerns [...] Despite the critical role that graphic designers play in the delivery of information, most of the curriculum in design schools is concerned with teaching students how to make things look good. This is later reinforced by the profession, which bestows awards primarily for appearance rather than for understandability or accuracy. (2001, p.30)

While this seems at first strange and alarming, that half of the ingredients for making graphic design—images—go relatively unnoticed in the criticism and theory, it begs the question, might there be a way forward through research to grapple with realism and its alternatives in graphic design imagery? Can the examination of image in terms of its relation to realism also be a way of quantifying image for the graphic designer?

I will not approach these research questions from a semiotic perspective. This has been done with regard to promotional and advertising design thoroughly elsewhere, especially in Berger (1972) and Kress and Van Leeuwen (1996). At the risk of duplication of effort, I will examine briefly their approaches to discussing pictures, but such approaches favour an interpretive and subjective view over the assumptions that commercial, pragmatic design must make in order to function: that most of us perceive things in a largely similar way. Of course, designs can and should be targeted at particular cultures, age groups, and sexes, but the assumption of completely unique individual readings is anathema to commercial design. Design needs at the very least to explore assumptions of universality since every designer is seeking to reach at least some audience. I do not discount Derrida's (1978) notion of slippage—I explore in Chapter 2 where graphic designers have assumed this mantle and the essential problem with it—but again touch on it only briefly seeking instead to find what might confidently be said about all images. Design is different to art in its intentionality. In that regard it has strong parallels with the visual literacy movement. Later in this review I inspect where the visual literacy theorists have explored this notion of reductions in realism.

Beginning with the books that have concerned themselves with design theory, and specifically where that theory intersects with concepts of realism, I have found only a very few works particularly helpful. What can be said about these works is that they deal with image
through visual theories that make departures into the realms of either gestalt psychology or into sociology. The first realm seeks to find what is innate in human visual perception, while the second seeks to explore what is learned or may be interpreted. Following my exploration of the gap in graphic design theory concerned with image, I will pursue the discussion in these directions. These two strands will then be brought back together in an examination of the concept of visual literacy; its strategies and methods of measurement. Visual literacy's broad field of visual understanding is pertinent in its attempts to reconcile nature with nurture to explore, and to allow articulate criticism of, visual communication, specifically the techniques by which images are made and the tasks to which images are put.

Theory concerned with realism

Others have noticed this transition from realism to abstraction, but the first thing to note about the literature to do with finding meaning in images is that it exists in disparate quarters. The relevant information falls into the broad categories of psychology and sociology, and these fields have within them specialist professions which require some knowledge, sometimes clearly expressed but mostly manifest as instincts, of visual language.

Gombrich, well known in the arts for his psychological analyses of image-making, penned the ambitious *Art and Illusion* to express his astonishment with the history of images. Namely, "why it should have taken mankind so long to arrive at a plausible rendering of visual effects that create the illusion of life-likeness" (2002, p.246). He is surprised at his own findings that crude schemata precede a mimetic reproduction of the world, a conjecture he reinforces with reference to primitive and child art (p.76). This finding is echoed by R.L. Gregory in *Eye and Brain* (1977, p.114) who says, "From the evidence of child art, it seems to be remarkably easy for human beings to draw typical views of common objects, but difficult to draw atypical views, with the perspective associated with a particular viewing position."

For me the surprise lies in how we can understand the 'less real than real' at all, when we have evolved surrounded only by the real world. For Gombrich this understanding seems to lie in a distinction between 'seeing' things in the real world, and 'knowing' something about them, including knowledge of a schemata through which things can be depicted: "in all styles the artist has to rely on a vocabulary of forms and it is the knowledge of things that distinguishes the skilled from the unskilled artist" (2002, p.247). Importantly, for Gombrich,
the use of non-realist schema is allied with the need to make images that merely 'function in the narrative' (p.248). In other words, the artist may present aspects of the image in such a way that these presentations may be understood, and yet, at the same time, are not presentations that accurately match their real world equivalents. Gregory has something to say about this too, however, for him the realistic image precedes the schemata:

The symbols used for electronics since the beginnings of the [20th] century parallel the development of the pictograms of ancient languages. At first the symbols were realistic drawings of the components. Within a few years the electronic 'pictograms' became simpler; the emphasis was placed on the functionally important features of the components, while the outward shapes were lost. The symbols pictured their functional significance. Each symbol is a kind of abstract cartoon. (1977, p.114)

As we shall see this idea of 'function', common to both authors' understanding of why non-realistic images 'work', becomes an important consideration for the use of less realistic images in graphic design. Function, of course, being a 'driver' of modern design that also separates it from modern art.

Of course, there are "many different techniques of generating and rendering images as there are numerous technical tasks that images are to comply with (like for diagnostic or constructive purposes) or technical matters that they represent" (Bruhn & Dünkel, 2008, p.165). With regard to the texts that deal with such techniques and tasks, for the purpose of this literature review, I have tackled these beginning with a critical appraisal of some key graphic design and illustration texts. I then look further afield at the arts, photography, the psychology of seeing and sociology, specifically those social theory texts that deal with imagery. This separation is somewhat artificial: some of the visual theorists, the better known among them such as Dondis, Gombrich and Arnheim, for example, straddle the boundaries between the visual arts and psychology. It serves my purpose, however, to show that the knowledge gathered does indeed come from far ranging and disparate quarters, since this in turn highlights the surprising absence of image theory within graphic design discourse. At the conclusion of the literature review, I summarise what we can use from each of these disciplines' approaches to visuality; what the cumulative effect of this disparately generated knowledge is for the graphic designer, and suggest a couple of points of departure from which to embark upon further exploration of image use in graphic design.
Image verses type in design texts

Naturally, the first place to look for acknowledgement of this strange phenomena—that non-realistic images can communicate something that realistic images can not—was in texts focused sharpest on graphic design. Of these texts, very few even approach my research questions. Those that do consider such questions more or less in passing, and to complicate matters, do not agree with one another. As I have said, graphic design textbooks concentrate on typography. For example, Meggs' History of Graphic Design (2006) describes, before his lengthy discussion of 20th Century design, the history of writing systems but not the history of image making. Meggs speaks only fleetingly—about two and a half pages of his generous 200 page pre-amble—of image-making as an urge of all prehistoric peoples, before discussing in-depth what he sees as the more important urge towards writing. "In an engraved reindeer antler found in the cave of Lorthe in southern France, the scratched drawings of deer and salmon are remarkably accurate", he says, but follows immediately with, "Even more important, however, are two diamond-shaped forms with interior marks, which imply an early symbol making ability" (pp.6-7). This focus on lettering and, later, typesetting may be, as Max Bruinsma was quoted as saying in my introduction, because words and lettering were historically held in higher regard, being the privilege of the wealthy and educated. As a result the precedents are extant for writings about writing, albeit sometimes about the tools with which writing is made. Perhaps the prevalence of words is merely a function of designers, along with their fellow citizens, being a product of "twelve years of schooling in static print text" (Luke, 1994, p. 31). Or, as other critics of logocentric schooling—here Poracsky, Young and Patton in The Emergence of Graphicacy—have complained:

"grapics are viewed as 'too easy' or 'too simple.' Early elementary school books are full of pictures that complement learning and the newly acquired skill of reading. As the child progresses through school, however, fewer and fewer pictures tend to appear in books. (1999, p.107)

Fransecky and Debes, pioneers of visual literacy studies, in Visual Literacy: A Way to Teach A Way to Learn complain of this too: "Especially after the early grades, there is a tendency to minimize the visual aspects of communication and children are, in a sense, 'weaned away' from pictures and illustrations, from drawing and illustrating their own work" (1972, p.23). Mitchell (2008, p.15) talks more ominously about the 'pictorial turn' as a perceived threat to the status quo. As we shall see, this problem of words versus pictures will not go away,
but in my Chapter 5, I analyse some examples of visual design that come to us from cultures where this ‘weaning off’ does not occur to see if these can lend us something that we might otherwise have missed in Anglophone cultures.

While images precede words in prehistory, in the more recent past, and specifically in relation to the commercial application of words and pictures, words precede pictures. Steven Heller, graphic design critic and author of many design books, including *The Education of an Illustrator* which I will examine briefly below, reminds us, “In the beginning (of the early 19th century, that is), commercial advertising and graphic design relied on words because pictures were just too costly to reproduce.” (2000, p.137). Perhaps suggesting that there is not much design theory about images because images are a more recent arrival.

If one looks at the design textbooks concerned with typography on the other hand, it is not uncommon to find references to previous works on the subject. Timothy Samara’s *Making and Breaking the Grid* (2002), for example, refers to Josef Müller-Brockmann’s, *The Graphic Artist and His Design Problems* (1983). Jan Tschichold’s, *The New Typography* (1995) draws on the work of Villard from the late medieval period. Rosarivo (1953) similarly, examines in detail the geometry of book work by scribes some four hundred years his predecessors to derive a basis for his research on typographic layout. But there are epoch-spanning links in the pictorial arena too. George Pendle, a biographer of Otto Neurath explains the young Otto’s fascination with hieroglyphics:

> As a boy, his father had taken him on regular trips to Vienna's Museum of Art History. Each time he had visited, the young Otto would hurry to the Egyptian exhibition and marvel at the detail and the color of the hieroglyphs on display. In their pictorial course, Otto could see fish being caught, fields being ploughed, slaves being sold, battles being fought, and the spoils of war being carried home in triumph. Here in these wall paintings, ancient Egypt was alive in all its drudgery and glory, clear to the eye and easy to understand. (Pendle, “Otto Neurath's Universal Silhouettes”, n.d.)

Perhaps there are more of the typographically focused books merely because type is a more quantifiable, more easily measured science: It can be broken down into point sizes, line lengths and page proportions. For the researcher concerned with images in graphic design, apart from a very few, very recent publications concerned with illustration, the thread quickly leads outside of graphic design discourse and into the psychology of vision and, even less often, into sociology. I will show where later in this literature review.
Uncertainty regarding the image in design

There exists strong consensus about the prescriptions of typography (although I will discuss in Chapter 2 major departures from these prescriptions). This general agreement may have been reached because the aforementioned history of book geometry has allowed a more thorough exploration of the aesthetics so derived. Prescriptions regarding image for graphic designers however, are both scant and restrictive (in Chapter 2, where I look at the prevalence of photography, I undertake specifically to explore these prescriptions regarding image for graphic designers, and also the related exceptions to typographic prescriptions). As a result, the critical work examining the role of image in communication design exhibits some confusion regarding what constitutes effective communication. In some cases there are profoundly different readings of the same graphic.

For example, Nigel Holmes' graphic at Figure 5 receives applause from his fellow information graphic designer, Duncan Mill, Director of Graphic News, London:

This two-column graphic sums up the power of infographics. The exhilarating abandon of the floozy Monroe character grabs the reader, then powerful dynamics take over, all within the restrictions of an image surrounded by text, Holmes guides the reader's eye around the data [...] The use of fishnet stockings as the graph background is so clever, not only accurately reflecting the years and dollar values but also echoing the sexy visual joke. The typography is clean and simple, and the use of colour is eye-catching. (Agar, et al, 2003, p.45)
The very same graphic image, however, attracts the ire of information graphic critic, Edward Tufte:

chuckablock with cliché and stereotype, coarse humour, and a content-empty third dimension. It is the product of a visual sensitivity in which a thigh-graph with a fishnet-stocking grid counts as a Creative Concept. Everything counts but nothing matters. The data-thin (and thus uncontextual) chart mixes up changes in the value of money with changes in diamond prices, a crucial confusion because the graph chronicles a time of high inflation. (1990, p.34)

Where design texts touch specifically on an image's effectiveness in terms of its relationship to realism, it is difficult to find elucidation about this relationship: how it works, and why it works in terms of visual perception and cognition. Rather, these authors seem to struggle to get beyond a mere sense that non-realistic images can lend something to communication that realism may not. In Essential Infographics, an Interview with John Grimwade, (2003) for example:

I should also emphasise a certain return to the line, to drawing by hand in graphics. I value this a great deal because the absolutely faithful reproduction of reality is not always the best way of presentation. For example, medical illustrations. I prefer a schematic, which is much easier to understand than those hyper-realistic presentations where the body seems to have been cut in half and photographed. For me, the schematic gives a hierarchy to the information and invites me to enter further into the graphic. This is the language of infographics, which is not the same as photography. (Errea, p.17)

Grimwade's suggestion of some kind of meaningful difference between the image language of information graphics and the image language of photographs is left as a tantalising clue, but given no further exploration in that text. Elsewhere, a similar sense arises in graphic design texts that drawings and diagrams are different to more realistic images. For example, even Chip Kidd, perhaps the most celebrated contemporary book designer in the US, struggles to articulate this difference: “I became very enamoured of the concept of illustrating [covers of] fiction with photography as opposed to illustration, and I can't really tell you why other than I just thought it would make the stories seem more real.” (“Art of the Book”, 2006).

And in another instance, a design theorist ponders the amount of realistic detail in an image, described as the image's 'information level': “The graphic means used to present an image and its information level become important components of the communication” (Meggs, 1992, p.19). Edward Tufte, arguably the expert on how graphics communicate information, says:
Multiple layered views exemplify the special power of diagrams, a capacity to show places or activities that we are unable to see directly from one fixed viewpoint in the real world. By illustrating sequences of action and hidden views, the diagram outperforms eye or camera in exhibiting the procedure. Also, drawings sometimes have a useful abstracting, idealizing quality. (1997, p.57)

Again suggesting that a reduction in realism in no way compromises the communicative potential of the image experience, quite the opposite. If we return to Gombrich, he will tell us, “The first prejudice teachers of art appreciation usually try to combat is the belief that artistic excellence is identical with photographic accuracy”. He proceeds from there with a very thorough explanation of the difference between illusionist and schematic art. For a start, we are already outside of the immediate realms of design—modern art’s intent and function are quite different to those of design—but more importantly the questions about how such images work with the visual system, and what the implications might be (especially as these relate to graphic design) are not answered.

This sentiment about avoiding realistic representation appears elsewhere in art theory.

There seem to be artistic reasons to not use realistic perspective in some pictures, as outlined in this statement by de Saussure (2002):

> Since the Renaissance the system of representing natural space by means of the static geometrical system, linear perspective, has been widely known and used. Its value as part of foundational training is questionable, since by offering the student a ready-made recipe for achieving an illusion of space it curbs his spirit of enquiry and he may find himself drawing by academic theory of spatial projection and control rather than from sensation or personal observation. Not only does its logic and operation imply one fixed viewpoint, thereby freezing the entire visual field into static rather than dynamic relationships, but its ‘one-eyed’ geometry rules out the sensation of physical involvement, body-felt interpreting of space and forms in space which has previously been described as an essential human concomitant of spatial experience and conception. (pp.60-61)

However, these glimpses are rare and, more of a frustration; are not explained except as instinctual approaches by the designer or author that somehow seemed appropriate for the communication task at hand.

Realism vs non-realism: Photography

Perhaps we can make headway by inquiring into the nature of these images: just which constitute ‘realistic’ pictures, and which are less realistic? We can state that photographs are generally more realistic than other kinds of images. Of course, what constitutes a ‘realistic’ image, as Arnheim (1954) has observed, is open to conjecture:
just as persons of our own civilization and century may perceive a particular manner of representation as lifelike even though it may not look lifelike at all to the adherents of another approach, so do the adherents of those other approaches find their preferred manner of representation not only acceptable, but entirely lifelike (p.136).

In our own 'civilization and century' however, their can be little doubt that the photograph is perceived as the most realistic medium. The photograph, as Susan Sontag tells us in *On Photography* (1977), "is not only an image as a painting is an image, an interpretation of the real; it is also a trace, something directly stencilled off the real" (p.154). It is this aspect of photography, its ability to actually capture in two dimensions the three dimensions of visible reality, that I am concerned with in this thesis. Of course, the advent of computer software enabling alteration to photographic images is often cited as a reason why the photograph is no longer stencilled off the real. Nicholas Mirzoeff, in *An Introduction to Visual Culture* (1999) says:

> With the rise of computer imaging and the creation of digital means to manipulate the photograph, we can in turn say that photography is dead. Of course photography will continue to be used every day in vast quantities but its claim to mirror reality can no longer be upheld. The claim of photography to represent the real has gone. (p.65)

The eminent designer and illustrator, Milton Glaser adds to this:

> Now the [photo] is totally manipulable. In the old days to modify a photograph took enormous skill by a retoucher [...] nowadays any 12 year old can do it with the proper program on a [...] computer. Now there is no longer this sense I think in the general public perhaps that there's any reality in a photograph. So that the idea of a photograph looking more real has pretty much vanished from the culture. (*Art of the Book*, 2006)

While this suggests that the veracity of the photograph is indeed questionable, it is pertinent here to discuss the general perception of photography as a device for capturing the visible world realistically, rather than whether this is a misperception. As Glaser continues,

> But never-the-less, there is this vestigial sense that because there was something real at one point that was photographed by someone and that it encapsulates a moment in time, that vestigial memory of what photography used to be, which it no longer is, still remains in people's minds as being, therefore, more realistic, as though we had any idea what reality was. (2006)

David Hockney, perhaps as famous for his use of photography as for his painting, declared photography a compromised medium because of this potential for digital manipulation. He tells us, "You've no need to believe a photograph made after a certain date because it won't be made the way Cartier-Bresson made his. But you can't have a photographer like that again
because we know photographs can be made in different ways." (Jones & Seenan, 2004). Green-Lewis in *Framing the Victorians, Photography and the Culture of Realism* (1996, p.59) points out however, that from photography's inception in the mid 19th Century, the argument about its documentary veracity versus a staged and composite approach was central to its perceived progress as a communicative medium. In other words, the potential for distortion and fabrication has always been there and been the subject of debate. To return to Sontag:

A decade after Fox Talbot's negative-positive process had begun replacing the Daguerreotype (the first practicable photographic process) in the mid-1840s, a German photographer invented the first technique for retouching the negative. His two versions of the same portrait—one retouched, the other not—astonished crowds at the Exposition Universelle held in Paris in 1855 (1977, p.86)

So how did photography ever get this aura of truth if it was questionable from day one? Simply because it can capture reality and do so without as much input from the image-maker as other media. "However carefully the photographer intervenes in setting up and guiding the image-making process, the process itself remains an optical-chemical or electronic one, the workings of which are automatic", says Sontag (p.158). Indeed, in photography's infancy, those who supported it as a documentary medium argued that it should be used to capture the world as it existed precisely because it allowed that a shared vision of the world could, after all, be had (Green-Lewis, 1996, p.26). One could argue, through a study of the work of Eduard Muybridge for example, that photography can in fact show us what the eye can't see, rather than showing us the world as the eye sees it: Horses hooves do in fact leave the ground when the creature is galloping, a fact disputed before proven through photography. It is in this sense though, that the camera's ability to see beyond what the human sees only strengthens its mythic objectivity, as an apparatus unencumbered by the emotionally biased views of the human visual system. Indeed, from its early history accounts of photography tended to "separate the photographer from the photograph and empower the photograph as an independent print of the world" (p.7). And finally, for our purposes here, the manipulation of photography does not disprove its reliability to reproduce reality but rather emphasises it:

The consequences of lying have to be more central or photography than they ever can be for painting, because the flat, usually rectangular images which are photographs make a claim to be true that paintings can never make. A fake photograph (one which has been retouched or tampered with, or whose caption is false) falsifies reality. (Sontag, 1977, p.86)
In terms of this thesis, the general, albeit possibly vestigial, sense that photography can capture reality in a more independent way than other media makes it the most realistic means of image-making. As we shall see shortly, in a comparison of measures of realism, it is also seen this way by a broad range of visual theorists, and in my own surveys of design students (Chapter 6), the photograph is consistently chosen as the most realistic of a choice of images.

**Realism vs non-realism: Illustration**

As a corollary, illustrations are generally less realistic than photographs. Generally speaking, illustrations require at least some level of distillation or abstraction, some removal of realistic detail (McCloud, 1993, p.42). I would include in my definition of illustration any means of making images in two dimensions that does rely solely on photographic techniques. In addition, the many approaches to making illustrations allows them to be a mere step away from realism, or at a much greater remove, and I will examine some of the ways that these steps might be measured later in the literature review. For now I will say that it is their inherent distance from realism that makes illustrations, including diagrams, of interest in this thesis. While this would include all reasons for making images, including reasons obscured by the image-maker, or perhaps even obscure also to the image maker, I am concerned in this thesis with those image makers who wish to send a message to a reader. It is possible, that the image maker who makes images in order to obscure meaning will not be well-served by this thesis, although I hope that most of the discussion herein would allow such an image maker to be more sure how to make meaning, and therefore to avoid it where s/he feels so inclined.

An extensive selection of essays on imagery in graphic design is *The Education of an Illustrator*, (Heller & Arisman, 2000). This work claims to be the "first ever blueprint for teaching and practicing the dynamic art and craft of illustration" and to "fill a practical and an intellectual void for educators, students, and professionals in the field of illustration" (dust jacket of first edition). The void certainly exists in terms of intelligent discussion regarding the strengths and purpose of illustration. The authors within ably identify that illustration as a stream of design education and as a practice is in something of a crisis. However, the crisis they speak of seems to be exacerbated by the fact that few of illustration's small and scattered voices of support can effectively articulate what illustration is for or how it might communicate differently from mainstream design photography, to which, outside of this
book, it is frequently compared. Claudia Mareis in her introduction to *Illusive*, an anthology of contemporary illustrators’ works, says, “Illustration’s self-perception lies precisely in its difference to photography” (Mareis, 2005, p.5). For all the strengths of the essays collected in *Education of an Illustrator*—including a cross section of practitioners’ concerns about the state of illustration, insights into the inspirations and working practices of name illustrators, and some educational syllabi focused on teaching illustration—this central problem is not effectively solved. One of the essays within, Dugald Stermer’s, *Teaching Illustration*, begins with:

> My misgivings were manifold, but probably first and second among them were my doubts that illustration can be taught, and that even if it can, could I teach it? [...] Those concerns are still very much with me, so reading on will not provide any resolution. (2000, p.97)

This is not an atypical essay in *Education of an Illustrator*. Very few of the contributors grapple with the issue of illustration as a series of choices, or consider that there might be, outside of an individual illustrator’s style, a more pragmatic approach that might help a practitioner teach it or a design student learn why they might consider using illustration in their next assignment or in their impending career. There is little discussion of illustration in the wider context of design or in context with its competitor for editorial space, photography. Those authors that discuss it in this context mostly lament that they are the photographer’s poorer cousins. There is a sense of illustrators having to ‘get on with it’ in spite of their difficulties. Phrases like ‘the view from the trenches’ march through the book, lending a sense of dogged determination in the face of an inevitable decline in illustration’s fortunes. Another key problem may be that photography, having always struggled for recognition as an art form, is seen as more informational a medium than illustration which bears at least a passing resemblance to the media that many people associate most easily with visual art; painting.

Gombrich, whose major work, *Art and Illusion* is really a struggle with this question of capturing reality, concluded that realism took so long to arrive in art essentially because we didn’t need it. His concept of the artist might be applicable here also to illustrators:

> What a painter enquires into is not the nature of the physical world but the nature of our reactions to it. He is not concerned with causes but with the mechanisms of certain effects. His is a psychological problem—that of conjuring up a convincing image despite the fact that not one individual shade corresponds to what we call ‘reality’ (p.44)

Of course, Gombrich does not solve for us the question of why we don’t need to be presented
with realistic images. Regardless, or perhaps in spite of the illustrators surveyed in Heller and Arisman being unable to articulate the particular strengths of their craft, such are the vagaries of fashion with respect to graphic communication that, during the course of my writing this thesis, illustration seems to have had a reversal of fortunes and is again growing in popularity.

Illustration as competing with photography

In recent years, illustration has stepped firmly out of photography's shadow. They now feature in advertising campaigns and posters for leading sporting goods manufacturers and replace runs of photographs in fashion and lifestyle magazines. We see fanciful illustrations even in magazines and periodicals that used to base their credibility on austere photography (Mareis, 2005, p.8).

So announces an introductory essay, by Claudia Mareis, graphic designer, teacher and author, to a recent, major anthology of illustration from around the world. Less clearly articulated is why, although illustration has always been an option for designers or art directors when considering the image aspects of graphic design, it should have recently become a popular choice. "Illustrations suggest themselves anywhere people want to (and can) work with images—but not with photographs" the author tells us. Implicit in such a statement is that the two approaches to image making are dissimilar in some way. Less clear still is what separates them or why people might want to work with one kind of image and not another. The author goes on to express that illustrations are at some remove from photography, which to me is the central difference, one of levels of realism: "Where does this desire for illustrated images come from? Illustrations distance themselves visually from the pictorial worlds photographs inhabit" (p.8). Mareis says, "they can show particularly opaque and complicated things in a simplified fashion and make them more readily accessible"; "illustrations can make a big impact if you want to stimulate free associations with imaginative and abstract images"; and "They can underpin the 'emotional qualities' of a brand or product on a sensual and abstract plane, without the immediate realism of a photograph" (p.8). She must be forgiven her lack of explication, as even J.J. Gibson (1971) who demonstrated more successfully and succinctly than anyone that we can see and understand images that are less real than real does not articulate reasons why this might be the case. What Mareis is describing seems to make sense, but in seeking to find why she might be right, I have found many cul-de-sacs: Where the 'how realism and abstraction are different' question is addressed, the 'why abstraction works' question, regarding the psychology
and perhaps even sociology of less real images is seldom approached at all.

Elsewhere, and even more recently, the role of illustration seems to be perceived as one that is less pragmatic and more intuitive or emotional than the requirements of graphic design will allow. Adrian Shaughnessy on Design Observer has said, “during the 1990s, illustration’s ‘individual style’ became a liability. Visual communication was colonized by tough-minded, business-driven graphic designers who gave their clients what they wanted: branding, strategy and the precision-tooled delivery of commercial messages” (Shaughnessy, “Graphic Design vs. Illustration”, 2006). Mareis too reminds us that in graphic design, the economical imperatives are never far removed in the making of design decisions: “Perhaps there are no good photographs available and the financial resources for an elaborate photo-shoot are not forthcoming” (2005, p.8). However, as I progress through my arguments in this thesis, I will endeavour to show that illustration, essentially because of its distance from realism, has the potential to accurately allow ‘precision tooling’ of messages. This precision, should in turn allow for more effective communication which should, in theory satisfy the ‘tough-minded and business-driven’.

Images as a visual language: the perceptual approach

Dondis, in her oft cited A Primer of Visual Literacy (1973) delves deeper into an image’s relation to reality, and perhaps more than any other graphic design theorist identifies that we might respond differently to differently rendered images of the same subject. In this sense, she begins to lead the design student in the direction of psychology in order to understand seeing. However, having identified the existence of this phenomenon which allows changes in meaning as reality is left behind, Dondis pays it only brief attention: “The more representational the visual information, the more specific its reference; the more abstract, the more general and all encompassing it is. Abstraction, visually, is simplification toward a more intense and distilled meaning” (p.74). Elsewhere, she touches on abstraction while discussing photography. She attempts to explain that all photographs have within them an underlying abstract composition:

But the fact is this: even as we view a highly representational, detailed, visual report of the environment, there coexists another visual message, exposing the elemental visual forces, abstract in quality but packed with meaning, which has enormous power over response. The abstract understructure is the composition, the design. (p.80)
In this regard she agrees with art theorists like Kepes and Arnheim who talk of perception as an imposition of structure upon a scene or a picture. This is the classic gestalt approach to understanding pictures: that, as Kepes maintains, the delineation of discreet objects in the field of view, or the separation of figure from field, precedes any recognition of objects:

Certain optical characteristics tend to be seen together as a spatial configuration. As we look at a greatly enlarged halftone screen [as in a picture composed of pronounced dots printed via the offset process, for example, in a newspaper], what we actually see are different sizes of black dots and different white intervals. But instantly we organise and group these visible differences. Some units of black dots are seen in one form; some in another. Some elements are seen together because they are close to each other; others are bound together because they are similar in size, direction, shape. Only after this instantaneous organization is achieved can one see the resemblance of the picture to a human eye [Figure 6]. This organization of optical belonging is more basic than the recognition of the objects themselves. (1944, p.45)

Figure 6: The enlarged image clearly shows the arrangement of dots as the actual stimulus for our eyes; from these dots we perceive an eye. (Medley after Kepes).

Inherent within this observation is the possibility of making and reproducing an image with an ideal 'spatial configuration' for a particular message. In part aided by Kepes observations I maintain, in Chapter 3, that any means at our disposal to improve this separation between visual elements should be employed where separation and delineation would aid communication.

Dondis goes beyond the gestalt approach and ventures into behaviourist territory in order to understand pictures. Like de Saussure above, with his concern for 'body-felt' understanding of space, she maintains that how we stand, move, keep our balance, protect ourselves; the way we react to light and dark or to sudden movement are factors in how we receive and interpret visual messages, though, unlike de Saussure she does not use this conviction to argue against perspective or realism: "The human organism seems to seek harmony, a state of ease, of resolution, what the Zen Buddhists speak of as 'meditation in supreme repose'" (1973, p.85). Dondis begins to shed light on the psychology of seeing further examined in my Chapter 3. She uses the psychologists' terms of "sharpening" and "levelling". Increasing tension
or reducing it visually via composition or contrast, while still suggesting the image as a built thing; that elements of pictures can and should be rearranged, resized and repositioned until the satisfactory effect is achieved. The gestalt approach in general, and Dondis' in particular, attempts to define what can confidently said about all images and therefore must deal with what all images have in common, namely, composition.

Implicit in this gestalt comprehension of underlying structure, but not explored by any of these authors, is that some images, even photographs, are more abstract than others. That is to say, the underlying structure will be more apparent in the image the more abstract it is. The photographic examples Dondis gives (Figure 7) are themselves on the one hand quite abstract and graphic, and on the other at least non-specific enough (Where is this place? Who are these people?) to not refer directly to one thing or person. This makes the case for underlying structure easier to grasp. If the photograph is of a human face, especially one known to the reader, it is doubtful that underlying abstract structure would be as apparent or even relevant to the reading of the image. In other words, the gestaltists are uninterested in the difference between the photograph's underlying abstract structure and that underlying structure being presented as an abstract visual. For Dondis, regardless of whether the visual message is a photograph or a graphic made of cut paper, “the process of composition is the most crucial step in visual problem solving. The results of the compositional decisions set the purpose and meaning of the visual statement and carry strong implications for what the viewer receives” (1973, p.20).
This ignores any difference in purpose or meaning that may be derived by choosing to present the image as say a line-drawing rather than a photograph of the same subject. An accurately shaded pencil drawing is visibly different to a photograph of the same subject; a line-only draft of the same subject is different again. In other words, as well as existing as designed compositions, images exist along a scale between representation and abstraction, and as I have observed from my initial classroom discovery this results in at least some difference in meaning. Acknowledging this realism continuum may allow us to examine this difference. Several other visual theorists have identified this measure and I will examine these in detail later in this literature review.

I said at the start that I am interested in why we can understand the 'simpler' image at all. We need now to look to those designers who have made their names or careers based upon this distillation process and see what they have to tell us. Otto Neurath, whose work at least appears to have a coolly scientific basis, had this to say about how we 'read' pictograms:

"The first glance: The most important qualities of an object are perceived. The second glance: The less important qualities of an object are perceived. The third glance: additional details are perceived" (cited in Abdullah & Hübner, 2006, p.20). This suggests some understanding of the human visual system: that it is uninterested in high levels of detail, at least initially, but no further explanation is given, other than, "A silhouette compels us to look at essential details and sharp lines; there are no indefinite backgrounds or superfluities" (Neurath, 1946, p.96). The basis for creating his famous Isotype figures however, rather than being purely scientific, seems to have been with Neurath since his childhood; he was especially fond of Egyptian hieroglyphics (Pendle, "Otto Neurath's Universal Silhouettes", n.d.). Indeed, rather than specifically following a perceptual theory from the beginning, Neurath suggests that he and his team arrived at the notion of abstractions incrementally:

At first our symbols were drawn realistically, but by using a new technique we soon simplified them without losing their self-explanatory qualities. We began to cut out our symbols—silhouettes of animals and ploughs and men—from coloured paper, necessarily reducing the outlines to a minimum and avoiding internal lines wherever possible. (1946, pp.97-98)

And here at least some of the motivation for reduction of detail is purely mechanical; to avoid difficulties while manually creating small graphics.
While Neurath tested his visual experiments, and, he makes clear, "Some of our observations were made by students of psychology" (1946, p.99), these observations were made after the graphics had been designed and were on display. The process of design was a process of 'trial and error', according to Paul Rotha, one of Neurath's long-term collaborators. Neurath's overriding consideration, and that of his followers, Modley in the United States and Bliss in Australia, was to create a visual code that could transcend language barriers. Lamenting the demise of hieroglyphics, Neurath said: "I was sorry that the old picture writing had gradually fallen into disuse instead of becoming the basis of an international picture language. The problem of an international language attracted me fairly early" (p.96). Neurath predicted a future where communicating with pictograms would become a necessity. The key to making such a language using symbols other than letters seemed to lie in abstract symbols rather than realistic pictures: "I liked being able to combine similar symbols in different ways without destroying their visual power. This active element belongs also in a special sense to writing when it is regarded as the putting together of single words" (p.97).

The quest for an international visual 'Esperanto' was continued in the design of the pictograms for the 18th Olympic Games, in Tokyo 1964 (designed in 1962 by Yoshiro Yamashita).

As host for the first Olympic Games held in Asia, the Japanese organized a committee headed by the design critic Masaru Katsumi to coordinate the graphic program. Because few participants or visitors were fluent in Japanese, a program of pictograms was devised to designate the events and services, and it was essential that its visual vocabulary be easily comprehensible. (Fischer & Hiesinger, 1994, p.90)

However, it is difficult in the literature to find coherence in the approaches to this quest for universal picture languages. Those designers well-known for exploring the possibilities do not present a united front. According to his biographer (Rathgeb, 2006, p.114), Otl Aicher, designer and coordinator of the graphics program for the 1972 Olympics in Munich, developed his pictograms based on his readings of Charles Morris's Theory of Signs (more of which later) and on the research of Martin Krampen, a German communications scientist (Rathgeb, p.118). Aicher also appears to have liaised with Katsumi, the coordinator of the Tokyo '64 graphics program (p.136). While Neurath had suggested minimal abstraction of images for the creation of pictograms, believing this would allow understanding without an accompanying learning curve, Maldonado (a colleague of Aicher's at the Ulm HfG) supported
greater abstraction for the creation of pictograms in order to avoid confusion. Maldonado had also assumed a learning process would be inevitable for the reader to familiarise themselves with any pictograms (p.118). According to Rathgeb, however:

Aicher's pictograms lie somewhere between these two positions. In addition to graphic reduction and a systematization of form, Aicher achieved a high level of variability within the same system by connecting the formal vocabulary with a system of syntax. A central tool of Aicher's methodical approach, in particular for his set of symbols, was a design grid. (p.118)

More on Aicher's grid system in Chapter 4, for now I want only to say that in all of this, the designers of these abstract forms, and their biographers, seem to understand that these forms work noticeably differently from realistic images, but not precisely why. Aicher's thorough research appears to have been very methodical, but a scientific or interpretive basis for the difference between realism and abstraction is not documented other than a mention of "field research on visual perception of symbols by individuals of different cultural backgrounds" (Rathgeb, p.118). The focus of this simplification was again to create an internationally understandable language rather than to exploit particular known visual faculties; as Rathgeb states, "Aicher tried to prevent his signs from being linked with the cultural context of the original image, which would make it valid only temporarily or in certain cultures" (p.118). In the latter parts of this literature review I will examine a review of such fieldwork through Evelyn Goldsmith's Research into Illustration.

As recently as 2006, Pictograms, Icons & Signs, focusing on these distilled images, makes a synthesis of Neurath and Aicher to propose a picture language "in the context of globalisation" (Abdullah, R. and Hübner, R., 2006, p.228). Three quarters of a century on from Neurath, the authors' motivation, rather than one based on recent discoveries about the human visual system, seems precisely the same: "pictograms will inevitably become a more common area of design" (p.7). Many impressive contemporary and historical examples are shown, some of which are examined in detail later in the thesis, but the authors are content to explain how to design pictograms without reference to the question of how we are able to perceive these pictures. The book culminates in a lesson on using icon language by Professor Jochen Gros (another alumni of Ulm) to devise a global, visual language, to realise Neurath's aim (p.228).

Jock Kinneir and Margaret Calvert's well-known road sign system for the United Kingdom, in contrast, seems to have been aimed more at the parochial audience:
Many of [Calvert's] illustrations were inspired by aspects of her own life. The cow featured in the triangular sign warning drivers to watch out for farm animals on the road was based on Patience, a cow on her relatives' Warwickshire farm. Eager to make the school children crossing sign more accessible, she replaced the image of a boy in a school cap leading a little girl, with one of a girl - modelled on a photograph of herself as a child - with a younger boy. Calvert described the old sign as being: "quite archaic, almost like an illustration from Enid Blyton ... I wanted to make it more inclusive because comprehensives [English co-educational schools] were starting up." ("Jock Kinneir + Margaret Calvert", n.d.)

In terms of their interest in simplicity of image, Calvert and Kinneir were concerned with legibility at speed and, apparently economic concerns were still an issue. "Style never came into it. You were driving towards the absolute essence. How could we reduce the appearance to make the maximum sense and minimum cost?" In this sense, we are no closer to understanding why a distilled image should be more legible than a realistic one. We may sense that this is probably true but the 'why' seems as yet unanswered.

With regard to the 'internationality' of these abstracted images, Neurath seems to come closest to explaining their utility over more realistic pictures. For Neurath the photograph was neutral also but treated its contained information unhierarchically. The Isotype figures on the other hand were designed to allow a systematic and repeatable method of building visual meanings without the diverting detail that photography tends to capture (Neurath, 1973).

Still the problem of how we can perceive something less real than real remains. One way to deal with that problem is simply to maintain that we can not simply perceive such an image, but we must learn how to read it.

Problems with pictorial language: the interpretive approach

Ellen Lupton is the director of the graphic design masters program at the Maryland Institute Collage of Art and author of many critical essays on graphic design. Her criticism of the Isotype method is its assumption of universality; that it only pretends to transcend the language barrier when in fact its images must be learned like any written language: "International pictures demand interpretation; they must be read. A pictogram functions by connecting with the culturally bound expectations of the people using it" (1989, p.148).

In Design Writing Research (1999), co-written with J. Abbott Miller (a partner at Pentagram) Lupton and Miller's view on pictorial language is that it is tied into a group of larger assumptions made as part of a Modernist agenda driven by an over-reliance on perceptual psychology. Their criticism, which names Kepes, Anheim and Dondis, is that the
assumptions of universal perception inherent in modernism, where these perceptual theories are firmly rooted, need to be addressed with a balance in design theory that leans more towards cultural and contextual understandings:

Pervading these works is a focus on perception at the expense of interpretation. ‘Perception’ refers to the subjective experience of the individual as framed by the body and brain. Aesthetic theories based on perception favour sensation over intellect, seeing over reading; universality over cultural difference, physical immediacy over social meditation. Modern design pedagogy, an approach to form-making validated by theories of perception, suggests a universal faculty of vision common to all humans of all times, capable of overriding cultural and historical barriers. A study of design oriented around interpretation, on the other hand, would suggest that the reception of a particular image shifts from one time or place to the next, drawing meanings from conventions of format, style and symbolism, and from its association with other images and with words. While modern design theory focuses on perception, an historically and culturally self-conscious approach would center on interpretation. (Lupton & Miller, 1999, p.62)

This paragraph, from one of 17 essays in their book, encapsulates the authors’ approach throughout; an attempt to address what they perceive to be an imbalance in design theory that leans towards perceptual theory. As we saw earlier however, those design theorists that have focused on gestalt responses to composition, for instance Dondis, were themselves redressing a perceived imbalance towards text at the expense of image. Dondis is correct that the focus has been on type, and Lupton and Miller are correct that the focus of design theory has not been on cultural and temporal context. Neither criticism allows us closer to the problem at hand and, unfortunately, both foreshadow a particularly unhelpful split in the discourse loosely labelled ‘visual literacy’ which we will examine below. Furthermore, in neuropsychology, perception is interpretation of sensation (Dr. M. Miyahara, Personal Communication, 21 September, 2008). Which is to say that perception itself is problematic and not to be taken for granted as the above interpretive view of design might suggest. I examine perception of images in Chapter 3. Lupton and Miller’s broad-spectrum criticism of modernism would be better targeted for my purposes if the modernists had got it right on perception or indeed, if they were all in agreement. As we have already seen, Tomas Maldonado at Ulm, the German school of high modernism, did believe that pictograms needed to be learned, and Otl Aicher seems to have borrowed at least a little of this concept from Maldonado. And, as we shall see, the reliance on photography stressed by Swiss Typographic spokesman, Josef Müller-Brockmann, had little to do with perception theory. Each of the modernist designers Lupton
and Miller target argued for the neutrality of the designer, but Neurath’s understanding of image at least allowed for the inclusion of "children’s drawings and primitive" (Abdullah & Hübner, 2006, p.21) whereas the leading lights of the Neue Schweizer Grafik were anti-illustration (Müller-Brockmann, 1983, p.27).

Lupton and Miller seem to suggest that only the interpretive route to understanding images can lead to a social application of such an understanding. Making the claim for interpretation over perception, Lupton and Miller tell us, “perception is filtered by culture” (1999, p.63). However, as I intend to show in my Chapter 4 their observation should by no means preclude the use of perceptual psychology in the reading of these kind of graphics nor does it preclude the social application of graphics built using a method based in perceptual psychology.

Helpfully, Lupton and Miller address the difference between the realism of photography and the abstraction of illustration elsewhere in Design Writing Research. They acknowledge the visual difference even though to them it is a function of politics: illustration looks like fine art and was pressed into service for high-brow goods until even this strata of publicity was mined by photography (1999, pp.72-89). Crucially, they address the question of specificity implicit in photography when they focus on stock images: “the informational richness and depth of the photographic image is at odds with the imperative for the generic” (p.133). They see the proliferation of these stock images as possible harbingers ‘of a new kind of literacy’. Though they see these products beginning to ‘look more and more alike’. This is as deep as they venture into the clash between specificity and generality which, as we shall see later, has been central to photography since its inception, but to which other designers seem to have been blissfully unaware. Again, despite their criticisms of the modernist theorists, we see here an observation identical to Dondis’ comment on the specificity of realistic images recorded above. Somewhat frustratingly, again this thread is not pursued.

Roland Barthes, oft-cited by Lupton and Miller, sheds a little more light in this area in his Camera Lucida (1982). He has this to say about the photograph:

it is the absolute Particular, the sovereign Contingency, matte and somehow stupid, the This (this photograph, and not Photography), in short, what Lacan calls the Tuché, the Occasion, the Encounter, the Real, in its indefatigable expression [...] and suggests the gesture of the child pointing his finger at something and saying: that, there it is, lo! but says nothing else [...] A specific photograph, in effect, is never distinguished from its referent (from what it represents), or at least it is not immediately or
generally distinguished from its referent (as is the case for every other image, encumbered—from the start, and because of its status—by the way in which the object is simulated). (pp.4-6)

For Barthes, the photograph always points to the very thing it was captured from and nothing else. As we shall see in Chapter 3, a less realistic image suggests a less specific subject, as Dondis has suggested, and consequently for other meanings to exert themselves. Other leading lights in visual theory have dealt with the photograph, and some with its relationship to other kinds of images, but no-one seems to deal specifically with the differences in meaning allowed by the different depictions.

John Berger (especially in Ways of Seeing, 1974) is useful in pointing out that the perspectival way of depicting the world is not a natural way of apprehending but in fact a cultural construct. This notion is significant in this thesis especially since it provides a rare bridge between the psychological theory—joining seamlessly with R.L Gregory's elucidation of 'object constancy' as a psychophysical phenomenon which overrides the effects of perspective—and the cultural theory of the image; between what Lupton and Miller describe as the perceptual versus the interpretive approach to understanding images.

Berger is interested principally in the social implications of photography in advertising. It may well be a conduit through which business imparts its message to the buying public (as it is in Müller-Brockmann) but this relation is anything but unproblematic in Berger. Photography, he says, has arrived as the last vestige of what oil-painting stood for in Post-renaissance Europe.

The oil painting showed what its owner was already enjoying among his possessions and his way of life. It consolidated his own sense of his own value. It enhanced his view of himself as he already was. It began with facts, the facts of his life. The paintings embellished the interior in which he actually lived. The purpose of publicity is to make the spectator marginally dissatisfied with his present way of life. Not with the way of life of society, but with his own within it. It suggests that if he buys what it is offering, his life will become better. It offers him an improved alternative to what he is (1974, p.142).

To Berger the role of photography is about its capturing reality, but in terms of reality's texture, colour and tangibility "as only oil paint had been able to do before." He tells us, "Both media use similar, highly tactile means to play upon the spectator's sense of acquiring the real thing which the image shows" (pp.140-141). For him the roles of the highly realistic (photography) and the more illustrative (oil painting) are identical. In other words, the difference that I
found in my initial studio experiment, that of realism and abstraction away from realism, is of no interest to Berger.

Generally speaking, the interpretive approach, as set out by Lupton and Miller, seems to identify the issue at the centre of my research problem, but not to be able, or to be uninterested in trying, to explain it. Charles Peirce for instance, founder of one of the two main branches of semiotics, has it that the 'index' has a clear visible connection to its referent that seems unproblematic. In Morris (1938), semiotics are broken into the categories of syntax, semantics and pragmatics; the syntactic being the level which presupposes any recognition of the image (Goldsmith, 1984, p.124). These levels have echoes in Barthes' categories of denotation, connotation and myth. For Barthes, the 'denotative' order comprises the visual stuff that we can easily describe. This first order of signification is taken as read; as if it requires no effort to perceive.

Of course I am simplifying and generalising the semiotic position on this. As with the Modernist art and design critics, there are a range of positions taken on denotation and connotation. In Hall (1980, p.132), the photographic 'signifier' is allied exactly with its 'signified', in the same way that Dondis and Lupton talk about a photograph being specific to its subject. Barthes, on the other hand, came eventually to regard denotation as a pretence of pictures: "denotation is not the first meaning, but pretends to be so; under this illusion, it is ultimately no more than the last of the connotations (the one which seems both to establish and close the reading), the superior myth by which the text pretends to return to the nature of language, to language as nature" (1974, p.9). In a sense, the concern with images in terms of how realistic they are is implied: Presumably most semioticians and interpretive theorists would see the highly realistic picture as having more of a consensus among viewers than an abstracted picture.

Historically the semioticians tend to be more interested in the 'higher' levels of signification since these seem rich with interpretive possibilities, but as we shall see in Chapter 3, the 'denotative' level is problematic and interesting in itself. While their concern with these more connotative pictures should increase as the images are further removed from a general consensus, via a reduction in realism, still they remain unconcerned with how we are able to perceive these abstractions.
Otherwise, these semioticians are interested in other aspects of abstraction that, to me, are red herrings. For example, where in Dondis, according to Lupton and Miller, interpretation of images stood for too little, in Kress and Van Leeuwen's, *Reading Images: The Grammar of Visual Design* (1996) it seems to stand for too much. Kress and Van Leeuwen have tried boldly to transfer semiotics to design but they fall back on making logocentric connections in their picture analyses. They share Dondis' noble sentiment of educating visually, as they focus on graphic design, mostly within advertising media. However—unlike Scott McCloud, discussed below, who renders his entire theory about comics visually, as a comic book, in order to prove his points—they have difficulty extracting themselves from linguistics, the traditional concern of semiotics, and they take the move away from universal perceptual theory to the other extreme:

The straight line, for instance, means what it literally is: straight. This 'straightness' may then be used to carry any one of a vast range of meanings compatible with that. It may be positively valued in one context (e.g. 'the straight and narrow path' or Mondrian's association of straightness with the spiritual power of law) less positively in another (e.g. 'the straight man' as opposed to the 'funny man', or straight as opposed to 'gay'). (p.54)

How this latter meaning of sexual orientation would be derived visually from a straight line fails to be illustrated by the authors. 'Straight' as they mean it here is linguistic only and cannot readily be represented pictorially. I acknowledge Kress and Van Leeuwen's contention that the visual realm involves social activity. Of course, the fact that most design students are seeking a pragmatic future as commercial designers does not nor should not preclude social responsibility. This becomes the focus of my Chapter 4, but since the application of linguistics and semiotics to the visual has been accomplished by Kress and Van Leeuwen and Berger and Fiske, I am more interested to know if what I have uncovered here and in my chapters 3 and 4, can be used to help explain the social in the visual. In any case, as I will show below, the application of literary theory to things which are not literature nor even textual is problematic. Perhaps a perceptual examination of imagery in graphic design is more appropriate for this reason. As I will endeavour to show in my Chapter 4, a perceptual approach to design does not negate a social view of the role of graphic design, but can actually bring something fresh to its application.
Assuming some commonality of response

What Kress and Van Leeuwen are uninterested in is psychological, as opposed to cultural, responses to certain shapes. That the circle might appear more relaxing than the triangle for example, because the circle has no sharp corners on which, in the physical world, we might catch ourselves. The jagged line looks dangerous and unpleasant and any author would be hard-pressed to find a time in which it was thought otherwise. To some extent at least, these physical attributes seem to stand beyond culturally (linguistically, experientially or temporarily defined) specific interpretation.

Ramachandran and Hubbard, in *Synaesthesia: A window into perception, thought and language*, surveyed people of both English and Tamil language backgrounds to test what is known as the ‘Bouba/Kiki effect’:

If you show fig. (8) (left and right) to people and say ‘In Martian language, one of these two figures is a “bouba” and the other is a “kiki”, try to guess which is which’, 95% of people pick the left as kiki and the right as bouba, even though they have never seen these stimuli before. The reason is that the sharp changes in visual direction of the lines in the left-hand figure mimics the sharp phonemic inflections of the sound kiki, as well as the sharp inflection of the tongue on the palate. The bouba/kiki example provides our first vital clue for understanding the origins of proto-language, for it suggests that there may be natural constraints on the ways in which sounds are mapped on to objects. Second, we propose the existence of a kind of sensory-to-motor synaesthesia, which may have played a pivotal role in the evolution of language. A familiar example of this is dance, where the rhythm of movements synaesthetically mimics the auditory rhythm. (2001b, p.19)

Figure 8. "Demonstration of kiki and bouba. Because of the sharp inflection of the visual shape, subjects tend to map the name kiki onto the figure on the left, while the rounded contours of the figure on the right make it more like the rounded auditory inflection of bouba." from Ramachandran, V.S. & Hubbard, E.M.

However, it must be said that their synaesthetic experiments seem at times to blur the lines between nature and nurture: between sensation and experience. There is some ambiguity in the responses to their experiments that suggest an over-riding of perceptual (or sensory) effects
by cognitive (comprehension) effects. For example, they show an image made by the letters 'IV', which can be read as 'I' and 'V' or as the Roman numeral 4. They sum up the ambiguous synaesthetic responses thusly: "Hence, although the visual form is necessary for the perception of the colours, the way in which it is classified is important in determining which colour is actually evoked." (2001b, p.13). The authors do not explain that both 'readings' of the image are learned anyway, since, to the illiterate these would be merely abstract graphic shapes.

In any case, I do not believe a perceptual approach need exclude an interpretive one. Arnheim, who specifically denied that he was against an interpretive understanding of the visual still argued for shared perception:

I want to explain this to you. Everyone must at least have similar perceptions when they look at the same thing, because otherwise no communication could take place. Images must also be compatible with one another so that a person receives one and the same thing at different times. That different observers of one and the same thing see different things has to do with the fact that perception is indeed not mechanical reception of sensory data; rather, it is the creation of structured images that naturally depend on the personal experience of the observer. The observation of the world demands an interaction between the objective characteristics supplied by the observed thing and the nature of the observing subject. In addition, I don't argue against the idea that there is a historicity of perception and that cultural determinations play a role in vision. (Grundmann, "The Intelligence of Vision", 2001)

In my research for this literature review, the perceptual proponents generally were more forthcoming on the difference between realistic and abstract images. Generally the interpretive side is interested in social or political reasons (where they are interested at all) for choosing photos or illustration. But we can see from Arnheim, and from the socio-political motivations of both Neurath and his student, Bliss, that this divide is not so clear cut; an assumption of innate visual abilities does not preclude a political stance in the designer nor in his or her understanding of the audience. In my fourth chapter I explore how a perceptual approach to image design might be applied in a social realm. In my sixth chapter, using student case studies, I further examine this approach and another method of design where perception and interpretation are both brought to bear on one project.

The privileging of language over vision which I alluded to in the introduction to the literature review is something with which other theorists have struggled. Another text which, like Ramachandran and Hubbard, attempts to establish pre-verbal cognition as an influence on meaning-making and claim metaphor as sensorially derived rather than textual, is Nonverbal
it has been claimed that young children under 4-years-of-age do not comprehend or produce metaphorical figures of speech (e.g., Marschark & Nall, 1985; Ortony, 1987, Vosniadou, 1987). The assertion follows naturally from the language view. Metaphors juxtapose concepts from different conventional linguistic categories to communicate new meanings (Max Black, 1962). As a consequence, what constrains the younger child's ability to process figurative language is lack of conceptual knowledge and linguistic facility. Those who take the language view claim that metaphor is always about concepts, although specifically linguistic concepts [but] metaphor involves the ability to recognize similarities across different sensory domains. (1998, p.124)

As with Ramachandran, et al, Seitz is unconcerned specifically with distilled imagery, but these experiments which play with the demarcation of senses might suggest that distilled images can more easily cross this border from the visual sense into the other senses. McCloud seems to grasp this also when he explains that it is much easier for a cartoon drawing to enter the realm of ideas than it is for a highly representational image (1993, pp.24-59).

Where comprehension of realism is regarded as visual literacy
In one field, loosely termed 'visual literacy' this seemingly chicken-and-egg question is central. Unfortunately, the question is in many ways further complicated rather than clearly resolved. I will not be canvassing the whole populace of this realm except where it concerns my central problem, since 'visual literacy' is certainly not a coherent movement to which we can look for one consentient response to this problem. It is through these theorists however, grouped very loosely under this umbrella phrase, that we will arrive at a useful approach to quantifying image.

I will look quickly at some definitions and then focus on where the theorists that posited them can shed light on this problem of realism versus abstraction. Broadly speaking, the divide between perception and interpretation becomes evident again, as it did before in the discussion of design, art and photography. Some visual literacy theorists are more concerned with how images communicate independent of words, and others with the parallels between picture and text communication. I will attempt to keep to my narrow path without getting sidetracked into the visual/verbal divide argument, glancing sideways here and there at a couple of models that examine images in terms of a 'visual syntax'. This will lead to a discussion of a model specifically proposed to explore the difference between realistic and other images; the 'realism
continuum'. However, I will show that even though this continuum model has been adopted by a handful of other theorists, it too, is open to interpretation and is cause for confusion.

Some definitions of visual literacy: Camera-centric beginnings, logocentric 'continuings'

The definition of 'visual literacy' from the members of the National Conference on Visual Literacy (cited in Fransecky and Debes, 1972, p.7) goes as follows:

Visual literacy refers to a group of vision-competencies a human being can develop by seeing and at the same time having and integrating other sensory experiences. The development of these competencies is fundamental to normal human learning. When developed, they enable a visually literate person to discriminate and interpret the visible actions, objects, and symbols natural or man-made, that he encounters in his environment. Through the creative use of these competencies, he is able to communicate with others. Through the appreciative use of these competencies, he is able to comprehend and enjoy the masterworks of visual communications.

This integration of 'other sensory experiences' echoes Seitz and Ramachandran's recent pursuit of visual metaphor. Fransecky and Debes add to this that the visually literate can 'read' visual language with skill and can 'write', that is compose visual statements with skill.

The visually literate can translate from the visual to the verbal and vice versa. In the terms of my narrow focus, however, the approach by these early proponents is problematic in that it bestows upon the camera a range of powers to improve such 'literacy'. In hindsight these powers may or may not exist (I will try to ascertain which) but the belief in them was strong: "Teachers, parents, and others involved as leader-participants in visual literacy projects frequently comment on the apparent ease with which students communicate with a camera" (p.5). Fransecky and Debes dedicate a chapter to photography (and not to any other visual media) and their emphasis upon it is typical of the early visual literacy movement. "Most visual literacy programs are based on photographic or electronic media (still pictures, motion pictures, videotape). The base of mass communication is photographic", they state, "and one of the goals of visual literacy programs is to enable students to understand and deal competently with the modern photographic, electronic world." (p.15). It was no doubt inconceivable then that the electronic world (by which the authors meant 'video-tape') would become the world of the personal computer, that this device would then enable and finally become the sphere of the graphic designer, and that further still, it would allow the electronic construction of illustrations. This recent phenomenon alone, is reason enough to examine
the various strategies suggested by the visual literacy movement in the light of the illustration technology now available for the visual communicator. Further, taking their stated goal of dealing competently with the modern visual world, the emergence of illustration during this last decade might easily be seen to prompt a similar exploration of how to competently deal with illustrations. They continue: “The camera is a visual pen we use to write about the world we see and to record some portion of reality that will transmit our thoughts by visual representation to another person at a later time” (p.15). But is the camera a pen that can write only in a limited number of styles? This camera-centred universe in which the surrender of visual communication to technology is implicit may have had the effect, early on, of limiting the imaginations of the visual literacy lobby as to what effects different media, and importantly since a camera mostly records realistically, what effect different levels of realism and distillation may have on the intentions and meanings of a visual design.

Dondis also had a predisposition for photographs which appears in her preface, “If the invention of movable type created a mandate for universal verbal literacy, surely the invention of the camera and all its collateral and continually developing forms makes the achievement of universal visual literacy an educational necessity long overdue” (p.ix).

Of course, this faith in the camera may in part be a function of the time at which calls to visual literacy were first made. As Barbara Maria Stafford says in The Remaining 10 Percent (2008), “Visual literacy is a temporal construct, rising or falling with the cultural and scientific assumptions and values of a given period” (p.32).

Since then the concept of visual literacy has undergone many revisions and has been the site of pitched battles over the visual-verbal divide. Since 1972, there has been much work conducted under this banner, the most notable recent contribution being “Visual Literacy” edited by James Elkins (2008). As Christopher Crouch has observed in the Afterword to that book however, there is now even less of a unified theory of visual literacy; as the field has widened the definition of visual literacy has too. Elkins declares that a reason for choosing the term ‘visual literacy’ over its few alternatives:

is that it is convenient in the absence of anything better. It might be possible to speak of visual competence, or visual competencies, but that sounds awkward, utilitarian, and prescriptive. Visual practices is common but vague. Visual languages is so freighted with inappropriate precedents, from Umberto Eco to Nelson Goodman, that it is practically useless. Visual skills is too narrow because much of what matters here is politics, ideology and history, as well as skills. (pp.1-2)
Which is not to say that visual literacy theory merely needs to bring these aspects together. Each of the aspects, for example, the necessary skills, are continually tested for pertinence against the overarching theme: “There is no single fixed definition of what is meant by visual literacy, or even a prescribed set of objectives for it, or what the essential visual skills are” (p.96).

The fact that visual literacy has developed into a full-blown academic pursuit may not have solved the early problem of camera-centricity, but in fact swung the compass too far in the other direction. As I said in the introduction to this literature review, one of the problems that graphic designers face in generating discourse and theory is overcoming the primacy of the written word. Visual literacy, in its very label, often attempts to draw strong parallels to literacy which, as we have always understood it, is concerned with words. This situation is exacerbated when some of the visual literacy theorists themselves make the case for these strong parallels. Ausburn & Ausburn (1978b) for example, say that, “Visual literacy is the ability to ‘read’ the ‘language’ of visual imagery. Like its verbal counterpart, visual literacy is a learned skill. In transporting graphic communication across cultures, there is considerable risk when similar levels of visual literacy are assumed” (p.292).

But how much is learned and how much is innate or easily assimilated because of innate faculties furnished by the human visual system? We know, for example, that we need to learn to read words, but how much do we need to learn to see? As Evelyn Goldsmith in her *Research into illustration* (1984) ponders, “A question often asked is whether we have to learn to ‘read’ pictures. The answer seems to be that we do, but not at the fundamental level of recognising images” (p.68). Feldman: arguing for a difference between written and visual grammar, says,

The earliest written symbols were not copies of sounds; they were pictures of objects—pictographs. Afterward, they evolved into pictures of ideas—ideograms. Phonic symbols—images of syllabic sounds—grew out of the connection of pictographs with the sounds of the words of the words used to designate objects, ideas or events. In learning to read phonic symbols—letters—it was and is necessary to forget what symbols look like and to remember only the sounds they stand for—sometimes only an initial consonantal sound. After we learn to read well, this forgetting operation takes place at a subcortical level. So we deliberately unlearn or repress our visual grammar in the course of becoming proficient readers of writing. (1976, pp.196-197)

This is probably best emphasised if we look at the Stroop test/word-game where we are asked to say the colour of the letters making up the word (rather than the word itself) we see that
the word takes precedence over colour once we have learned to read.

W.J.T Mitchell (2008) has observed this logocentricity as a continuing problem within the visual literacy push. Essentially, visual literacy “compares the acquisition of skills, competence, and expertise (quite distinct levels of mastery) to the mastery of language and literature. Seeing, it suggests, is something like reading”. He goes on to talk about the historical bias towards the word: Mitchell refers to the ‘pictorial turn’, as a turning away from and a threat to “the word associated with law, literacy, and the rule of elites, and the image associated with popular superstition, illiteracy and licentiousness” (p.15).

My surprising discovery recounted in the introduction to this thesis told me that there was something remarkable going on between the levels of realism in separate visual messages regarding the same topic; something that would make parallels to written language very difficult to make since there is no precise equivalent. Perhaps the closest analogy in text is the difference between highly descriptive, instructional text and more connotative, poetic text. Semiotics, with its associated post-structural voyages into concepts such as ‘slippage’ might acknowledge that a distilled image could ‘slip’ more readily than a realistic one, but semiotics’ origins in linguistics hinder its relevance elsewhere. “While response theories broke the stranglehold of literary criticism held by the modernists with their preoccupation with form and structure, there is nevertheless a similarity in the two approaches in that the text remains the object of attention” (Mallan, 1999, p.200).

Some models for understanding the visual

In the field loosely defined as ‘visual literacy’, where one might expect to find the answers as to how images do what they do, a means to quantify realism and its alternatives is again difficult to uncover. Sometimes quite the opposite is apparent. Bamford, in her The Visual Literacy White Paper (2003) says we should, for starters abandon any notion of classifying imagery precisely because it is not as quantifiable as text:

The symbols used in visual communication, unlike those of written and to a lesser extent oral communication are not a fixed vocabulary. There can be no dictionary of meanings for the symbols of visual communication. Firstly such a dictionary would be enormous, as the available symbols is as limitless as the human imagination and the graphic skills of humanity. Secondly, and very importantly, visual communication is made up of presentational symbols whose meaning results from their existence in particular contexts. Meaning is formed by seeing and thinking. The conventions of visual communication are a combination of universal and culturally based conventions. (p.3)
The whole approach of comparing text and images is called into question. However, Bamford's principle strategy for improving visual competence seems to be verbally based. She proposes that teachers show pictures to students followed by a series of questions which can apply to virtually any image in order that the student of the visual better comprehend how these images communicate. This strategy seems to have been fairly fixed since the inception of the visual literacy concept. Fransecky and Debes (1972) said: "Reading about visual literacy may whet your curiosity about it". They explain to the school teacher (their stated audience) "only experiences of your own can really deepen your sense of its validity and value" (p.3). This experiential emphasis, one which seems to avoid explanation of why visual literacy is important or how it works, is common in the work of other advocates.

Others have tried to be systematic in their approach. Maldonado, whose work influenced Otl Aicher in his pictogram creations, tried to bring a semiotic approach closer to the Ulm School's scientific methods of teaching design. Maldonado's approach (Appendix A) is more verbally focused than most, which is somewhat surprising given his design vocation, and not of specific use to me here with my focus on varying degrees of realism. But here we still see an assumption of parity between images and text. An assumption shown to be problematic by Seitz and Ramachandran, and shown by Mitchell to be politically motivated.

Molly Bang's *Picture This* (1991) is essentially a children's recipe book for making images. While seemingly less than ideal for the design theorist because of its focus audience, Bang's book is one of the few which identifies that images can be made according to some formulaic rules in order to result in a particular communicative effect in the viewer. It is perceptual theory for beginners. Bang steps beyond mere instinct and away from linguistic links to make bold and simple assertions as to why certain shapes and compositions mean what they do. The result is her *Ten Principles of Picture Making* (Appendix B). Implicit in Bang's approach is that realism is not necessary to convey a message. Rather, the designer of the image is encouraged to apply shapes and colours to an object in order to achieve particular communicative effects rather than to mime a real scene. As Gombrich (1982, p.125) would have it, making a picture is a problem of equivalence rather than likeness. It must be said, however, because of he audience, Bang's principles are not argued for in academically sustainable terms.
Experiments with illustration where realism is pertinent

Evelyn Goldsmith, in her rather epic and comprehensive *Research into Illustration* (1984) seeks a more scientific basis upon which to judge images, and then a scheme by which to prescribe their use. Goldsmith uncovers where images have been tested on human subjects; mostly of school age, to ascertain their effectiveness within instructional text. She also echoes previous calls for 'graphicy' and 'visual literacy' made by some of the authors she reviews. Goldsmith makes precise distinctions about how images are created and reproduced and examines previous experimental work in the field. This work sometimes tested differences, for example, levels of realism, in the kind of images used in instructional design, in order to improve visual instructions for students (particularly children). At least six of the 27 visual experiments reviewed in *Research into Illustration* are concerned with the effect of the degree of realism in the illustrations used in instructional design. The results of these particular studies are used to validate some of my hypotheses in Chapter 3.

Goldsmith's book's real strengths lie in two areas: Firstly as a thorough review of pertinent experiments and secondly in proposing a matrix for understanding images. Certain of these experiments approach what I have set out to do with this thesis, that is, examine what a move away from photographic realism allows for the visual statement intended. These empirical studies reflect what Gombrich tells us with regard to the removal of detail from images (p.281):

> The laborious constructions of [the painters] Uccello and Piero della Francesca soon ceased to be necessary for the suggestion of space and solidity when the public was prepared to 'take them as read'. It was found that once the requisite mental set was established among the beholders, the careful observation of all clues was not only redundant but something of a hindrance.

Simplification works, according to Gombrich, because it facilitates the viewer's contribution, the 'beholder's share'. "Of course considerable skill is needed to know what to retain, and there must be no blatant contradiction that prevents the illusion from taking shape". Similarly, Goldsmith notes:

> A number of researchers have asked what is the best type of visual to use to facilitate identification of images in educational illustration, often investigating a range of possibilities lying between stylised line drawings at one end of what is sometimes called a 'realism continuum', and colour photographs at the other. (p.164)

In more than one place in her review research was cited which declared that, "An increase in the amount of realistic detail contained in an illustration will not produce a corresponding
increase in the amount of information a student will assimilate from it" (p.22); and "the more detailed pictures were not significantly more helpful than the pictures designed to contain only top-level information" (p.27). This finding equates to Gombrich's statement that "The first prejudice teachers of art appreciation usually try to combat is the belief that artistic excellence is identical with photographic accuracy" (2002, p.4).

Apparently, "detailed line drawings have been shown to be the most readily recogniseable form of depiction in general" (Goldsmith, p.168). The evidence suggesting, surprisingly, that even in the service of portraying most clearly objects from the visible world, photography is not the best visual mode. Although, Goldsmith goes on to say, anyone from about nine years upward is unlikely to experience any difficulty with this element, unless the depiction is particularly (perhaps deliberately) obscure, as in 'droodles' where two concentric circles can represent the top view of a Mexican hat. As Shaw finds, "even amongst pictorially illiterate adults":

considerable tolerance is allowable in the drawing of human beings; but recognition is so assured that a different problem is generated: the degree of identification becomes too specific. This difficulty is not associated with the depiction of animals, [but] great care needs to be taken with the accuracy of features which distinguish one animal [type] from another. (1969, p.7)

And this is important to this thesis since I am concerned with communication and not simply representation of the real world. These are two different purposes that coincide only occasionally. As we will see, communication is not simply about pointing at things, that is one of the tasks of representation. Because of her focus on instructional outputs, the material Goldsmith collects does not shed light on just how is it we see distilled images; an essential step, I believe, in then being able to create images with regard to the visual system and just what it is on the look-out for: Having said that, there are some principle visual models that Goldsmith's review refers to that are of critical importance to my thesis.

Somewhat surprisingly, given the comprehensive survey of visual experiments involved, and some of the very interesting results uncovered, Goldsmith arrives at an open verdict, somewhat redolent of Bamford's later summary; that there can be no vocabulary of images. She surmises that:

Every illustration produced is different in an infinite number of ways from every other illustration, and there is no widely accepted language in which even the important variations can be described to facilitate communication between, say, publishers and illustrators. Terms most commonly used to describe the
grosser aspects of pictures, such as 'line drawing' or 'colour photograph' may give some idea of the cost of reproduction, but say nothing about their likely communication value. (p.123)

Goldsmith struggles with the number of variables to be considered in regard to the effectiveness of illustration: "We must find a way of reconciling the apparent contradictions" (p.114). Her strategy then becomes one of asking what children want from books, and simply concluding that they prefer pictures with their text. So it seems, that even with the knowledge that certain kinds of images seem to work better for some communications than others, without knowing precisely why, it is tempting to conclude that this knowledge is of little use. But what if we could find out why? What if an exploration of visual psychology, especially in light of recent findings, could provide some answers? These findings will be explored in Chapter 3. In effect then, despite Goldsmith's compendium of visual experiments into instructional design, we seem to be back at the point where Chip Kidd and Nigel Holmes offered that realism is different to less realism, but still we do not know why. We seem to be in a position, thanks to her collection of data, to say that, for whatever reason, the human visual system is not necessarily most interested in accurate depictions of reality in order to understand visual concepts, and in fact can be confused by the specificity allowed in photographs. But it is that 'whatever' reason that needs explanation.

A way forward: Along the realism continuum

Author of The Visual Complex, Peter Dallow (2008, p.95), in centering some of his discussion around realism, provides an excellent summary of some useful aspects of visual literacy. I will later put these to work in my chapters 4 and 5. Dallow explains that pictures can be used in a prosaic (didactic) way or a poetic (artistic) way. While these terms seem again to echo the less than easy analogy to written language, this dichotomous approach just might link to either end of the realism continuum examined in detail below. The prosaic application of images, Dallow argues, might be seen in journalistic and "other realist applications of visual imagery". This is to employ the "rhetoric of objectivity" according to Dallow, citing Messaris' notion of "concrete representation" (design theorist and typographer Robin Kinross has written similarly on the 'Rhetoric of Neutrality', especially with reference to information design (1989, pp.131-143). I agree with Dallow that news does use this "rhetoric of objectivity" through realistic images, but I wonder, in my Chapter 4, if an application of non-realistic images can be used
in news which may also seem objective, but through their declarative, honest nature rather than through any ability to ‘capture’ reality. The poetic use of images, on the other hand, suggests an emphasis on aesthetics and connotation. The poetic use of images is paralleled in my examination of illustrations in Chapter 5. Lupton and Miller have also used this term of ‘prose graphics’ in the context of information design (Design Writing Research, 1999, p.149). Key to Dallow’s understanding of the way images can communicate is an implicit sense of difference between these ‘poetic’ and ‘prose’ images. Might this difference be influenced by the level of realism in the images?

Attempts to measure images in terms of different levels of realism

Because of the disparate nature of quarters from where this research comes, very different terminology arises for what are in essence very similar things. Various attempts have been made at quantifying imagery. Most often these efforts have been focused at teachers to assist them in making instructional materials for school children. While these are useful starting points to help clarify image choice for the graphic designer, each theorist’s approach is somewhat problematic and echoes the visual confusion aroused by the infographic we saw at the beginning of this review.

What can be said in general about the realism continuum concept is that it is used to define pictures according to how realistic they are. The most realistic image (removed from the subject itself) is the colour photograph of whatever the subject happens to be. Each of the theorists that use a continuum concept agree upon this. At the other end of the scale, however, different theorists place different pictures. Some describe the most abstracted image as the ‘arbitrary graphic’ (Wileman, 1993; Gropper, 1963; Knowlton, 1966) while another describes it as an icon (McCloud). While these may appear to be merely different naming conventions, further differences arise because some theorists are interested only in images that clearly refer to a real-world equivalent, while others go beyond the ‘arbitrary graphic’ into letters and written text; an interesting trajectory given what we have seen above regarding the push-and-pull between image and text. In turn, the uncertainty about this ‘un-real’ end of the continuum gives cause for thought: just how abstracted can an image become from reality? I will examine these differences in more detail.
Dwyer’s *A Guide for Improving Visualized Instruction* (1972, p.95) has been cited as the first to imply a ‘realism continuum’. Dwyer makes a table of the variables to be taken into account when considering illustration for instructional use (note, his term, ‘illustration’, means images used to support an instructional text or verbal commands. As such, the term includes photographs and what I term illustrations for the purpose of this thesis). His table includes *Educational Objectives; Student characteristics; Method of presentation; Type of visual; and Cueing techniques*. Of these, it is the ‘Type of visual’ variable that alludes to levels of realism used in illustration, and to the important concept that images may be chosen by this criterion. Indeed, in a later study, Dwyer (1979) refers to the ‘realism continuum’ as just such a measure of ‘type of visual’. The limitations of Dwyer for this study are that he was concerned only with realism. His continuum ends at realistic line drawings rather than heading further in the direction of distillation or abstraction.

To look further along this continuum we need to explore the work of other visual communication theorists. Wileman, in *Visual Communicating* (1993) attempts to cover the whole gamut of image types in terms of their level of realism. Wileman states that his audience is “anyone who wants to improve his or her use of visuals in learning environments” (p.v). His linear scale (Figure 9) runs from ‘concrete’ at the realistic end to ‘abstract’ at the distilled end.

![Figure 9. Wileman’s ‘Concrete-Abstract’ continuum.](image)

Wileman (p.12) places along this scale a handful of different picture types as examples. He states that “There are three major ways to represent objects—as pictorial symbols, graphic symbols,
or verbal symbols”. These categories [are] based in part on Rudolph Modley’s categories for graphic symbols (Modley, 1976). Note, that Wileman covers in his first category, ‘pictorial symbols’ those images which Dwyer was concerned with in total. Wileman continues,

Pictorial symbols are produced as photographs, illustrations and drawings. All of these are attempts to represent the object or thing as a highly realistic and concrete symbol. The viewers should easily be able to translate a pictorial symbol to a real world example. (1993, p.11)

Although in the examples given, it can, as I will argue in Chapter 3, be demonstrated that the silhouette with detailed outline belongs in the ‘realistic’ category since its appearance is a function of lighting conditions rather than any iconic or symbolic abstraction. His limitation arises from confusion of position (the silhouette as less real than the line drawing) and also from separating out, without explanation, the abstract or symbolic.

In essence repeating both Goldsmith’s and Gombrich’s findings that the most realistic image is not the most communicative, Wileman (p.120) proposes the following question as number 6 in his list of 7 criteria regarding ‘Visual Design Considerations’: “6. Does the visual contain only the essential information?” This is a useful criteria in this thesis since one of the clear implications of moving away from realism, specifically photography, which will take in both its subject and its subject’s surroundings (Kirby, 2007), is that an illustration more easily allows this paring down to essential visual information. Less clear is Wileman’s reason for this being an important criterion for effective visuals. It seems like the correct sentiment though the explanation is given simply as, “people in your audience must understand what they are looking at on the screen or printed page”. Once again we are left wondering just how an image that removes some details of reality from an image could possibly communicate better than that which includes them.

A look at comics is helpful in order to see where this move from realism has been more fully explored. McCloud (1993) is particularly keen on the visual presentation of character and what a move away from realism entails in this regard: “When drawing the face and figure, nearly all comics artists apply at least some small measure of cartooning. Even the more realistic adventure artists are a far cry from photo-realists” (p.42). His Understanding Comics is of endless use to the designer or visual artist with his thorough understanding of image making and acutely honed visual instincts. As if to prove the importance of image in visual communication, McCloud’s book about the language of comics is delivered as a
lecture, drawn as a kind of pyrotechnic comic. McCloud's effort is rather heroic, attempting as it does to describe a field of art criticism through the use of image as much as text. As Elkins (2008, p.3) has observed, "college-level curricula throughout the world continue to be mainly text based". However, as is the case with many practitioners-cum-theorists in the visual arts and design disciplines, McCloud relies on visual instinct without complete recourse to validating from whence these instincts arise. In addition, McCloud's model (Figure 10), in Understanding Comics does not echo Wileman's approach, but contradicts it in more than one aspect, and attempts to reconcile the two approaches are difficult. In contrast to Wileman, McCloud has 'abstract' on a different axis to 'concrete'. McCloud's scale of realism goes from 'concrete' to 'iconic' along the x axis. While it seems perfectly logical to pare away detail a little at a time to create a reductionist picture from any given image, to jump from this linear path to a purely symbolic image seems to break with that logic. Things become more 'abstract' for McCloud perpendicular to this scale, along the y axis. He declares that "iconic-abstraction is only one form of abstraction available [...] usually the word 'abstraction' refers to the non-iconic variety, where no attempt is made to cling to resemblance or meaning [...] this is the realm of the art object." (pp.50-51) However, McCloud puts writing on this same x axis as the realistic picture. But writing is purely abstract, so it remains unclear why writing belongs on McCloud's realism continuum while abstract images do not. Gregory (1970) and Feldman (1976) have both explained alphabetic characters as derivations of representational images, so it seems appropriate to consider them on this continuum. In that sense too, the abstract, non-alphabetic image, most likely, once upon a time, to have derived its shape from something witnessed in the real world belongs along here too. The fact that these, like letters are no longer directly connected to their roots ('A' derived apparently from the bull's head, a semi-circle perhaps derived from a half-moon for example) does not mean they are not abstractions of them. In McCloud's own subtitles for his continuum, he seems to make an argument along these lines.
Beginning with what he describes as a scale of ‘iconic-abstraction’ (p.46), McCloud goes further than previous theorists. Firstly he describes what is happening along this scale; what other researchers regard as an ‘increase or decrease in detail’ (Dwyer, 1979, pp.19-25). McCloud resolves that this lessening of realism results in several changes in communicative potential, by subtitling his scale as Complex to Simple; Realistic to Iconic; Objective to Subjective; Specific to Universal, closely reflecting Lilita Rodman’s (1985) concept that abstraction moves images from the particular to the generic; from a focus on surface to a focus on structure; and from mimetic to symbolic.

It is worth remarking that McCloud and Wileman both postulate that the continuum should contain words, reiterating Mitchell’s statement: “it isn’t that words and images exist in separate compartments, or that they only interact as antagonists. One of the key things about language is that images come bubbling up inside of it” (2008, p.25).

Wileman’s line progresses from photograph through illustrated drawing, to image related graphic, concept related graphic, arbitrary graphic (note even Wileman acknowledges and accommodates this arbitrariness), to verbal description, and noun label (1993, p.12, 33). Wileman and McCloud’s scales do not coincide at this textual end. For McCloud, the noun label precedes the description going from left to right, his reason being that individual words, especially those presented with graphic punch, come before the more elaborate prose of a description (1993, p.48).
Another model, Meggs' (1992), effectively follows Wileman in terms of his classification of possible image types (Figure 11). Meggs refrains from labelling this as a continuum however, and he does not follow Wileman or McCloud so far as to go into text territory. Like Wileman, Meggs includes all images, and like McCloud (and Dondis) he recognises that less realistic images become less specific. Beyond this however, he makes no mention of how these approaches to image making refer to each other. Rather, his list appears to be a basic taxonomy of image types: “Images are pictures of all kinds ranging from simple pictographs to illustrations and photographs” (p.19).

The concept of the continuum exists in a few other theorists’ works, but is never as overtly articulated as in these above. Gombrich had a version, but appears to have chosen not to set it
down in a diagram: “however we interpret the facts, it remains true that all representations can be somehow arranged along a scale which extends from the schematic to the impressionist” (2002, p.247). Though, surprisingly he interprets a pull to the more distilled end of the scale as the natural impulse of the artist. As we shall see in the next chapter, this pull seems to have been, for better or worse, ably resisted in the world of graphic design! Smerdon is cited in Kiefer’s The Potential of Picturebooks (1995) as using a conceptual continuum to ascertain children’s preferences for realism and abstraction. Generally, Smerdon found that the older children preferred art that was more realistic. Kiefer disregards Smerdon’s study however, for, among other things, ‘meddling’ with the art in its original form by removing colour from the pictures shown to his sample groups.

I have attempted to use the realism continuum as a means to explain the communicative differences between illustration and photography to my own design students. One of the aspects of the continuum that I have asked my students to consider—and I make the case for this in Chapter 3—is whether, for a means to measuring images by their realism quotient, it might be more logical to see the silhouette as closer to the realism end of the continuum than most theorists have placed it. Although, as I have seen in the ambiguous results of my class experiments (shown in Chapter 6), this position on the continuum, while seemingly based in logic, is far from easy for even the visually literate (assuming that design students are visually literate) to intuit let alone for an uninitiated audience to measure.

Finally, it seems to be demonstrable that the abstract image belongs on the continuum (rather than on another axis as McCloud would have it), as do letterforms (perhaps the ultimate meaningful visual abstraction) since, as both Feldman and Gregory insist, these images have arisen from the removal of detail from what were, once upon a time, representational drawings. An Egyptologist at Yale University, John Darnell has described the moment of their transformation from pictograms to letters (Baker, “Finding sheds new light on the alphabet’s origin”, 1999). That these letter-images have long since lost any meaningful connection to their origins does not mean they do not belong on the concrete-abstract continuum. As we shall see in Chapter 4, even photographs may be used to suggest something other than what they were originally captured from, albeit they struggle to escape such a link. Implied in McCloud’s label, ‘Specific to Universal’, is that as images become more distilled or abstracted,
their meaning becomes broader. Meggs, on the other hand concedes only that the pictograph becomes universal rather than specific as “the primary forms of the [original] subject are reduced to elemental geometry” (1992, p.19).

Generally speaking there seems to be some consensus, among the theorists concerned with a realism continuum of one kind or another, and even across the perceptual/interpretive divide that, in terms of pictures, photographs are the most realistic visuals available to us. Perhaps then, the answers to my questions lie somewhere away from the realistic end of the continuum, where things seem much less clear.

In Summary

The knowledge gathered in this literature review does indeed come from far ranging and disparate quarters, and this in turn highlights the surprising absence of image theory within graphic design discourse. Hopefully, it also suggests a couple of points of departure from which to embark upon further exploration of image use in graphic design.

We have learned through a review of the literature, that the interpretive/perceptual divide does not exactly coincide with whether theorists are concerned principally with text or with pictures, or, if they are concerned with pictures, whether they are searching specifically for connections with written language. Selfishly then, to pursue a visual metaphor, I have opted for picking fruit from the gardens on either side of a very crooked fence. A fence punctuated by gates; some barely ajar, some wide open, and with a number of palings missing: Neither side fully articulates what’s going on with this realism thing. And so I wish to pursue it in this thesis to find the important strands for intended visual communication: for graphic design.

Beyond these arguments of whether text and image are read differently, we are still no closer to finding out a meaningful difference between realistic images and others less realistic, nor why we should be able to ‘read’ anything less realistic. As we have seen, profound confusion can exist between designers and critics about the very same image, and even those designers who dedicated their careers to abstracted graphics, as did Neurath, did not necessarily have proveable or sound bases for the assumptions they made about how we see. It may well be that a removal of realistic detail amplifies visual syntax and allows us to better ‘read’ images, but until we explore how or if this removal of detail changes responses in the visual system we cannot suppose this to be the case.
Wileman's suggestion is to test each level of rendering for each job on an audience. Surely sound advice, but where it is necessary in the interests of brevity and or economy—for example in the commercial realm of graphic design—to eliminate the time and effort involved in such a practice, and to make decisions based on sound knowledge about image choice for a particular kind of message, might it be helpful to know the science behind these choices?

In general, we can say that according to what we have seen in the review, the equation of image choice for intended message depends on the situation, the intended purpose of the image, the audience's experience, ethnicity and literacy and sundry other factors. While it is tempting to throw up one's hands in despair and claim this is all too hard, it must be remembered that similar factors will come into play with regard to type. In many ways type should be more difficult: most humans from a very early age can recognise and name many things in pictures and make some sense of them, only "linguistic ability will prove the limiting factor in investigating the earliest age at which children can interpret and use iconic representations" (Spencer, Harrison & Darvizeh, 1980, p.63). However, the same cannot be said of the very abstract symbols we must learn to know as our alphabet. If typography can have, at least at its core, a collection of guidelines (such as those described in the introduction to do with line-length, line spacing (leading), word and letter spacing (tracking and kerning), no more than two typefaces per design, etc.) but each of these rules are open to interpretation and even complete rejection, then why not an equivalent set suitable for the classification of image for graphic designers?

Two threads have emerged through the literature review. Firstly, that this sense of realism not being the ideal for communicating runs through fields outside of graphic design (art history, perceptual theory) while graphic design continues on regardless, or, more surprisingly, is a field where photography seems to have been prescribed as the means for visualisation. This thread needs to be followed to find out from whence it came. If photographic realism is not necessarily the ideal for communicating with images, we need to examine why is it so prevalent in graphic design, a field which should exhibit high visual literacy. Debes and Dondis may have even compounded this problem of photography as the dominant form, through their strong endorsement of the camera during visual literacy's infancy. I shall examine reasons for photography's prevalence in the next chapter.
Secondly, it has become clear that there exists a gap in graphic design discourse, a blind spot about the role of image. If less real modes of visual presentation have advantages over the realism of photography, how and why do they have these advantages? As we have seen in the comparison of the various attempts to quantify image through use of a spectrum or continuum, these approaches have been useful but underdeveloped. Each argues that there is a difference between pictures of the same subject rendered at different distances from realism, but seems to disagree on just what kind of image goes where on the spectrum. More importantly, none of these approaches explains thoroughly why such a difference in realism may result in a different kind of communication. What is it about the human visual system that allows us to understand pictures, and highly abstract ones at that, when the visual system has evolved among reality? Gombrich sought a theory of perception in order to be a better art historian. Though not for a moment claiming parity with his expansive and engaging writing, I say that in a study of the image for the designer, I cannot do without an understanding of the visual system. In order to explain thoroughly—as a design teacher to students, or as a designer to a client—how images may communicate a particular message, a knowledge of the science of vision is necessary for understanding how we perceive and interpret those images. What has revealed itself, even through the very few graphic design texts that deal directly with images, is a connection to the gestaltist approach to perception. This thread should, I believe, then be followed to its logical conclusion in psychophysics: to uncover the mechanics of seeing, and whether a knowledge of these mechanisms provides some answers as to why a pictograph of anger, for example, can be read as easily as, if not more easily than, a photograph of a real face showing anger. These questions will be examined in Chapter 3.

Gombrich and Arnheim identify the usefulness of the gestalt approach in art criticism. In the more pragmatic/didactic requirements of graphic design where a very particular message may need to be imparted we find its usefulness even more amplified or focused. To explore this more thoroughly, in chapter 4 I examine perceptual psychology's usefulness against the most didactic kind of design, namely, information design. There we shall see that a reduction in realism may amplify the gestalt sense of belonging among elements in a design to more clearly impart the message.
In Chapter 5 I will make the case that this perceptual knowledge should be part of a more thorough understanding of visual literacy. I propose a number of questions to be added to the discussion strategies for improving visual literacy. I also apply the knowledge gained through my research to a critical analysis of illustrated examples.

Robert Braden and John Hortin in *Identifying the Theoretical Foundations of Visual Literacy* (1982) describe visual literacy in terms of the ability to think, learn and express oneself in terms of images. In other words, visual literacy is an ability to comprehend the visual; as well as to make the visual. In terms of my position as a designer and a design teacher, I am concerned about images transmitted through graphic design. To this end I am concerned with the making of images (graphic designers are even regarded under my country's tax laws as 'manufacturers'). Accordingly, I pursue in my Chapter 6 whether what I uncover in the thesis can be applied as means of teaching image to designers. If these discoveries are of some use in the making of designs, I believe this will be the proof required that images, like type, may be quantified.
Chapter 2: A history of the image in graphic design

In this chapter I firstly investigate one of my fundamental research questions about the image in graphic design. Namely, if different messages can benefit from different levels of realism, how is it that photography is the designer’s lingua franca for images as stated in the introduction to this thesis? Historically, what has been the appeal of the photograph to the designer? Are illustrators themselves contributors to a state of affairs where designers are more likely to reach for a photograph than a drawn image to construct a graphic design? Secondly, this chapter also exists to contextualise contemporary graphics in terms of the history of graphic design. It will show that through graphic design’s history there has been a general absence of any theoretical approach to image use. The question of whether different messages can benefit from different levels of realism has yet to be addressed. While that question will be answered in the affirmative over the coming chapters, here I want to examine the reasons for and the role of photography in graphic design. The answer will later make photography’s prevalence all the more surprising.

We are in an age where approaches to graphic design practice currently fall into two broad categories: The supposedly pragmatic, analytical approach of the modernist designer versus the self-expressive, artistic methods of the auteur. Lars Müller, in his biography, Josef Müller-Brockmann, Pioneer of Swiss Graphic Design (2000) suggests that the latter methods are in the ascendant:

A sober and undramatic look at the current situation reveals very little direction in graphic design. Confusion surrounds the criteria for judging design quality; the eye is wearied by lack of content, aesthetically veiled. Mannerism and eclecticism are the driving forces behind the images, and their design repertory is determined by new technologies. Against this background it is not really an anachronism to point out the designer’s ethical and social responsibility. The social and environmental problems of our time demand a kind of communication that does more than encourage affective consumerism. (p.6)

Müller’s subject, Josef Müller-Brockmann, was a bastion of the analytical approach to design, an exemplar of the Swiss Typographic approach, or Die Neue Schweizer Grafik. However, the biographer’s criticism of contemporary design, an echo of design criticisms leveled by critics Steven Heller (in his well-known 1993 essay, Cult of the Ugly) and modernist designers such as Massimo Vignelli and Paul Rand, overlooks some crucial aspects of the history and
development of contemporary styles. Namely, where the aesthetics of these styles came from and with what their politics were (initially) concerned. I will, in this chapter, attempt to follow graphic design trends through the twentieth century to understand zeitgeists and to address criticisms of various design approaches. It is important to understand this visual lineage in order to know why one kind of visuality is more evident than another. Specifically, I will be concerned with each aesthetic's relationship to realism. I will pay special attention to the Neue Schweizer Grafik and the deconstructionists because these two groups are the doyens of the pragmatic approach and the artistic approach respectively. Importantly for my purposes, though they seem diametrically opposed in their approaches to visual communication, both groups endorse the use of photography as the principle means of expressing imagery.

This examination will follow threads out of two key design movements, Neue Schweizer Grafik and Deconstruction, and into contemporary image use in graphic design. This will allow us to thoroughly explore this issue of photograph usage versus distilled imagery in the context of design history. In terms of this thesis, I will propose that neither movement has thoroughly understood image. Most of the defining moments concerning the split between the two main approaches to graphic design have been spent arguing about type.

**Graphic Design: A modern profession**

While Hollis, in his *Graphic Design, A Concise History*, explains:

> As a profession, graphic design has only existed since the middle of the twentieth century; until then, advertisers and their agents used the services provided by 'commercial artists'. These specialists were visualizers (layout artists); typographers who did the detailed planning of the headline and text, and gave instructions for typesetting; illustrators of all kinds, producing anything from mechanical diagrams to fashion sketches; retouchers; lettering artists and others who prepared finished designs for reproduction. Many commercial artists—such as poster designers—combined several of these skills. (2001, p.8)

This definition delineates the practice from the profession. The practice of graphic design already existed at the time of which he writes (1900-1940s) and is certainly older than the profession regardless of how many experts or craftsmen were involved in the production of visual communication prior to the profession being given the label, 'graphic design'.

What is useful to remember from Hollis' description is the myriad roles required to bring

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2. According to design critic Paul Shaw, W.A Dwiggins was the first individual to promote himself as a 'graphic designer' (Shaw, 1984, p.26)
visual communication into the world, and that over the decades these specialist roles have been subsumed into the graphic design profession, except the role of the image maker; photographer or illustrator. These latter are essential parts of graphic design practice (hence my focus upon them in this thesis) but often seen as separate to the profession. The first clear instances of a designer having control over all aspects of a visual communication come from the Bauhaus. Works from this school show a graphic designer making graphic design, the professional appellation simply did not yet exist. Also important to note is that when the practice got under way at the Bauhaus, it was already as a reaction to something pre-existent. The modernists at the Bauhaus are famous for rejecting decoration in design and production, taking to heart Adolf Loos 1908 treatise, Ornament and Crime. This early reaction set the pattern for the major movements in the history of design to be a series of reactions to an earlier modus operandi. In other words, rarely has a set of principles for design been agreed upon. Hollis uses the following general statement to define graphic design:

The meaning conveyed by images and alphabetic signs has little to do with who made or chose them: they do not express their designers’ ideas. The designer’s message serves the expressed needs of the client who is paying for it. Although its form may be determined or modified by the designer’s aesthetic preferences or prejudice, the message has to be put in a language recognized and understood by its intended audience. This is the first way in which graphic design is significantly different from art (even though a large number of the early pioneers of graphic design were themselves artists). (p.8)

This definition fits the modernists at the Bauhaus and their followers in the Neue Schweizer Grafik but by no means encompasses the work of all twentieth century designers. Further, it is an approach specifically rejected by one of the most easily identifiable and influential movements in graphic design, deconstruction, which I will shortly examine as a reaction against the Bauhaus and Swiss credos.

Given that graphic design is regarded as having begun with the art poster (Heller, 1999), and the art poster was executed using lithography or serigraphy, why should photography gain a foothold in this field and later turn it into a stranglehold? Precisely because the same commercial imperatives dictate these seemingly disparate approaches to image making. If a general statement can be made about graphic design that encompasses the various political and economic drivers of it, then it is that its makers want to reach an audience of some size to communicate a message. In order to get that message out to more than one audience member, replication is a necessary thing. For this reason, painting is not an appropriate medium but
lithography is since it allows for replication of an image. When photography arrived on the scene it allowed for this replication to continue but it also cut short the time taken to make the initial image. Other than this instantaneous image capture, photography and the earlier means of making posters have a good deal in common. It is essentially technology that allows both means of replication. As we shall see later this also becomes a reason for the reemergence of particular design visualities despite the arrival of new technologies.

Of course the Bauhaus is not the hermetically sealed birthplace of pragmatic design but merely one of several nodes in Europe where it first appeared. Two further nodes are vital to mention: The Dutch and the Russian. From the Dutch the Bauhaus, and ultimately the Swiss derived their devotion to geometry. The geometric approach is clearest in the work of the Dutch De Stijl movement and was brought to the Bauhaus in person by De Stijl supremo, Theo Van Doesburg: “Even as an outsider, Van Doesburg exerted a strong influence […] Furniture design and typography [at the Bauhaus] were especially influenced by De Stijl” (Meggs, 2006, p.299). For De Stijl, geometry and a reliance on primary colours was a means to express the dynamic yet balanced, natural forces underlying the universe: “the clarification of equilibrium through plastic art is of great importance to humanity … It is the task of art to express a clear vision of reality” (Mondrian cited in Meggs, 2006, p.299). It is this almost platonic quest for the essence of form that ultimately found its expression in the International styles of architecture (through Mies van der Rohe’s buildings) and graphic design (in the work of the Neue Schweizer Grafik, also referred to as “The International Typographic Style”). For the Bauhaus, the significance of the geometric approach to graphic design lay in its affinity to machine replication and a technical aesthetic: “trained in the language of form, Bauhaus designers set about developing prototypes for the mass-production of definitive, standard forms for the objects of everyday life, basing their approach on the premise that people’s practical needs are largely identical” (Rowland, 1990, p.12).

From the Russian constructivists came the Bauhaus devotion to photography. Photomontage was brought to the Bauhaus by Laszlo Maholy-Nagy, himself a constructivist and photographer. The constructivists had embraced photography because they “rejected the idea of a unique work of art as belonging to the old bourgeois society […] the mechanical production of images through photography fitted their ideology” (Hollis, p46). The Russian photographic work is famously embodied in El Lissitsky and Rodchenko:
they were exhibiting some of the characteristics of the International style. What became the common language of graphic design thirty years later included the emphasis on rectangularity and on white space as part of the design, an exclusive use of sans serif typefaces and photography rather than drawn illustration. (Hollis, p.48)

Photography had long been a consuming interest at the Bauhaus, and it had been fuelled by the presence of Moholy-Nagy and his wife Lucia, who were outstanding and inventive photographers (Rowland, 1990).

Bayer and others boldly applied constructivist principles to the field (of advertising design). Bayer, who considered himself as a painter above all, incorporated into his commercial work a surrealist sensibility. This led him to make imaginative use of photography. [...] This work had an enormous influence on the German advertising industry, and its importance was immediately recognized. In 1927, for instance, the Association of German Advertising Specialists held its training course at the Dessau Bauhaus. (p.126)

So it seems that the spread of photography as a means of capturing image for communication design was carried out into the world, not only by the students of the Bauhaus, but by the commercial mainstream of practising designers in the advertising industry. In addition, this influence soon became a global one with the “forced emigration of progressive designers from Germany” under the rule of the Nazis (p.127). Many of these designers found their way into the British and American mainstreams of advertising design while others, such as Moholy-Nagy worked in London (in documentary film-making) and went on to establish courses in eminent design schools in the U.S., such as the ‘New Bauhaus’ in Chicago. It is possible also to find reference to this spread of photography for design outside of the more well-known progression from Germany to the U.S. For example in Wlassikoff’s French perspective on the history of graphic design:

The technique of photomontage, which was initially practiced only by avant-garde artists, developed in the USSR in the late 1920s. It was encouraged by the propaganda services [...] The extremely official L’URSS en construction magazine, distributed around the world in several languages, was one of the main proponents of this type of design, produced by such artists as Lisitsky, Kloutsis, and Trochine. (2005, p.123).

This global distribution allowed not only the dissemination of a striking use of photography but also meant that in each of the countries it reached, it was adopted as a style to speak in a relevant way to local audiences (Figure 12).
A revisitation of constructivist principles, including photomontage, occurred with the deconstructionists half a century later, and I will examine shortly where and why this occurred. For my purposes here, it is intriguing to note these bipolar and contradictory attractors in graphic design pulling from the trend towards minimalism, distillation and generality inherent in the use of the grid and the adoption of geometry as an organizing principle, and pulling in the opposite direction, the trend towards specificity and detail inherent in the photograph.

The work of Lucien Bernhard and his colleague, Hans Rudi Erdt at Hollerbaum and Schmidt, that predates the Bauhaus, is among the few pieces that show a concerted push towards distillation in image. Meggs puts this down to spur-of-the-moment instinct from Bernhard rather than any manifestation of theory or technical approach:

This self-taught young artist probably did not realize it at the time, but he had moved graphic communications one step further in the simplification and reduction of naturalism into a visual language of shape and sign. Toulouse-Lautrec had started the process and the Beggerstaffs had continued it, but Bernhard established the approach to the poster of using flat colour shapes, the product name, and product image. (2006, p.270)

Heller (2000) sees Bernhard's success as a reaction to the visual excesses of the Art Nouveau designers:

Industrialization, the growth of the cities, the increase of vehicular traffic, and the fast pace of every-day life required that advertisers compete for attention as never before. Visual complexity no longer worked. Passersby moved much too quickly to appreciate the levels of craft and symbolism in elaborate art nouveau compositions. (p.139)

Certainly, after Bernhard emigrated to the US in 1923, noone seems to have specifically taken up where he left off. His avenue of visual exploration was turned into a cul-de-sac by the adoption of photography at the Bauhaus.
The Neutral Swiss: Modernism falters through prescription of photography

In the west, most of the few canonical texts we have devoted to graphic design education were penned by Swiss Typographers. This has had the function of limiting possibilities for design educators since because these authors make absolute claims about, not just type and grid, but the superior efficacy of photography in graphic design. As Hollis explains in his *Graphic Design a Concise History*, “Modernism in Switzerland became a crusade in the years following the Second World War. Its assumptions became matters of faith” (1994, p.130). Given that the central credo of the Swiss Typographers is to effectively communicate the client’s message in a clear and unbiased fashion, these designers fall demonstrably short of their own lofty aims. The Neue Schweizer Grafik is the natural progression from the Bauhaus. While certain celebrated designers and typographers, Jan Tschichold, among them, himself formerly of the Bauhaus, maintained that graphic design had moved on from the Bauhaus, a movement developed in post-war Switzerland and Germany that clung to certain of the Bauhaus’ typographic principles, not least because some of its principle practitioners had been Bauhaus students. In Germany, Otl Aicher founded the Ulm design school with Max Bill (an ex-Bauhaus student and Swiss Typographer). According to Aicher’s biographer, Marcus Rathgeb (2006), the invitation to Bill to be head of the school was at least in part to get the New Bauhaus (Chicago) on side and to encourage U.S. funding for the school. At least some of the school’s approach was designed to appease its potential sponsors, the ex-Bauhaus staff now ensconced at the Chicago Institute. From Ulm the formulaic use of sans-serif type, gridded layouts and photographic imagery spread throughout the western world, and even into the design schools of South America.

The Hochschule fur Gestaltung in Ulm, Germany, greatly influenced the propagation of design education and design discourse in Latin America during the 1960s. At that time, the creation of the first institutions for design education proliferated in Latin American countries as they reoriented themselves toward a policy of import substitution and industrial development. The German school was the only institution that offered, within those countries’ contextual conditions, an operative, concrete answer to the challenges of industrialization. In addition, it championed the insertion of design into the industrial process while rejecting all artistic or decorative speculations about design activity. (Fernandez, 2006, p.3)

Swiss Modernism vs post-modernism: Approaches to type and image

The proponents of the Swiss School made claims regarding the superiority of photography as
a means of effective graphic communication. Josef Müller-Brockmann, one of the key figures of Swiss Typography, wrote a book on teaching graphic design, *The Graphic Artist and his Design Problems*. Here he says:

photography provides an objective picture of material reality and thus conveys an impression of authenticity. It requires no effort to understand its message. Where photography is concerned, the modern publicity expert need not hesitate to exploit all its different modes of expression in order to influence opinion. When the camera records a situation, it furnishes objective information on an event, whether it shows a total picture or only a detail. (1983, p.27)

We can not be sure what Müller-Brockmann meant by 'all its different modes of expression'. He may, judging by his experiments of 'painting with light' and with photograms, have been referring to atypical uses of photography, but in so doing he would be at odds with his own statement about photography furnishing objective information on an event, which seems to refer to photography's documentary capabilities. Of course photographs can be manipulated (and have been since their inception) but this will begin to remove them from realism. Many of the tone drop out and double-exposure experiments of the Swiss witness a struggle with this prescriptive notion of photography for all graphic design imagery. Some of the Swiss practitioners appear to be exploring ways to remove photography from the grasp of realism in order to suggest something more symbolic, more illustrative. However, not content with elevating photography, Müller-Brockmann felt it necessary to denigrate illustration which he describes as capturing only 'the moment of its creation', but as we shall see in this thesis, this is actually one of photography's defining limits:

comparison will show that the drawing is a subjective expression of the artist's mind and is restricted to the moment of its creation. It depicts an object or a theme as he experienced it at a specific moment whereas photography shows what the camera could objectively record when the shot was taken. The photographer simply points the lens of his camera at whatever it is he wants to photograph. The drawing conveys to us the feeling of the artist whereas the camera reproduces solely material facts and events. (p.27)

In an interview in Eye Magazine (Schwemer-Scheddin, "Josef Müller-Brockmann", 1995), Müller-Brockmann also maintained that his "most creative period was in fact my worst because at the time my work was still illustrative".

Lupton and Miller give this comparison between illustration and photography, specifically, the rise of photography in the history of illustration, more consideration:
By the 50s, photography had come to dominate the promotion of food, furniture, and housewares, areas where the copious detail provided by the camera was invaluable. Some products, however, benefited from more interpretive merchandising. Fashion and pharmaceuticals were among those industries that favoured illustration. In the case of medical products, drawing was considered more appropriate than photography, for it offered a veiled rather than literal depiction of illness. Pharmaceutical advertising was directed at medical professionals, an upper-middle-class group that the ad industry regarded as receptive to the 'cultured' appeal of artistic illustration. (1999, p.78)

Andy Warhol produced illustrations for several pharmaceutical companies during the 50s, including CIBA-GEIGY and Upjohn, both known for their progressive design (p.78). While Lupton and Miller ably substantiate the advertising industry’s preference for illustration in particular contexts, this approach was by no means universal. Müller-Brockmann, in his crusade for photography, applied it ubiquitously in his pharmaceutical advertising (also for Geigy). However, it is useful that the authors prefigure this idea that certain visual modes could be targeted at specific social strata, and this concept will be touched on in Chapter 4. Finally, they suggest that photography has ultimately triumphed as the designer’s image medium of choice: “While illustration continued to be an important profession within graphic design, Warhol might have sensed photography’s encroachment, and surely he sensed its power” (p.88).

These statements show us that advertising, or ‘publicity’ as it was often termed, as an influential strand of modern design, had arrived at an unquestioning reliance on photography. The text books from which these quotes are taken, or those by Müller-Brockmann’s like-minded countryman, Emil Ruder, are still in print and more importantly, still on graphic design degree book-lists at many tertiary institutions around the globe. Other important design texts have joined these in the canon of graphic design ‘must-reads’. Despite a less didactic approach than the Swiss school these newer texts still suffer from the bias towards text at the expense of image. Spiekermann and Ginger’s *Stop Stealing Sheep & find out how type works* too has become a ubiquitous graphic design volume for beginners and intermediates. The title itself gives away the book’s textual bent, and a quick glance through this book will reveal the visual concepts therein being portrayed through photography rather than through other image forms. Even recent works that specifically seek to address the relationship between text and image, fall short of exploring the possibilities of illustration by assuming, on behalf of their audience, a reliance on photography to express the image aspects of design:
“Complexity adds to the time needed to investigate and interpret a work, regulated by each viewer’s level of experience. For intricacy to transcend entanglement, designers must embrace the creative potential of photo-typographic space” (Skolos & Wedell, 2006, p.10).

Effectively then, the texts that disseminate the message of graphic design through to subsequent generations of graphic designers are either by the early modernists, the Swiss typographic school, or contemporary modernists very much influenced by their predecessors. Their approach to typography may vary slightly but their reliance on photography with regard to image is ubiquitous. This unquestioning reliance on photography is compounded by various of the key texts on visual literacy which, as I have demonstrated in the literature review, had a camera-centric focus. This typo-photo-centric approach may well be symptomatic of a design education where whole courses are spent honing design students’ typographical skills, but little emphasis seems to be placed on other visual literacies. In my own narrow experience of only three universities, these visual instincts are essentially the qualities assessed by design academics during admission interview for entry into design courses, and they are not conceived of as a set of skills that may be taught or learned like typography. Indeed, the visual is largely left to the instincts of the individual student. Evidence for this attitude towards image also exists in the big-name design annuals, Graphis and Communication Arts which supposedly feature the best designs from around the world yet offer no explanation of judges’ criteria for choosing individual pieces for inclusion.

During the 1950s and 60s, at the height of the Neue Schweizer Grafik, but over in the U.S., there were various image treatments evident. Illustration was clearly held in some regard, at least its prevalence would suggest so, though no-one seems to have articulated its specific strengths during this period. Lupton and Miller (1999) see its prominence then as due to its status: it was used to advertise high-class goods because of an obvious association with the visual arts: it looked more like painting than photography did, and photography was yet to be accepted as an art form in and of itself. But this was all soon to change as publicity in the U.S. began to adopt (or pervert, depending on which critic one reads) European Internationalism. In Switzerland no such distinction between high and low advertising had existed: the same designer could easily work on the latest breakfast snack or the state opera (Figures 13 and 14). Indeed this seems in accord with the continuation of the stated aims
of the Bauhaus, to democratise visual communication. In any case, “the rise of the camera and the diminishing prestige of hand-drawn illustration” (Lupton & Miller, p.88), in part due to photographers now being able to execute a ‘signature style’, ensured that photography also began to become apparent in graphic design in the States. The struggle of illustrators in the face of the all-conquering photograph would not have been helped by the increasing adoption of Swiss modernist methods by the American advertising industry. American design icon, Paul Rand even worked with Josef Müller-Brockmann to develop the IBM corporate identity, going so far as to present workshops to IBM staff on what constituted effective visual communication (Müller, 2001, p.213).

Deconstructionist graphics

Figure 15: Phedra theatre poster by Dirk Behage, Pierre Bernard and Fokke Draaijer, France 1991. This work shows the clear lineage to the Russian constructivists (albeit through bleak irony) typical of early deconstructionist work, through its colour and typographic palette and its reliance on photography and photomontage.
The graphic design movement that significantly challenged the Neue Schweizer Grafik is the Deconstructionist approach of the late 1980s and early 1990s.

Perhaps the international style had been so thoroughly refined, explored and accepted that a backlash was inevitable. Historical references, decoration, and the vernacular were disdained by modernists, while post-modern designers drew upon these resources to expand the range of design possibilities. (Meggs, p.466)

Aesthetically speaking though, the loose core of this movement owes a good deal to the Russian constructivists. Unlike the constructivists or the Swiss, designers that pursued a deconstructed path are reluctant to discuss direct communication of a message, citing instead the subjectivity of the author and the audience or post-structuralist principles regarding the failings of communication; that there can be no consensus regarding the meaning of a piece of design:

In the 1990s, the idea that visual communication tends to be too prescriptive was a constant refrain among younger designers. Many rejected the idea that it was their job to transmit a direct, unambiguous message [...] They argued that their own screen-fed generation was able to handle messages of much greater complexity. Using computers, they blitzed their peer group with overloaded patchwork of text and image to filter and process. Let the viewer decide what it all meant.’ (Poynor, 2001, p.78)

A reaction against the Swiss reliance on grids and sans serif type saw the deconstructionists throw up explosive looking layouts like paint splashed on to a canvas. Recurring themes include computer glitches; repetitively cut, pasted and distressed type, and densely overlaid graphics in order to reveal the ‘made’ nature of these pieces, and perhaps, by extension, the made nature of all graphic design. The implication being that, far from providing a conduit for the client, the designer is, him or herself, an author of the message (Figure 16). Far from Lars Müller’s criticism that ‘the eye is wearied by lack of content, aesthetically veiled’ and that this approach did little more than ‘encourage affective consumerism’ deconstructionism was, if only initially, based in structuralist and post-structuralist theory in an attempt to break away from an approach to modernism that had become ‘aligned with corporate interests’; the spent force of the Neue Schweizer Grafik. As this ‘style’ began to be subsumed, inevitably, into the commercial realm, what began as a refreshingly honest approach to image making is, I maintain, best critiqued on the following grounds: the designer abrogated responsibility for the appropriateness, or otherwise, of the design to the client who close it (since the designer was essentially repeating his or her own style with each piece). The client, presumably the
less visually literate of the two parties, has decided the design approach for the message by choosing the designer. In short, the client is making the principle design decision.

![Figure 16: A common and important theme in deconstruction is the revelation of the process through which the design is constructed. In this case, Nick Bell's illustration for the IBM annual review, 1991, shows the ease with which images are copied and pasted using the newly acquired digital technology.](image)

Importantly for my purposes here, the deconstructionists' rejection of credo and didacticism resulted in an absence of teaching materials. Few post-modernists have authored prescriptions for effective visual communication that answer the problems posed by the International Style (the aforementioned, Skolos & Wedell's, Type, Image, Message being an exception). On the contrary, despite their rejection of the Swiss grid and the mythic neutrality of modernist design, the post-modernists clung to photography as the principle means of representing the visual world. From the deconstructionists we are left with a series of 'eye-candy' books, held together, more or less, by their style and the editors’ understanding of the theory behind the work (for example, as in the aforementioned, Typography Now). Regardless of what these designers rejected from the Swiss or the Bauhaus, the fact of their homage to the Russian avant-garde shows that what they have not rejected is photography as the principle medium for expressing image in graphic design. It may be that the early deconstructionists, those knowingly adopting the techniques of the constructivists, were attempting to rediscover the fabled democratising aspects of photography that their Russian predecessors had so believed in; to return to an idealist modernist mode, pre-Paul Rand (who, as Rick Poynor argues, 'stripped modernism of its ideological purpose in the United States and realigned it with
corporate interests'). It is no coincidence that Paul Rand, in his essay *From Cassandre to Chaos* (1991), joined the heated debate on the side of the old versus the new avant-garde of graphic design, calling the work of the deconstructionists, 'indecipherable'. In a political sense at least the deconstructionist designers were reflecting the ethics of the Bauhaus, especially László Moholy-Nagy’s belief that man, not the product, is the end in view.

As I stated in my introduction, graphic designs generally consist of combinations of the two elements, type and image. It is patently clear, especially from an examination of the aforementioned textbooks, that, whether Modernist or Post-modernist, the predisposition of design theorists, educators and professionals, is to concern themselves primarily with type. Indeed, the term ‘typography’ has been largely interchangeable with ‘graphic design’ since the Bauhaus. Rarely has discussion focused upon the choice of image in graphic design: it is the designer’s choice of type and their layout of that type that is regarded as of fundamental importance. While it may seem churlish to criticize the prescriptions of a school of thought most famous for its mid-century output, the approach of the Swiss is perpetuated into this century, notably through Bosshard (2000), Samara (2002) and Elam (2004).

Zeitgeist: why deconstruction in 1980s?

Timothy Samara, in *Making and Breaking the Grid*, (2002) makes the case for the introduction of digital technology, specifically the Apple Computer as the designer’s tool, as the catalyst for the explosion of deconstruction in the 1980s. An embrace of earlier technologies enabled the proliferation of gridded design in the 1920s according to Samara:

Just as the use of grids in modern design practice grew from the developments in technology, aesthetic thought, and industrialization, the use of alternate, intuitive methods of composition—prevalent in current design practice—grew from these same influences. (p.112)

Of course, in and of itself, the computer as a supremely logical machine should in fact allow a more precise refinement of, and attachment to a typographic grid, the supremely logical system for layout. It is the social zeitgeist suggested by this profound change in technology and technique which actually led to the rejection of the grid, and a re-appraisal of the constructivist and modernist work that had arrived at the dawn of the previous machine age in the 1920s. In spite of the tirades leveled against them by Steven Heller and Massimo Vignelli, deconstructionist graphics were essentially a reworking of Da Da, De Stijl and Constructivist
design from the early 20s. Only Neville Brody made a name for himself by reworking, and with heavy irony, the pure modernist aesthetic of the Bauhaus and the Swiss School, "to draw a parallel between the social climate of the 1930s and the 1980s" (Poynor, 1991, p.11).

Figure 17: Neville Brody’s work shows the abiding influence of the Bauhaus through type choice, colour palette, bold graphic elements and photographic imagery.

These past movements and approaches to design were revisited knowingly, ironically and sometimes cynically or with humour but rarely with a sense of building on sound theoretical foundations. As Rick Poynor observed in *Typography Now* as the fledgling approach attempted to take flight in 1991: “Although the idea of deconstruction is gaining ground among designers in the U.S., and enjoys some currency in Europe where it originated, few typographers would feel sufficiently confident of the theoretical basis of the term to describe themselves as deconstructionists” (p.14). This uncertainty extended to a lack of exploration of visual techniques: type and its placement was clearly—as evidenced in any number of examples from the 1990s—the principle focus of these designers. Perhaps because in typography there were clear boundaries against which to push. Beyond this they explored what the technology enabled in terms of photographic manipulation, but their questioning of the tenets of the Swiss never extended as far as questioning the Swiss reliance on photography. In the end, it is the differences in layout and typography, and not the imagery that shows the clearest separation between the adherents of the grid and the rejectors of the grid.

In its infancy, deconstruction was applied to the promotion of events, gallery openings, exhibitions, and plays directed and produced by like minded individuals. In no way was it a mainstream approach to visual communication at all (as the earlier quote from Lars Müller
would suggest). While the new deconstructionist aesthetic was revolutionary, both in the sense that it replaced the old guard, and in the sense that it was an old approach coming around again, it ultimately did little to shake the status quo of visual communication. If anything it ultimately led to an accelerated generation of visual surfaces at the expense of resonant content and form. Because of its startling look, this style all too easily became recognised for its surface. Because the designers themselves, those few who really understood its politics, declared their authorship of each piece, essentially to own up honestly that all communication has an author, these people were easily singled out as artists. No quantum leap is required from this concept to the one of celebrity, a concept that the mainstream can easily deal with. Sure enough, several of these graphic designers, in something of a first for graphic design history, became famous beyond the immediate circle of their discipline: “Neville Brody and David Carson achieved something that in graphic design and typography was nonexistent before them and that was superstar status” (Walters, “Gerard Unger”, 2001).

Deconstructionist design is the antecedent to the contemporary visualities in design. It is the last semi-homogenous aesthetic movement of (if not theoretical approach to) graphic design before the onset of our current cornucopia of visual approaches. Why did these other
aesthetics and approaches follow deconstruction? I will attempt to answer this question now in terms of these contemporary graphics being political reactions to the previous design movement.

Contemporary images in design
As I have mentioned above with regard to the deconstructionist reaction to the grid, the push for change was squarely against the assumed rules of typography, not against the prescriptions the Swiss had laid down for design's images. While graphic design and typography are still more or less interchangeable terms, I want to examine the contemporary expressions of graphic design that have flourished in the aftermath of deconstruction that are not concerned specifically with type, but rather show an unprecedented emphasis on image. The fields of design that have burgeoned as never before are information design and illustration. Neither of these could be described as 'typography'. These forms of graphic expression are also especially worthy of note in this thesis as neither uses photography as its primary imagery nor particularly strives for realism. These two graphic design fields have different purposes, but each has grown as a result of what happened to graphic design in the 1990s, rather than as an outcome of some new-found visual literacy. Where the Neue Schweizer Grafik was deemed a spent force by the deconstructionists, because of its formulaic sameness or its didactic message, the explosive appearance of the deconstructionist pieces made them easy to co-opt as an exciting new style through which to 'sell more units':

The advertising agencies did not dilute the message by making their own pale copies, as they had with Neville Brody's work in the mid-1980s. They bought the product direct from the source. Nike's U.S. Agency, Wieden & Kennedy, was one of the first to set a premium on fashionable type by calling in Brody himself to help sell training shoes in 1988 [...] Robert Nakata, A Cranbrook Academy of Art-educated typographer known for boldly experimental projects at Studio Dumbar, left the Hague-based company to join Wieden & Kennedy's Amsterdam office where he has created print campaigns for Nike and Microsoft. (Poynor, 1998, p.10)

Claudia Mereis, in her foreword to Illusive 1: Contemporary illustration and its context, has specifically talked about illustration's rise as a reaction to what came immediately before though provides no specific examples: "After the euphoria of the digital age there is a vociferous demand for more personal quality and poetry. Functionality and coolness no longer seem worth striving for, people are looking for honest human communication, with
rough edges and corners. So we can also see a return to analogue and manual techniques in contemporary illustration" (2005, p.3). I will examine below how I believe the growth in the use of illustration has been organically seeded by deconstruction.

Meanwhile, Richard Saul Wurman, in his Information Anxiety 2 has described the concurrent and sudden interest in information design (at the beginning of the new millennium) as follows: "when I came up with the concept and the name information architecture in 1975, I thought everyone would join in and call themselves information architects. But nobody did—until now. Suddenly it's become a ubiquitous term" (Wurman, 2001, p.vi).

These movements, one in the direction of self-expression and the other in seemingly the opposite direction, of expressing information clearly, even didactically, are, I believe, both visitations of the same zeitgeist.

The new illustration

Illustration, as design content, is of course not new. The art-poster is widely regarded as the beginning of graphic design as a dedicated practice. The travel posters popular in Europe and Britain in the 1930s are well-known, and illustration, especially line art, has been evident for centuries and was particularly popular with art-directors (and presumably the reading public) in 1940s and 50s America, only to be subsumed by photography. What is new in illustration is its remarkable surge back to prominence since 2000. Illustration is in the ascendancy: "The age-old discipline of illustration, or commercial art as some may prefer to call it today, has enjoyed something of a renaissance in recent years. For a discipline that was in a state of crisis and almost on the verge of extinction for the best part of the 1990s, this was a timely resurgence" (Hyland and Bell, 2003, p.7).

What is important for me to demonstrate here is that illustration's reversal of fortune is not as a result of any new-found visual literacy (I will pursue this thread in my Chapter 5) but merely an outcome of the previous decade's experiments. It may seem a long bow to draw to describe deconstructive graphics as the antecedents to the new illustration, after all, their aesthetics are markedly different. The former places the emphasis on typography and its imagery is comprised mostly of photography. The latter in contrast places less emphasis on pushing the boundaries of typography (in fact often happily revisits 60s and 70s type, as in Figure 20) and has its non-realistic, illustrated imagery to the fore. But early on in this decade
at least, I think what we have seen is designers illustrating rather than a rush of illustrators coming out of the woodwork as it were. Certainly Rinzen, and Phunk studios, two of the bigger names in early 21st Century illustration graphics, call themselves designers first and foremost. E-boy, widely known for their isometric, pixel-media illustrations don’t describe what they do as illustration, rather they say, “We create re-usable pixel objects and take them to build complex and extensible design” (“About”, n.d.).

At the same time that deconstructionist graphics were being co-opted into the mainstream (as we have seen in Figures 18 & 19 above) ‘alternative’ music became decidedly mainstream (Markey, 1991). The most conspicuous outlet for youth rebellion that had existed as a concept as long as ‘youth’, had been effectively removed and placed firmly in the grasp of mainstream consumers. Where to now for rebellious youth and aspiring rockers? Perhaps, to some extent, with the title of ‘star’ conferred upon graphic designers by a media hungry for the next big thing to sell newspapers, magazines and advertising space, the visual realm became an avenue through which to aspire: and of course, the new designers were bound to follow on from the ‘cool’ designers of the 90s. Why is there a boom in illustration again? I see it as a direct descendent of the 90s, designer-as-artist phenomenon that went hand in hand with deconstruction. That was, after all, the period in which graphic designers were for the first time lauded as celebrities. What do you get when you cross a designer with an artist? Perhaps, an illustrator. Hyland and Bell in *Pen & Mouse*, an early survey of the rising tide of
illustration, say that illustration resides in the gap between graphic design and fine art (2001). Illustration certainly gives the designer of a particular inkling more scope to express him or herself than had even the recent movements in graphic design.

In addition to these aspirations of the new designers, the new technologies that arrived in the 80s and 90s allowed new aesthetics which need not necessarily ape their immediate predecessor but may in fact result in much less predictable manifestations: I have mentioned that the logic of the computer might easily have lead to a further consolidation of the grid as the foundation for graphic design. Perhaps it was clear to many new designers that the reinvention of type in the digital medium was an experiment well and truly tested; an idea fully played out. It is certainly difficult to conceive of a typeface that goes beyond the continually randomizing function of Letterot’s Beowulf, for example. Such extreme experiments, and the perfect remediation of old faces into seamless digital forms seemed to suggest that type had gone as far as it could and come all the way back again. Perhaps then, the image was ripe for experimentation.

Early on in the growth of new illustration, for the first five years or so of the new millennium, the computer was still the key tool. This seems to be changing as I will discuss below, but for now let us examine the combination of the computer and the illustrator. The introduction of Flash software on top of html coding and web interfaces in the late 1990s resulted in, somewhat perversely, a shift back to a screen-printed aesthetic from the machine age of the 1930s. Because at least a portion of the graphic design field falls victim to the vagaries of fashion and is on the look-out for ‘the next big thing’, the new visuality—the new web-technologies and their rapid spread—resulted in a sanguine uptake of the associated aesthetics, which place emphasis on flat, outlined shapes within an image. Flash software on the Internet gives its authors the potential to create full-screen movement with very small file sizes and, accordingly, very short download times for the impatient user viewing the work somewhere else in the world. Here, for the first time is a realisation of photography’s liabilities, though only because photography and video of a certain quality and size require large file sizes and long downloads. Flash websites boomed for the first few years of the 2000s:

the objectivity of the outline style suddenly feels right. You find it in fashion ads in Dazed & Confused magazine and gracing the covers of techno CDs. Arena uses it for tongue-in-cheek illustrated features on executive flying, the future of work and wife swapping in suburbia (interchangeable swingers go through
the motions on the stairs, on the kitchen table and even in the loft). Habitat catalogues have offered cute-looking line drawings of the product range for some time. (Poynor, 2001, p.78)

Many of today’s young designers are proficient at print design and designing for the Internet. It makes sense that the aesthetic forms in one space are carried over into the other, even if they are less appropriate there. The requirement of a small file size also leads to decisions about what to leave out. Again, this decision is made for commercial imperatives: the client needs to be sure that their potential audience won’t be frustrated, waiting for long periods for an image to download, and, as ever was the case, the designer needs to take as little time as possible to design and build a quality piece of communication. Poster designers between the wars, in their efforts of making multiple stencils for screen-printing, had to make very similar decisions about what to leave out. It is no coincidence then, that the Flash phenomenon has produced an aesthetic. It is also no coincidence that this aesthetic resembles closely one we’ve seen before, though perhaps surprisingly, that aesthetic is from the 1930s (Figure 21).

In addition, the computer drawing applications—Freehand, Illustrator, Corel Draw—were built with professional illustrators in mind, just as Photoshop was originally tailored to meet the needs of photographers and retouchers. Hence the drawing packages capture the look, to a great degree, of these pre-existing methods of illustration. The work of one of the last ubiquitous, pre-computer commercial illustrators, Patrick Nagel, embodies the cool, if not cold, 1980s look, (Figure 22). Looking at his work now, and indeed that of another prolific producer of editorial illustration in the early 1980s, Guy Billout, it’s hard to imagine that it could have been done without a computer, let alone that these were done pre-computer. So
the aesthetic, in other words, takes nothing from computer graphics whatsoever, but instead, of course, completely informs the new computer graphics early on. Just as Photoshop was built to emulate the great ‘trick photography’ techniques that reached their zenith in the Hipgnosis album covers of the 1970s, so Adobe Illustrator (as the first ‘industry standard vector art tool for the Macintosh) was built to capture the stylistics of these crisp illustrators (Figure 23).

Figure 22: Pre-computer graphics: Patrick Nagel's use of rapidograph pen and flat paint for consistency of line and colour fill in the early 1980s prefigures the computer graphics tools available in the following decade.

In addition, the software enables the accurate tracing of photographs, suggesting a lingering influence of photography as much as an escape from its clutches. This ability to quickly trace source images explains at least some of the new aesthetics: illustrators make images with this aesthetic because it is very simple to do so.

Figure 23: Produced on the computer, but resembling closely early 1980s, pre-computer design: Grand Theft Auto graphics (by Stuart Petri, Rockstar Games) (2003).
Even more recent trends have seen the adoption of hand-made techniques and a loosening of the grip of the computer for the drawn aspects of the illustration. Vector graphics are no longer the clear leader in this ever-widening field (Klanten & Hellige, 2007, p.184). But the computer is still accessed as a major tool in the production and many of the current works are visually noisy expressions. As signposts of the zeitgeist they must be telling us something. Perhaps it’s as direct a connection as busy illustrations being an appropriate response to a speedy world. In spite of Mareis’ acknowledgement that “Illustration’s self-perception lies precisely in its difference to photography” (2005, p.4), the illustrators and the editors of the illustration anthologies seem not to clearly express why these various approaches exist, at least not in terms of what they offer versus realism except in the most general, instinctual terms that we saw in the Literature Review.

Whatever is the case, the new illustration exists as the child of deconstruction, in spite of there being little family resemblance. It certainly continues the trend where the client, or at least the client’s marketing manager or art director, and not the designer, is making the design decisions through choice of image or illustrator. And the new illustration is born from a pursuit of design as art, and aesthetic as technological possibility. It has not arrived as a result of research into or discourse about the image in design. What the new illustrators still lack is a sound theoretical base from which to refute modernisms prescriptions for image.

Information architecture

The polar opposite of the new illustration must be information architecture. The International Institute for Information Design defines information design as “the defining, planning, and shaping of the contents of a message and the environments it is presented in with the intention of achieving particular objectives in relation to the needs of users”. Typically, its proponents express the requirement for information to be shown effectively rather than merely in an aesthetically pleasant form. The information architects approach is really the credo of the Bauhaus (adopted from the architect, Luis Sullivan): form follows function. While many startling examples, such as the work of John Snow and Charles Joseph Minard, can be found from the previous century, information design, as a systematic approach to visual communication, began in the 1920s when it first found expression through the ‘Viennese Method’ of Otto Neurath. The work was recommenced most notably in the Tokyo ‘64
Olympics graphics of Yoshiro Yamashita at the Nippon Design Centre. In the true spirit of information architecture, Yamashita's pictographic approach was undertaken for purely practical reasons to overcome communication difficulties; "because few participants or visitors would be fluent in Japanese" (Fischer & Hiesinger, 1995, p. 90). Further celebrated examples of the form come to us through the aforementioned, Kinneir & Calvert's U.K. road signage and through Ol Aicher's work for the Munich Olympics in 1972. More recent works for airports, such as Paul Mijksenaar's designs for Schipol in the Netherlands, and Integral/NORM's Köln-Bonn Airport Identity in Germany, stake a claim for the necessity of information design in the daily lives of modern commuters. Edward Tufte's forays into the business world through his scathing critique of the ubiquitous Powerpoint software have helped cement a place for information graphics in the working lives of as many as the new illustration seems to be reaching through the glamorous fantasies of fashion magazines.

Rather than an extension of the designer-as-artist approach that flowed from the deconstructionists to the new illustrators, the growth in information design is a reaction against the notion of design as art. It is no coincidence that Richard Saul Wurman witnessed its up-take in the late 1990s just as deconstruction was making in-roads into mainstream graphics. Information design also embodies the zeitgeist of this new machine age: it is a reaction against, among other things, the plethora of 'information' without knowledge. As the Web began to spin its influence across the globe, it was an oft-heard cry that we would experience an overload of information at the expense of expanding knowledge. Richard Saul Wurman himself is known for his Information Anxiety (1989) which articulated precisely this fear of unhelpful overload. In 1997, Edward Tufte had suggested that good information design is exactly about turning down the visual noise of this new design age: "Shrill and strident visual activities will tend to dominate the information space, scrambling finely detailed but relevant content" (p. 65). He goes on to say that "relevant to nearly every display of data, the smallest effective difference is the Occam's razor (what can be done with fewer is done in vain with more) of information design" (p. 73). Tufte makes a case for the information design approach: "When principles of design replicate principles of thought, the act of arranging information becomes an act of insight" (p. 9). In many ways, these expressions echo the words of Beatrice Ward, in her call for typography to affect a clear speaking voice that has no need to shout in order to pass the thoughts of one's mind into the head of another.
Saul-Wurman and Tufte are the champions of using this approach, not just for typography, but importantly for us here, for image in the service of information transmission and receipt; Saul-Wurman as practitioner, patron and ‘art’ director, and Tufte as critic. A work executed following this design method is not one the viewer can determine at first glance, through aesthetics alone, to have been generated by an information architect. Rather it is the approach that defines each disparate aesthetic in the field. As Tufte puts it, “Visual representations of evidence should be governed by principles of reasoning about quantitative evidence. For information displays, design reasoning must correspond to scientific reasoning. Clear and precise seeing becomes as one with clear and precise thinking” (p.6). As with the parallels to Warde, it is not difficult to determine the similarities with the stated aims of the Neue Schweizer Grafik, but also key differences when we look at Müller-Brockmann’s credo:

“The maximum in information will be had if the object or the idea is matter-of-factly and esthetically presented with a minimum of additional forms. Each subjective adornment in the sense of an illustrative exaggeration [should] be avoided, and the graphic form must become, if possible, the anonymous bearer of the message.” (Müller, 2000)

Information architects would make no such assumption about minimal information but instead ask how much information would make the message easily understood? In some instances, for example, in airport signage where symbols are not fully explanatory but must be learned and culturally agreed upon, a degree of redundancy is required between images and words that actually may work against ‘a minimum of additional forms’.

What is of key importance for my thesis is that this is the only visual design movement with the stated aim of distillation: that a message should be stripped of any unnecessary information which might put its clarity in jeopardy. For this reason I choose to apply the findings of this thesis to information design in Chapter 4. If one looks at the 100 year history of graphic design, a general trend towards distillation of image is only clearly evident elsewhere in logo design. Importantly, reasons for the distillation evident in logo design are nowhere clearly articulated. More well-known for ‘redesigns’ than any other graphic artist, (principally because of the prominence of the Shell and Lucky Strike logos he helped re-shape) Raymond Loewy himself could only phrase the concept of distillation in economic terms:

‘Before—the old Lucky Strike package was dark green. On the obverse was the well-known Lucky Strike red target. The reverse was covered with text that few people read. The green ink was expensive, had a slight smell. After—The new package is white and the red target has remained unchanged. The text on
the reverse has been moved to the sides, displaying the red target on both faces. Printing cost has been reduced.' (Hollis, 2001, p.100)

Information design, in contrast to this, seeks to do what—according to the information architects—all graphic design should do: it attempts to argue for itself beyond merely making a message look good or being driven by commercial considerations, to make the communication work as appropriately as it should for its proposed circumstances. Presumably, if this goal is achieved, the communication will then 'look good' but not for merely aesthetic reasons.

Even here however, in a field of the design discipline where “design reasoning must correspond to scientific reasoning”, the role of the image is not fully explained, especially in terms of how it is we might possibly see less accurately drawn images (in terms of copying something from the real world in all its detail) as being capable of communicating at all let alone communicating more accurately than a precise copy of reality. Also, as I have tried to demonstrate in my literature review, disagreement is evident between the experts in the field of information design as to how images work, even in this relatively narrow field of design. This confusion suggests that another way of discussing the role of image in design is needed.

Conclusion

Of course, illustration and information are not the only streams of graphic design in operation. A plethora of other approaches exists, including reworked, retro stylings, a range of ‘un-designed’ vernaculars and even some uneasy Swiss-deconstructionist hybrids (Figure 24). This reworking of styles might be a sign of a new visual freedom through which many positive outcomes might be accidentally achieved through sheer weight of numbers. However, it might just as easily suggest a lack of evolution, a lack of theory or discourse-based exploration to provide a clear direction. One sees, for example, the return even to the Swiss method as a perennial trend (Figure 25). This return, as one of the few obvious directions in contemporary graphics is evidence of the Swiss having most clearly articulated their approach to design. Any designer adopting the method may argue for it on the grounds that, as Steven Heller echoed in his *Cult of the Ugly* essay, their “method was based strictly on ideas of balance and harmony which hold up under close scrutiny even today.” Proponents of this method
state that, like the International Style in architecture, the Swiss method for graphic design survived changes in technology and fashion because of fundamental rules that worked.

Figure 24: In the work of Müller+Hess, the rich past of 'Neue Schweizer Grafik' ('New Swiss Graphic Design') is available as a tableau of cultural referents (from modernist and deconstructionist sources). Here, the motorbikes previously seen in Müller-Brockmann’s road safety campaign posters of the 1950s re-emerge with a more illustrative feel derived through tonal drop out and monochrome treatment. Müller+Hess go further to disturb our expectations of the poster form: text becomes image; graphic content to fill and balance the layout. Readable content is removed to the point of being more opaque even than the most densely overlaid deconstructionist compositions.

It seems that the Swiss method abides because it has a clearly articulated position if nothing else. The fact that its position on imagery was less than thoroughly considered does not seem to be of concern to the designers that still use this approach. Perhaps the polish and detail in a sharp photograph merely adds to the slick finish evident in such crisp, clean design. It seems likely to me that for contemporary designers, using the decades old techniques of the Swiss, there might also be an element of nostalgia for a time when, at least the forthright visuals suggest, life seemed so much more black and white.

Figure 25: University brochure by CPd (Keith Smith & Linden Quin). A typical example of the contemporary Swiss approach: plenty of space, sans serif type (at least in the body copy, though with some allowance for fashionable display type: in this case Clarendon which is experiencing something of a renaissance) the continuing reliance on photography and the grid. Typical of the new Swiss approach is the presence of the grid being overstated in the text boxes with coloured backgrounds. This results from the influence of web graphics where in html coding it was once difficult to overlay images with text.

This ability to articulate a position is important to practicing designers, especially when faced with the questioning or criticism of the client who wonders why s/he is paying so much
for expertise that can not articulate itself; that can not readily express its own worth. The fact that this expertise is concerned with what is often seen as mere ephemera only compounds the designer's difficulties.

So, historically and quintessentially, the problem of the designer, in the milieu with the client is a problem of articulation: the designer cannot communicate with the client on a purely visual level. If the client was a competent visual communicator presumably s/he wouldn't need to contract the designer in the first place. The designer that can communicate verbally with the client, speak his or her language, as well as read and write visually, is therefore in a position of strength. The idea that design work is shrouded in magic as some kind of creative act (rather than analytical or based in research and development) or the designer is some kind of mystic given to divine inspiration may seem to have something going for it, but in the end, especially in a business sense, this leads to the kind of argument I put forward earlier: if the client is unhappy s/he can go to another designer: maybe their 'inspired' work will be more suitable: the client then becomes the one making the design decisions. If, however, the designer can articulate verbally (not just visually with the pitch) as to why a piece of visual communication looks the way it looks, to communicate what it communicates, then it becomes clear to the client what the designer expects to achieve, and clear to the client what s/he is paying for.

It's apparent then that a reliance on photography that has held sway with designers for at least 70 years is a reliance on the Swiss Method, albeit mediated through various design courses and text books in the western world. While type has been contested image has been left alone in terms of written theory. If we could examine what makes the visual system 'tick', perhaps we could give graphic designers a more generous vocabulary of design which helps them to articulate their decisions in terms of image choice as well as typographic choice.

A look at precedents and antecedents in this short history has, I hope, shown us just how much of graphic design's progress or lack thereof is down to technology. The limitations of technology and attempts to overcome these or to work within them, even revel in them as did the deconstructionists, and reactions against previous design approaches have informed graphic design aesthetics in the absence of image theory. Unless some understanding of image is gained (including an understanding that could also extend to type, as we shall see) designers
are condemned to reacting against previous movements or reacting to the new technology. Information design is clearly more focused on a didactic outcome for its visual communication. In this sense it has to be clearer about what it does. This articulation of a position is what will ultimately protect it from the vagaries of visual fashion. Wurman's coining of 'Information Architecture' was a deliberate gambit to distance 'serious' design from the shallow surfaces of its commercial mainstream. Illustration, in part marketed on its wistful appeal, seems to be less able to articulate its own strengths. But, if we know more about how images work in the first place, and given that information design is often comprised of drawn images, perhaps the two can be reconciled.
Nothing is less real than realism. Details are confusing. It is only by selection, by elimination, by emphasis that we get at the real meaning of things — Georgia O'Keeffe

Chapter 3: The psychology of seeing

I have established in the previous chapter that there has existed a preponderance of photographs embodying the image aspects of graphic design. What I now seek to answer is a question as to whether photographic realism which replicates the real world (including the rules of perspective and light and shadow) is the best way to communicate all visible aspects of the world to the visual system; the human eyes and brain. That is, does the photographic realism promoted by the Neue Schweizer Grafik (and refuted by very few parties since) really require "no effort to understand its message" (Müller-Brockmann, 1983, p.27)? On the face of it the reader could be forgiven for not being able to imagine otherwise. Surely the human visual system has evolved among the real visual world and is equipped to deal best with reality. It should stand to reason that any visual means that can replicate that world accurately (and photography has been repeatedly described as being able to do just that) is precisely the best means to communicate visual, non-textual information to the reading or viewing audience. Despite the fact that the major graphic design theory to have concerned itself specifically with imagery, The Neue Schweizer Grafik, endorsed exactly that viewpoint, there are several compelling and surprising reasons why this may not be the case. Of course the seasoned graphic designer may well say that image choice—not what is depicted but how it is depicted—depends on the audience and the subject being communicated. As a designer, I 'know' this too, but this does not stop me from being surprised, when I think carefully about it, that it should be the case that we can communicate with pictures other than realistic ones. Importantly, there seems to be nothing in graphic design theory to explain clearly why different images should be chosen; all we can see is that history—technology and politics—have lead to a preponderance of photographs in graphic design imagery.

Outside of graphic design, social and medical scientists have been concerned with this problem. Fussel and Haaland (1978) describe how they put visual tests (containing images of "common objects" such as a tree, people, a chicken, etc.) before some 400 Nepalese adults who were unused to pictures. The study was done in order to prepare materials for instructional booklets for illiterate villagers. The study group was shown 10 different things
presented in six different styles. These styles, from realistic to distilled, comprised black and white photographs; black and white photographs with background removed from around the subject ('blackout'); a line drawing with shading and internal detail (a 'three-tone' image); the same drawing without shading and with minimal interior detail; a silhouette; and a line drawing. Cumulative correct responses to all ten of the pictured subjects were as follows: Three-tone, 72%; Blackout, 67%; Line drawing, 62%; Silhouette, 61%; Photograph, 59%; stylised drawing, 49%. The authors conclude that:

the lessons to be learned from this part of the study would seem to be that the more detailed and realistic a picture is, the more effective it is. The so called 'simple' stylised drawings are evidently not simple in anything but appearance, making greater demands on the person trying to interpret them. (p.27)

However, the authors do not make special mention of the photographs, the most 'detailed and realistic pictures' in the sets as having performed the worst bar the stylised drawings. It is by no means a simple progression towards realism that will solve their communication problem since the most realistic of the image sets performed almost as poorly as the least realistic, and the best performing sets of pictures in terms of realism actually lay in between these two extremes.

I will begin my exploration of this issue by establishing that the human visual system, the brain and eyes working in concert, can see and understand things that are less real than anything it might naturally encounter in the visible world. I will proceed to explain how it is possible that a system, evolved through millennia of experience in the real world—looking upon and helping the human organism react appropriately to visual stimuli by which it has been surrounded—can understand non-realistic images, and further, and rather strangely, that it may even have a predisposition towards these. This explanation will take the form of some propositions regarding viewing over long distances, viewing silhouettes, and then an exploration of the psychological faculties of perceptual constancy and closure. Lastly, I will examine some recent findings about the visual system concerned with just how and what eyes see and then, through a study of the mechanics of caricature, how the seen images are stored and remembered.

Humans can see and understand the visible world in order to navigate through its physicality and respond appropriately to aspects of it as threats, opportunities or innocuities. Surprisingly though, the human organism can also see and respond to things that don't
appear as they do in the physical world but appear as simpler, distilled, abstracted or even exaggerated versions of those things. Even babies, shown a couple of dots and a line in the configuration of a face tend to spend more time viewing such an image than they would a 'non-face' configuration of the same marks, suggesting that such an image is understood as a face or at the very least something worthy of attention (Fantz, 1961; Morton & Johnson, 1991). Hochberg and Brooks (1962) state that the ability to recognise pictures of familiar objects is both universal and innate. In their study a baby of nineteen months never exposed to pictorial material could still identify from a picture objects familiar to it.

In this chapter I want to describe how the human visual system works. I want to do this because in understanding how it works we will see firstly how the visual system processes images that are less real than real, and secondly we might determine whether the visual system is on the lookout for real things or rather for things somewhat abstracted from the real. If the latter is the case, it might suggest that the real world is in fact a visual puzzle that the eyes and brain must solve in order that the human organism may function in the world. The workings of the visual system that I am concerned with, therefore, are those that relate to its understanding of objects and their placement in the visual environment.

Resolution and the retina: An introduction to the visual system

If the designer or design student is asked to list the principle tools of his or her trade, a likely response might include the computer and perhaps, more specifically, the software installed on the computer to enable the creation of graphic designs. If the designer of two decades ago was asked the same question they might include in their answer the drawing board, the technical pen, the french curve, and so on. Their answers should be the same: the eye and the brain, as these have always been the fundamental tools for creating and analysing graphics. In fact no tools beyond these are required except perhaps the ability to communicate with a client and write down instructions for a skilled worker to carry out the 'hands-on' process of design. The oft-advertised job of 'Mac Operator' would not exist if this were not the case, and as Lorraine Wild (1996) has suggested, in the future designers will more likely be the people with a vision and less the visualizers. While many contemporary graphic designers consider it necessary to become at least competent if not fully conversant with most aspects of a particular piece of design software in order to improve their creative efficiency or simply to avoid unnecessary
pitfalls in production, it more rarely occurs to them to do anything other than take the brain and the eye for granted. This attitude is not confined to graphic designers of course, but rather is an attitude about vision. As R.L Gregory has said, “We are so familiar with seeing, that it takes a leap of imagination to realise that there are problems to be solved” (1977, p.9). In a similar vein, W.J.T. Mitchell, on the problem of vision seeming effortless, states, “The point is to defamiliarize vision, which is difficult to do because it strikes us as transparent, self-evident and natural” (2008, p.26). For the graphic designer, a proper understanding of the seeing functions of the eye and the brain, might reveal where to use particular kinds of images, particular modes of visual communication and, specifically, what degree of representation to use in rendering a graphic image in order to accurately impart the intended message. There are many graphic design how-to books which instruct the reader in the use of the computer to draw, manipulate photographs and execute layouts in order to get artwork ready for press or the computer screen—though, importantly, these do not explain where or why we should use photographs or illustrations, merely how to execute their transfer from scanned digital image or from virtual object-oriented or vector art to printed dots of ink. However, when it comes to understanding the eye and its complex relationship with the brain in an effort to improve our design skills, it is necessary to look beyond the design discipline to the fields of psychology and physiology.

Clearly without the eye and brain receiving light information from our computer screens or our sketch pads, there can be no graphic design. But what must be understood is that the computer screen or the printed page or the projected video image are showing us mere analogues of the real world and it is our eyes that pick up these images and our brains that tell us what to make of them.

Disintegration and re-integration
In the case of the computer screen, the images are comprised of a series of sub-pixel cells which filter light through the screen (or a series of phosphors glowing at the end of a tube in the older CRT screens). Each of these cells shows only one of three colours, red, green or blue (RGB) at differing intensities, or altogether absent, in order to create an illusion of all the colours and tones available in nature. While the RGB model can never hope to fully cover the gamut of the real world, more limited still is the colour printing process. This process uses
dots of ink of varying sizes made up of one of four colours: cyan (cool blue), magenta (cool, pinkish red), yellow, and black (added to create contrast, specifically in the reproduction of photographs) and is referred to using the abbreviation CMYK. The colour range available in this process is less than half of that available in the RGB colour space ("A Guide to Color Separation", 1995).

As we will learn however, the eye has an amazing facility to calibrate itself to all kinds of conditions regarding the amount and colour of the available light. The point is that with the projected or the printed image, it has been necessary in the invention of devices which output such images to find the most economical path for reproduction, hence these outputs are made of as few colours as possible—different sets of primaries depending on the nature of the colour space—and composed of dots, each showing one of only three or four colours depending on the colour space. It is important for the designer to realise that this is the case: that the brain is capable of reconstituting an image that has been disintegrated to tiny fragments. The designer must know this in order to set limits on when and where this is no longer the case: when is an ink dot too big or the gap between dots too wide to allow comprehension? At what stage does the brain fail in its reintegration process, when does communication begin to break down?

In order to answer these questions it is necessary to know how the eye and the brain do what they do. Sensory transduction, that is, the conversion by the nervous system of the patterns of physical energy into neural events or bioelectrical signals at sensory receptors (Sekuler & Blake, 2002), takes effort and energy to accomplish. Reintegrating an image into some coherent whole when it has been presented to us as an assemblage of fractured dots requires the work of both the brain and the eye, and depends on many factors including the experience of the individual viewer, and their developmental age. The brain contributes to the process through what it has learned of the visible world: it will find objects, be they people, animals, buildings, trees, wherever they may be, and often where they are not but are merely suggested; in a cloud, a stain on a table cloth, a crack in the pavement. To varying degrees, depending on the dots or pixels reproducing a picture, the eye facilitates the task for the brain. Due to a phenomenon called 'optic mixing' the eye gives certain information to the brain that, under (literally) closer inspection would appear entirely otherwise. This is
effectively how three hues (RGB) at varying intensities can appear as millions of colours, and four printers' primaries (CMYK) in different proportions can show us thousands of colours. The eye captures the image at which it has been directed by the brain to look. The image is focused through and by the lens on to the retina at the back of the eye. The retina receives a small inverted image on to what R.L Gregory (1977) describes as a dense mosaic of light sensitive receptors, which convert the patterns of light energy into the language the brain can read—chains of electrical impulses.

The key here is that the retina is comprised of a kind of mosaic, each tile of which is the light sensitive end of the cones and rods of our eyes, in other words a finite number of components arranged across a finite area. If the image we are looking at (in the case of screen or print) has been disintegrated into a field of dots of a certain resolution fine enough for the dots to avoid easy individual detection by the resolution of the retina, the phenomenon of optical mixing happens comfortably, so that we see in a printed image, for instance, an area of purple where in actual fact exist only dots of magenta and cyan in certain proportions. How does this retinal resolution affect looking at the real world? Aside from the phenomenon of optical mixing, the limited resolution that the retina provides means that only a finite amount of detail can ever be given by the eye to the brain. We look at different visual stimuli in different ways and, importantly, at different distances from them. In the cinema we sit well back from the screen, partly because it is so large and we want to be able to scan our eyes comfortably across its entirety to comprehend all the action, but also because the detail is not such that we need to be close: there is rarely any reading of text required for example, and when there is, such as a note scrawled on a page or the subtitles for a foreign language film, these are provided in a font size the equivalent of several hundred points in height.

Reading text from a page, on the other hand, is a different matter. While we still need to be able scan easily across the whole surface of the open pages in a book, we must be sufficiently close such that the fine detail of every word shape is clear to us in order to comprehend the thrust of the text. Now it is not the case that if we push the book further from our eyes we see exactly the same image but smaller. Beyond a certain distance particular details begin to go missing, even with good eyes! It becomes difficult to make out whether a lower case 'a' is an 's' or an 'e', whether an 'r' is not an 'i'. If we move still further away only the lines of text
reveal themselves, perhaps with some clear 'rivers' running vertically or diagonally here and there. Further away the page seems to hold a grey rectangle or, further still, be composed merely of a pale shape. This is not a result of poor visual acuity or lack of focus: Even if we can focus accurately on the page at distance, the retina is simply incapable of recording more information beyond its limits.

The importance of being distant
How might this limited resolution affect the way we relate to the seen world or, in terms of graphic design, how we relate to depictions of the seen world? What are the effects on the human organism of looking at realistic images versus something more distilled? If images are capable of providing different levels of meaning (emotional or intellectual impact) depending on how realistically or not they are depicted, how can it be that, as an organism, we have evolved to the level of perceiving this difference if image-making is only some few thousand years old? If the phenomenon of different emotional or intellectual impacts from different kinds of rendering exists how can it be for biological reasons? Surely nothing in nature has less reality than reality: The physical world consists only of physical stimuli or rather, for our purposes here, consists only of things looking the way they look and not as simplified versions of themselves.

The effect created by limited resolution, of course, is not limited to the reading of text but to anything capable of being viewed over distance. If we look at a person across the room for example, no doubt they will be easy to recognise if we know them. If we don't know them, the fact of not knowing will be equally easy to establish. However, view that person facing toward us from a distance of a few hundred metres and the ability to recognise them becomes fraught with error. Essentially, the main means of recognition, a good look at the face, is denied us by the limited abilities of our eyes at this distance. The ideal viewing distance for human stereopsis (binocular vision) is six metres, or 20 feet in imperial measurement; hence 20/20 vision (Eden, 1978, p.205).

Even with perfect 20/20 vision the information that our retinas can send to the brain is too limited. It is not that we see all the details of the face only smaller now. In fact certain details have 'fallen away' altogether. The whites of the eyes will not be apparent, nor their colour, what may be visible is an area of darkness across the middle of the face suggesting the shadow
of the brow as much as the presence of eyes. If the mouth is closed it will likely disappear as will the nose. The length of the chin or the depth of the forehead may be difficult to discern because these easily blend on our retinas with the blobs of colour where the neck and hair would be respectively. The image presented to us is less than the ideal needed for recognition: some of the details are literally missing because of the limited capacity of our retinas. In a sense this reality is less real, the image of the person at this distance is less representational than when they are in the room with us. The possibilities regarding who we are looking at are greater. Is this then, nature's form of the less representational image?

In such a circumstance, we must call on other visual criteria for recognition. If we are quite familiar with the person we might recognise the cut or the colour of their clothes. Since a person may easily change these however—and colour, as stated above, is itself subject to the laws of optical mixing if its details are small enough or far away—more indicative of their identity might be the way they move. We can best judge the identity of this person now, not on the recognition of their face but on how they move, upon their actions: In other words, by what they do. The way the coloured shapes on our retinas, that we recognise as the person's limbs, move around may tell us enough to narrow our hypotheses regarding this person. The important matter to note is that we have begun to look at the person differently because we don't have the ideal information available for specific identification via 'a good look at the face'. We are behaving differently because of the level of representation of the image; the image now means something different. It just may be then that at different distances we see the person differently. Up close we recognise them or recognise that we don't know them, we can read their facial expressions and better understand their mood and motives. As they get progressively further away, other factors come into play, and when they are far removed our decision making may be more in the order of 'is it a man or an animal? Is it an animal or a rock?3 These responses may go some way to explaining the workings of the 'realism continuum' more in terms of visual perception.

3. Paul Ekman, well-known for his study of emotion evidenced in facial expressions found that smiles can be seen from furthest away (300 feet) and with a briefer exposure than other emotional expressions (Ekman, 1985, p.149).
The silhouette

Another aspect of the visible world that could allow for the visual system to have evolved to understand less real than real images, is the silhouette. Depending on conditions of ambient light, the naturally occurring image of some person, creature or aspect of the landscape may appear as a more graphic shape than it would under conditions of, for instance, noon-day sunlight. If the sun is setting or rising behind the object or creature being looked upon, that object or creature may appear as a more or less dark shape with no interior detail or contours. Not only is the ability to recognise the specific person or thing diminished, but information regarding its three-dimensional shape will be lost to the eyes and must be made up where possible by the brain, presumably from memory. With regard to a hypothesis about a silhouetted person, this may not be too difficult. Stance, gait, profile, relative size of head to body and so on should give good clues as to age and sex and even build if not specific identity (see student case studies, Chapter 6). The silhouette of an unfamiliar object will result in a greater range of hypotheses, and lengthen the odds on one of these being the correct one. A silhouette may indicate then what kind of object we are looking at but not easily allow us to solve what psychologists call the homogeneity problem: which particular object are we looking at? I will address this question below.

The silhouette then is another way that real images can be distilled down from reality, that is, have their realistic detail reduced. It is for this reason that I believe that some of the image theorists I examined in the Literature Review have it wrong with regard to the position of the silhouette on the realism continuum, after all, it is only the light, or more specifically the positioning of the light that creates the simplification, and not necessarily some other more considered means of reduction. In A Short History of the Shadow (1997), Victor Stoichita explains that, historically, the silhouette has been regarded as a kind of hyperreal measure of the person or thing silhouetted. In my Chapter 6 student case studies I give design students the opportunity to place the silhouette for themselves on the continuum, with some interesting results.

Simplest is best

These propositions, that things viewed from a distance and things viewed in silhouette provide the viewer with a 'less real than real' version of what they would stand for at an ideal
viewing distance under ideal lighting, can only be completely satisfactory as an explanation if the viewer knows what kinds of things these are s/he is looking at. Otherwise these less real looking things would potentially be regarded as novel to the viewer, presenting to him or her, as they do, differently on the retina than would a closer and more ideally lit version respectively of those same things. Thanks to a group of faculties of the visual system, under the name of perceptual constancies, the brain knows what the eye does not: That the thing that presents differently to the retina whether close or far away is in fact the same thing. In fact these mental faculties, which override the purely visual faculties, prevent us from mistaking novel presentations on the retina as novel objects because these faculties are unconcerned with specific information. These faculties are not present to acknowledge reality but rather to help us avoid being fooled by it! Which is to say that the visual system, even when abroad in the real world, is not merely accepting of what presents on the retina, but measuring that presentation against what the brain knows of objects in the world. We will see the importance to communication of pertinent views in Chapter 4. Gombrich (2002, p.5) uses a perfectly simple but surprising example that helps explain,

It is a fascinating exercise in illusionist representation to trace one's own head on the surface of [a steamed-up bathroom] mirror and to clear the area enclosed by the outline. For only when we have actually done this do we realize how small the image is which gives us the illusion of seeing ourselves 'face to face'. To be exact it must be precisely half the size of our head. I do not want to trouble the reader with geometrical proof of this fact, though basically it is simple: since the mirror will always appear to be halfway between me and my reflection, the size on its surface will always be one half of the apparent size.

What we learn is realistic in an image is not actually the case anyway because these constancies show the brain (cognition) overriding the eyes (our anticipation) time and again. The image on the retina is not taken at face value, if I may be excused the pun, it is mediated and interpreted by the brain. How then, does the brain, or visual perception, decide that when the eyes, or visual sense, are telling it something it has never seen before, that it may in fact have seen that thing before but from another angle? Gombrich says, "the Gestalt psychologists are fond of demonstrating that we select the simple configuration even where there is no question of our knowing such shapes from experience" (p.222). He goes on to tell us that:

it to probe the visible world we use the assumption that things are simple until they prove to be otherwise.

[...] the assumption of regularity is of the utmost biological value. A world in which all our expectations
were constantly belied would be a lethal world. Now in looking for regularities, for a framework or schema on which we can at least provisionally rely (though we may have to modify it for ever), the only strategy is to proceed from simple assumptions.

This position is in agreement with Popper (1959) who maintains that the mind is likely to select the simple proposition not because it's most likely to be right but because it's the easiest to refute and therefore to modify.

The mechanisms which enable object hypotheses are put by psychologists under the heading of 'perceptual constancy'. Shape, size and colour constancies are aspects of this mental faculty. To better illustrate the importance of this faculty for visual understanding I will look briefly at each.

According to Perceptual Constancy: Why Things Look as They Do (Walsh & Kulikowski, 1998, p.492) size constancy means that a given object is perceived as having the same size regardless of its distance from us. In other words, our knowledge of its size will override its presentation on the retina (as per Gombrich's face in the mirror experiment above). Shape constancy means that an object is seen to have the same shape regardless of orientation. Thus we see things "as they really are" and are not taken in by variations in the information presented to the retina. Colour constancy means that an object is perceived as having the same colour in spite of changes in lighting conditions. This connection between the two visual versions of the same thing is what allows us to see the less realistic as having a relationship to the more realistic. Or rather, the less detailed can stand for the more detailed but perhaps in a more general way: the detailed version may be someone we recognize, a singular, specific person; the less detailed, distant version we may simply regard as 'a man' or 'a person'. The same would apply for the ideally lit figure and the silhouetted figure respectively. These faculties tell us that the real visual presentation of an object upon our retinas must be matched against existing information about these, or similar objects in our memory in order for us to identify them. Implicit in this is that the knowledge already gained of the world exists in some kind of visual form (which we will get to in the caricature section below) that does not precisely match any 'real' visual version of such an object since the memory will contain a range of information from different viewpoints and under different lighting conditions.

R.L. Gregory (1990, p.115) explains that an object-hypothesis cannot contain information on scale, distance or orientation because objects can be in any orientation in relation to the
observer. This implies that they must normally be scaled to fit the prevailing situation, by current sensory data. So we may suppose that they represent typical views and sizes, these being modified by available sensory information during perception. As Gombrich elucidates, "We look out into the world with the confidence that this thing out there will be more likely to change its place than its shape and that its illumination will vary more easily than its inherent colour" (2002, p.230). In other words, if the scale and colour of objects as they present on our retinas are not that vital to our understanding of the real world, and in fact these can be visual problems for the brain to overcome merely to function in the world, then their precision might not be so important in all pictures or in visual communication.

Visual closure

Perceptual constancy, as a psychological faculty, is enough to allow that the visual system understands less visible versions of things as being the same as ideally visible versions of those same things. Along with 'closure' (Rauschenberger & Yantis, 2001), the gestalt ability to group things and to assume patterns and finish half-glimpsed objects in the mind, it becomes an even more compelling argument. Closure is, Kepes tells us, "Certain latent interconnections of points, lines, shapes, colours and values [which are] closed psychologically into bi-dimensional or tri-dimensional wholes" (1944, p.51), where the viewer will 'fill in the gaps'. The faculty of closure does not have to reside in an ability to complete objects in the mind only when they are occluded. Rather it manifests itself also in an ability to complete objects whose detail is only partly drawn, as if occluded but by some invisible artifact that merely removes some pertinent details from the object being viewed. This may have something to do with the 'spotlight' or 'zoom lens' principle, examined below, which allows that the visual system may focus on a small aspect of what's in front of it and effectively disregard the rest. This would seem to allow that the 'invisible occlusion' that may exist in a drawing where detail is absent, be written off by the visual system as something not being focused upon. It is the object of attention that is important, along with solving the object constancy problem.

Drawing an image with the correct proportions but with little detail involved actually asks the reader to imagine the missing detail; to fill it in with their mind's eye. We've already seen that we can't help but make a face out of two dots and a line (E-mail sign offs are a case in
point here and are an object of study in Chapter 5). This is the quintessence of Gestalt; seeing the whole from the part. The fact that this occurs in the human psyche means we can allow for the reader or viewer to complete very much of what's presented to him or her. This faculty of vision allows the designer to create, for example, pictograms as greatly distilled equivalents of the objects they represent and for the viewer to understand them as such. The ability to group objects because of their similarity, closure and figural goodness are argued by gestaltists to be innately human abilities. That is, we do not need to learn these abilities, they pre-exist learning. Learning about new objects is facilitated by these abilities (Wertheimer, 1938).

Together, these faculties of perceptual constancy and closure show that we can communicate visually with images that are less realistic than the real aspects of the world. However, they do not prove that distillation is a more effective means by which to communicate or that humans may have a predilection for the distilled image. But they at least suggest ways for the visual communicator, with some scientific backing, to reduce detail in order to approach Beryl McAlhiney and David Stuart's (1998) concept of graphic design as a ball thrown and a ball caught: the visual system can fill in detail and work visual problems out. It should be allowed to do so in appropriate situations in order to better engage with the graphic design it is viewing. This is exactly what Gombrich was endorsing when he talked about 'simplification' facilitating the beholder's share.

Two fairly recent findings of the psychology of vision are what we need to examine in order to argue the case that the visual system might prefer less realism and less detail. The first of these will show that less realism is what the eye sees and the second will show that less realism is, rather perversely, what it prefers.

In order that our brains might better apply these models of perception—the constancies and closure—especially among all the distractions of the real world, there exists in the field of psychology conjecture about being able to focus eyes and brain on only a small part of what is before us:

Focused visual attention resembles a spotlight or zoom lens. According to the zoom-lens model, visual attention is directed towards a given region in the visual field. However, findings relating to split attention and object based attention suggest that this may be an over-simplified view of how visual information is selected for attention. Much research has been carried out looking at what happens to unattended visual stimuli. The general view, supported by studies using fMRI, is that unattended stimuli receive a reasonable amount of processing but less than attended stimuli. (Eysenck, 2004, p.198)
It may be that this ability to process some aspects of the visual world more thoroughly than others allows for aspects of the visual world with less information in them to still be understood: that we are receiving them, perhaps not as accurately delineated objects and textures, but more as general shapes and colours. At the very least, this proposal allows that we can tune out aspects of the landscape: we can reduce the noise in the whole scene to focus on a specific aspect of it. In fact, it is only the central portion of the retina that can pick up detail anyway. Towards the outer limits, the older, less evolved parts of the eye, unconcerned with colour or detail, send signals to the brain only upon the detection of movement: parts of the ‘visible’ world become visible only when they move. More on just what the eye takes in, later in this chapter; for now, this ability to tune out parts of the visible world would seem to reflect what may be done for a visual audience through illustration. The illustrator or designer making such an image can make conscious decisions about what to remove and what to keep in order to communicate the core of the message. Of course, this may be achieved through photography, especially with the current image manipulation tools available to mask areas, crop images, amplify colours and so forth, but then doing all those things is doing precisely what I am interested about here in this thesis: departing from realism. Typically though, as Peter Galassi, Chief Photography Curator at New York’s Museum of Modern Art explains: “The photographic medium itself doesn’t care what’s important and what’s not, so if you point it at something you think is important, it’s going to register all the unimportant stuff around it with just the same precision and fullness” (Kirby, 2007).

Gestaltists have identified that we need to delineate before we can recognise. This is a crucial point to make: If noise—or reality captured somewhat indiscriminately in a photograph—hinders the delineation process then recognition is delayed. Distillation—the removal of noise before the sensation of the image is received in the eye—might improve delineation and therefore speed recognition and understanding of a visual communication. The reduction of visual noise in turn allows changes in other visual qualities, such as an increase in contrast between figure and ground, which may also enhance easy recognition.

In other words, the visual system, in an attempt to focus on what it sees as the pertinent visual problem to be solved, can, with some concentration, ‘tune out’ the visual noise surrounding the object being gazed upon. This begs the question then, in graphic communication where
we want the reader to respond in a particular way after they have deciphered the visual message, why not help solve the problem on his or her behalf by tuning out the noise rather than re-presenting the noise in the indiscriminate frame of a photograph?

The designer sometimes wants to create visual puzzles for an audience to solve, perhaps in the hope that engaging with the image helps retention of the message, or to provide them with a small sense of achievement once they have ‘solved the puzzle’. In either case, this understanding of what the brain applies to vision will help.

Eye and brain doing different things

Of course there exists a second possibility regarding the non-representative nature of nature. Despite existing of itself as appearing as realistic as possible, we, the human organism, simply do not take in the world in a representational manner. Even if we do, having taken it in, we might store it in codified and simplified ways that are not strictly representational. I will expand on this using reference to recent perceptual science discoveries about visual edge detection, rejection of large areas of flat colour, and the eye sending multiple different kinds of ‘movies’ to the brain.

According to the perceptual constancies discussed, the eye and brain do different things. This is also what those very engaging visual puzzles and optical illusions show us, such as the Müller-Lyer and Sanders Illusions (see Figures 26 and 27). According to recent studies on the eye, the images sent to the brain are not ‘photographic’ in the first place, or even very detailed at all. Without any optical trick being shown to the eye, the eye and the brain are ‘seeing’ differently anyway.

Figure 26: The Müller-Lyer Illusion suggests that the vertical line on the left is longer than the one on the right even though they describe the same visual angle on the retina.

Figure 27: The Sanders Illusion uses angle to suggest that the red line at the left is the longest. The red lines are in fact the same length: the brain is over-riding the eye.
The 12 pictures proposal

It is known (from experiments conducted by Hubel and Wiesel to read the activity of single cells in the visual cortex while presenting various stimuli to the animal's eyes) that certain brain cells are stimulated by certain patterns and by certain orientations of line, while other brain cells are stimulated by different orientations (Hubel and Wiesel, 1962, p.106). More recent research at Berkeley University by Roska and Werblin (2001) has suggested that the eye only gives very basic information to the brain and the brain fills in the rest of the detail. The retina converts light into electrical impulses (the language of the brain). Some of these electrical messages are given only when the retina detects the edge of an object, others only when something is moving, others still only when something is seen to stop moving. In the study pictures, including squares and moving spots, were flashed in front of a rabbit's retina while the electrical output of the retina's ganglion cells was measured. What the eye sends to the brain, according to this research, are mere outlines of the visual world, sketchy impressions that make our vivid visual experience all the more amazing. "Even though we think we see the world so fully, what we are receiving is really just hints, edges in space and time," according to Frank S. Werblin, Professor of Molecular and Cell Biology in the College of Letters & Science at the University of California, Berkeley. "The brain interprets this sparse information, probably merging it with images from memory, to create the world we know".

Botond Roska, M.D., and Werblin (2001) provide evidence for between 10 and 12 output channels from the eye to the brain, each carrying a different stripped-down representation of the visual world:

"These 12 pictures of the world constitute all the information we will ever have about what's out there, and from these 12 pictures, which are so sparse, we reconstruct the richness of the visual world," Werblin said. "I'm curious how nature selected these 12 simple movies and how it can be that they are sufficient to provide us with all the information we seem to need. ("To See, Brain Assembles Sketchy Images", 2001)"

In addition to their findings, a study published by the University of Texas at Austin (Geisler & Diehl, 2002) found that the visual system "is more sensitive to vertical and horizontal contours than to diagonal contours, perhaps reflecting the natural distribution of contour orientations" (p.421). They are arguing that the visual system is best equipped to deal with things it is statistically more likely to find in the natural environment, but again, in broad
terms, not on a level of intricate detail. Any picture which plays to these bigger, hard-wired visual themes is perhaps more likely to 'score a hit' on the visual system. If the eye really does work in this way, do distilled images better fit this model than the real world, giving the eye and brain, in effect a higher-impact version of reality? Pursuing illustrations that remove some of the visual details found in the real world, on the one hand might better allow closure and on the other create scenes that can powerfully seize the attention of the eye and literally excite it.

While the eye is reacting to the visions in front of it, and has a major role in delineating objects from background in order that the brain may understand its surroundings and have the organism respond appropriately, the brain is working to categorise those things the eye is delineating; As with the gestalt processes then, the mechanics of the eye are set up in such a way as to allow the brain to fill in the necessary information. The more it learns, the better it is at filling in the gaps but the system that allows this seeing to happen is already in place in the same way that innate gestalt abilities pre-exist the ability to read but yet influence this ability.

These recent discoveries only seem to confirm the generalist and abstract way the brain works in determining what belongs with what; Broader concepts such as shape and colour are paid most attention while less is given to fine detail. Detail seems to come into play close up, perhaps because by the time we have allowed something to approach us we have already determined, through these more generalist faculties whether or not that thing poses a threat or an opportunity.

Caricature, evolutionary psychology, and the visual system

I have explored the idea of an image being less real than real as a function of distance. I have looked at the concept of closure allowing the mind to complete a picture without all the pertinent information. Together, these concepts give us some strong evidence that the visual system can and does make meaning from less than realistic images; more accurately, from images that have been distilled or reduced somewhat from the detail of reality viewed under ideal conditions at ideal distances. The 12 Pictures proposal only seems to confirm that the brain is doing work that the eye does not, and that the eye is not even registering the kind of detail we associate with pictorial realism. However, none of these hypotheses explains a
more bizarre faculty of the visual system: It has the ability to recognise people from a picture not necessarily poor in detail, but a picture whose important details have been exaggerated. This kind of image, best known as the province of the political cartoonist, is the caricature. Brennan defines caricature as:

a graphical coding of facial features that seeks paradoxically to be more like a face than the face itself. It [...] amplifies perceptually significant information while reducing less relevant details. The resulting distortion satisfies the beholder's mental model of what is unique about a particular face (Brennan, 1985, p.170)

To recognise an object, for example to distinguish a chair from a table, we must be able to map a potentially infinite set of images onto a single object representation, that is, we must solve what psychologists know as the object constancy problem. However, to delineate one type of chair from another, or more importantly, to delineate one face from another is a different problem for the visual system. Psychologist and face recognition expert, Gillian Rhodes explains:

in order to recognise faces and other objects that share a configuration (birds, dogs, cars, etc., our visual system must find a way of representing the subtle differences that distinguish such similar objects, i.e. it must solve the homogeneity problem. [...] We know that the visual system has solved these two problems [object-constancy and homogeneity]. After all, we routinely recognise familiar objects from different viewpoints and homogenous objects such as faces. What is less clear is how we solve these problems. (1996, pp.2-3)

Through a study of caricature and its paradoxical ability to render a person more recognizable than the person themself, Rhodes explains how the visual system in concert with cognitive apparatus allows the brain to map new visual input against stored 'norms'. These norms exist for whole ranges of visual information and are expanded upon with further experience of the visual world. Where the new visual information differs from the norm, the mind appears to store these differences in a form exaggerated beyond their actual appearance. For example, if a person appears different from the norm because their eyes are closer together than is normal ('normal' being defined by the different visual experience of each viewer) the brain will exaggerate this difference further still by pushing the eyes closer together in the stored memory of that person (Figure 28).
In addition to this mental exaggeration of 'trends away from the norm', Rhodes explains as a somewhat more radical concept, that the visual system and the 'psychological landscape' to which it is linked, is actually predisposed towards and on the look-out for extreme visual signals; visual stimuli that are outside of the norm: "Extreme signals [those that do not usually occur in the natural world] are more noticeable, more discernible, and/or more memorable than less distinctive ones" (1996, p.9). She argues that:

Stimuli that exaggerate some critical property of the natural stimulus, such as its size, contrast or number, often produce an enhanced response [...] This preference for extremes seems to be a fundamental feature of recognition systems, and one that imposes important constraints on the design of signals. (p.10)

Here Rhodes means 'design' in the sense of natural selection but the same might hold true for the human activity of design: exaggerated signals (those that do not naturally occur and are therefore not easily reproducible through photography) actually might communicate more immediately to a visual system predisposed to look for them. According to Rhodes, the ability of the human mind, in some cases, to interpret and understand exaggerated drawings better than photography "raises an even more intriguing possibility. If drawings can be interpreted as externalisations of mental representations, then [...] those representations might themselves be caricatured. If so, then caricatures would be effective because they match the memory representations better than undistorted images" (p.11). Annibale Carracci, the 16th century artist, believed that, "A good caricature, like every work of art, is more true to life than reality itself" (cited in Geipel, 1972, p.56). As Gibson has said, a caricature "may be faithful to those features of the man that distinguish him from all other men and thus may truly represent him in a higher sense of the term. It may correspond to him in the sense of being uniquely specific to him—more so than a projected drawing or photographic portrait would be" (1971, p.29)
Other experiments involving visual exaggeration suggest that things other than faces and body parts may be ‘caricatured’. While there exists a dispute within the highly specialised face-recognition fraternity, of which Rhodes is a part, as to whether the human brain has a specific module devoted to recognising human faces, Rhodes is of the belief that no face-specific recognition module is evident. She maintains that it just so happens that most people do exhibit expertise in face recognition simply because such a faculty is necessary for the function of a social species:

Despite the plausibility of the idea, however, there is no evidence for a processing system that deals exclusively with faces. In particular, the coding of relational information that is so important for face recognition is not unique to faces [...] suggesting that expertise is needed to use relational features [perhaps explaining typeface recognition among typophiles] presumably because subjects must learn which ones are relevant for the class [...] Therefore, faces may be special, but probably because they are unusually homogenous. (1996, p.7)

But she goes further to suggest that specialist visual expertise can extend to recognition of any objects that may be discriminated by difference from a norm: That, in theory, any object may be caricatured. The criterion seems to be that such a group of objects has a norm, real or imagined. To each of us these norms will be different. For those of us that work in specialist areas it might be easier than for others to conceive of a norm for, say, nuts and bolts, dresses, cars or typefaces.

A visual ideal
All this talk of an essential image that exists outside of either its corporeal embodiment or the realistic capture of that embodiment through photographic means seems to be redolent of Plato: representative imagery, the realistic picture, might merely be a shadow on the wall of a cave while its essence lies elsewhere. For our purposes here that essence resides in the human mind. As Gregory suggests, it is the object hypothesis that the artist communicates with. Using typical views drawn from somewhere within. This object-hypothesis then must come from memory. Those images of similar things that enable this object-hypothesis may be stored as caricature. With an awareness of the mind’s faculty for caricature, the designer might then caricaturise or anticaricaturise—visually drive the differences back towards the norm rather than away—the object or person towards a desired effect.
How does this information help the graphic designer?

My analysis suggests that an understanding of these workings should be at least as important to the graphic designer as an understanding of the other tools of trade, such as graphics software, typographic rules, etc.

In conclusion, using the realism continuum with a photograph at one end and a pictogram at the other, we could say that a photo does not necessarily eradicat eengagement with a graphic. It may enhance it when used appropriately or result in engagement through confusion where its use is inappropriate (as in my introduction where the picture of the woman made students ask a raft of questions specific to the circumstances of the person). But we can confidently say that level of realism is an important consideration with regard to image and may even be an appropriate measure by which to quantify and classify image for graphic designers.

The silhouette idea might allow that we can see outlines as very realistic in spite of a lack of interior detail. In this way, we have drawn into question the order of some of the realism continuum steps identified by Wileman and Meggs as shown in the Literature Review. There seems to be at least some precision in silhouettes that can be associated with identification, owing to the fact that they can derive from lighting conditions, and not from other more considered means of distillation. Their proximity to realism suggests that silhouettes might be perfect vehicles for showing a serious message and at the same time removing confusing visual clutter.

The perceptual constancies tell us that there exists a mental connection between the two visual versions of the same thing: that allows us to see the less realistic as having a relationship to the more realistic. Or rather, the less detailed can stand for the more detailed but perhaps in a more general way: the detailed version may be someone we recognize, a singular, specific person; the less detailed, distant version we may simply regard as 'a man', 'a woman', or 'a person'. The same would apply for the ideally lit figure and the silhouetted figure respectively.

The gestalt notion of closure as an innate faculty suggests that we can complete unfinished images before us, and also group like objects in a scene or on a page. Of course we must learn things through experience, but the gestaltists suggest that these learned things slot into the
pre-existing ability and are enabled by this ability. For example, it is clear that we must learn in order to read. But what we are born with is the ability to understand that a group of black shapes (for example, on a piece of paper) clustered together and separated out from similar groups by a space appear to belong together. This is one of the reasons typography must conform to visual rules of gestalt in order that we know what to read next. These applications of visual rules to typography are explored in my final chapter as a means to relate this study to graphic design as a whole.

In summary

In addition to what I have proposed in terms of seeing things over distance, the work of Werblin and Roska et al, in the 12 Pictures proposal, suggests that the eye is not that concerned with detail. Detail is more a function of the brain (at least once the interior detail and texture of a range of objects has been learned, initially through sight and touch.) This might then provide a further explanation for the utility of the realism continuum as a useful model for image makers and visual communicators: If the eye is gazing upon an object in close up, the details, colours, outlines, and so on, are all readily apparent. Individual details even will be, themselves, objects within objects, with their own outlines, colours and contrasts with their immediate surroundings within the larger object. Here, there is little for the brain to do relatively speaking in terms of interpretation. That same object, if first seen further away will contain less in the way of detail, texture, colour information, less edges-within-edges and so forth. The brain is then called upon to fill in those blanks regarding texture, detail, direction, and ultimately, identity. The brain in this situation is calling for more energy to bring to the problem of visual recognition. The eye, relatively speaking, is now doing less work simply because it has less to work with. As a theory as to how the visual system interprets what is laid before it, this then would begin to explain why we see things differently over distance. It explains why, without the effect of distance, if we remove detail from an image—as we can do in illustrative or diagrammatic image making—the brain begins to respond differently to the same subject matter rendered with less and less levels of realism. This in turn explains why the realism continuum as a model of visual understanding has such utility and is such a useful starting point for understanding image choice in a more quantifiable way.
The aspect of the image spectrum model that needs more work in light of these recent discoveries about the visual system, is just what kind of image goes where on the spectrum. To this end I asked design students to propose the positions on a realism spectrum of a range of different pictures made of the same subject (Wileman's shoe) using different levels of realism. The results are shown in Chapter 6.

Given that a designer is often communicating to a wide audience (economic imperatives most often dictate that the designer's client is trying to reach as wide an audience as possible to inform and persuade about a product, service or event) s/he needs to be especially adept at the object constancy problem, specifically what attributes of the object make it different to all other objects. To help solve the object constancy problem on behalf of his or her audience, the designer should be adept at showing typical objects of that class from pertinent angles. However, once a designer hones in on the type of image or images to use in a particular promotion, a decision should be made about what particular example of that class of things to portray. The designer must decide whether the object will be typical or atypical depending on the nature of the communication. In order to do this, the designer must be aware, consciously or by instinct, of the homogeneity problem. It is my conviction that a conscious awareness of the problem is best since, in my view, design is about decision making for effective communication, and less about artistic expression. Caricature, as a process of image making would seem to be an appropriate and useful skill to obtain for visually solving this problem. In Chapter 5 of this thesis I use particular exemplars, related to these different psychological faculties, that illustrate the points so far discussed.

In closing this examination of the psychology of seeing, we can say that we are able to see things presented to us in less than realistic ways. Not only do we relate them to real things, we might actually prefer these distilled versions and possibly store them better in memory because they are already put into the form in which the memory stores them. Finally, we have seen that photography might not even be the best means for capturing realistic and specific things, since caricature seems to have the potential to do this better in terms of viewer retention.

Returning to the realism continuum model examined in the Literature Review, we can say that this model helps us to solve the homogeneity problem at the more specific or realistic
end (the difference between Tom Dick and Harry, or between an Eames chair and a Breuer chair. At the other end of the scale, the less real end, it helps us sort out the object hypothesis problem; is this a man or a dog, a chair or a table?

Fussel and Haaland's (1978) Nepalese study results might even suggest the following order as a 'recognition continuum' in place of the 'realism continuum': beginning with the most easily recogniseable the order would seem to be, line drawing with shading and internal detail; photograph with background removed; line drawing; silhouette; photograph; stylised drawing. As Shaw (1969) found, attempting to communicate with too realistic an image raises its own problems: "the degree of identification becomes too specific" (p.7). Shaw showed that a tendency already exists for the less visually literate to seek specificity in even non-photographic depictions of humans. It seems to me that where photography is used and a specific person is captured, where specificity of that character is not the intention of the communication, this problem of seeking specificity will only be exacerbated.

It is here that we pass from the problem of representation to the problem of communication, which will be the focus of the next chapter. This is an important problem for us since we are concerned with 'communication' and not simply 'representation' of the real world. These are two different outcomes of images that can work together in certain communications, but in others may be at cross-purposes. As we will see in Chapter 4, communication is not simply about pointing at things, but that is one of the tasks of representation.
Chapter 4: Information design

Introduction
In this chapter I deliberately target images furthest away from photography to see what such images can help us understand about visual communication. As I have explained in the previous chapter, a reduction in the kind of realistic detail we associate with photography can lead to a different understanding of a visual message. It follows that the images furthest removed from photographic realism should be the images that most clearly demonstrate such difference. Diagrams and information design made from pictograms and icons are examined below in terms of what these can show us about invisible (and therefore, unphotographable) relationships.

As the visual communicator considers images removed from realism, s/he can begin to impose some order upon the pictures s/he creates. Ordering is understanding according to Albarn and Miall Smith in *Diagram: The Instrument of thought*: “Without doctrinaire connotations, it implies qualitative judgements based on harmony of function as observed in the whole pattern […] its success or ‘realness’ is measured by its usefulness” (1977, pp.7-8).

On a visual continuum, diagrams, or information designs as I shall call them here, sit at the opposite end from photographic realism. The ‘realism continuum’, posited by Dwyer (1972) to measure the effectiveness of representational images, has been extended since by other theorists interested, as Dwyer was, in creating effective instructional visuals for teaching (Wileman, 1993, pp.11-17) or for examining the possibilities of iconic abstraction for the visual communicator (McCloud, 1993, pp.28-31).

The most realistic image (removed from the object itself) is the colour photograph of whatever the object happens to be. At the other end of the scale is the arbitrary graphic (Wileman, 1993; Gropper, 1963; Knowlton, 1966) or the icon (McCloud). It is these distilled images that are the modules upon which diagrams or information designs are built (Buchheit, n.d.). Information designs are the visual result of travelling along this continuum, removing detail in the process. This stripping away of realistic detail is best described as distillation rather than simplification, since it is not a process of removing information across the entire image so much as taking away unnecessary detail so the designer and the reader
can focus on the attributes of the image pertinent to the intended communication. This allows the resulting image to amplify particular meanings in a way that realistic images can not (McCloud, p.30).

Information designs, the kinds of visual material at the end of this process of abstraction and distillation, allow a deeper intellectual connection with visual material than is prompted by realism. At the very least, a reduction in realism must prompt a search for meaning beyond the representational. This could be described as seeing with the mind as opposed to merely seeing with the eyes. This is an important difference for the communication designer. Photographic realism has competed for the attention of art directors with other, less realistic, visual modes, such as illustration and diagram, as the appropriate means of communicating the non-textual aspects of graphic design. Photographs have become the lingua franca of graphic design's imagery (Shaughnessy, "Graphic Design vs. Illustration", 2007). The reasons for this, as I have shown in Chapter 2, are the historic pervasiveness of the Bauhaus reliance on photography, which spread through mainstream German advertising media of the day (Rowland, 1990, p.126) as well as through the better-known diaspora of Bauhaus identities under the Nazis, combined with the assumed authority of photography and the increasing ease with which photographs could be taken and reproduced.

Dichotomy between realism and diagram
An analysis of the visual modes of photography and information design as opposites on this realism continuum reveals that these opposing modes continue to compete on a range of levels, and that photography’s real strengths are limited to fewer applications than its lingua franca status would suggest. Photographs are particularly good at environmental portraiture (Heller and Pomeroy, 1997, p.46) and communicating aspects of travel, and sensual subjects such as foods and textures because these things require photography's ability to stencil a trace of the real thing (Sontag, 1977, p.154). However, through an examination of the following dichotomies: Decontextual/Contextual; Specific/General; Secretive/Revelatory, we see that the reduction in realism required to move from one end of the realism continuum to the other allows for more precise communication, paradoxically, in spite of the less precise copying of reality.
Decontextual/contextual

A good diagram should have some rules or a strategy imposed upon it (Tufte, 1990, p.37). Peter Grundy, information designer for the Guardian UK newspaper, says that this allows the “manipulation of drawn imagery to get to a place where complex things can be made simple to see and understand” (personal communication, March 17, 2008). These rules can result in a range of visual forms, but each could be described as a 'system of drawing' (Hardie, 2005, pp.126-138) from which we might extrapolate a 'system of seeing'. We can see this system applied in the illustrative work of George Hardie, Professor of Graphic Design at Brighton University, at Figure 29.

![Image of illustrations](image_url)

Figure 29. George Hardie, illustrations for record dust jacket: (10cc, 1978).

A similar approach (here, iso- rather than axono-metric) used in information design (Figure 30) allows all the machines to appear as if they have some relationship. In the real world, these machines may share similar colours, they may not, but they are likely to be somewhat different shapes and certainly could not all be viewed at once at the same angle. The reduction in realism that enables these disparate objects to be rendered in the same manner allows us to conceive of them as part of a system (the connections between the machines is also made clear through the use of dotted lines and arrows) and that the system works and works efficiently.
Otl Aicher’s pictogram designs for the Munich Olympics were built upon a strict, regular grid that allowed only a limited use of angles and curves. From this basis a small number of modular parts were derived that could be reassembled to make up the different sporting events.

In the Bell Telephone Book illustrations at Figure 31, the graphics function through a more subtle reduction in realism. This time a tone drop-out or ‘threshold’ approach is used rather than a radical reshaping of the objects. This can still be described as a system of seeing: Objects are viewed from a consistent angle; light is supplied from a consistently positioned source, and; each object is posed in a manner intended to reveal the most relevant information about that object. Again, it is the reduction in realism that makes each of these objects, visually disparate in reality, appear as if they belong to a larger set because this reduction allows for amplification of gestalt qualities of colour, shape, line and orientation to come to the fore. In other words, it is precisely the reduction in realism that allows for the imposition of a system of seeing, and such a system in turn allows a sense of belonging that would not be so readily apparent in the real world. The reduction in realism provides for the contextualisation for objects when we, as visual communicators, decide which belongs with which. In the real visual world, these connections would not be apparent and realistic visual means, such as photography, would merely reflect this apparent disconnectedness (Sontag, 1977, p.23).

Figure 30. Steve McGuire, illustration for The Publishing Process in Working With Pre-press and Printing Suppliers (AGFA Digital Color Prepress volume three, 1993, pp.2-3)
Specific/general

Another problem with photography is the specificity of its output. From its 19th century infancy, photography’s role was hotly debated. One of the important strands of argument was concerned with photography’s specificity, and the application of soft-focus techniques to make it less so (Green-Lewis, 1996, p.55). The quarrel was particularly heated between those who argued that photography could take the place of Pre-Raphaelite painting’s inventive storytelling (p.4), and those who maintained that photography’s logical role was documentary: That it should be used to capture the world as it existed since photography allowed that at last a shared vision of the world could be had (p.26), and that photography could record the world, unmediated by the human hand, through “optical and chemical means alone” (p.59). The design community has continued using photography for storytelling, especially in the advertising arena, regardless of the reasonably well-documented victories of the early documentary advocates.

Figure 31. Joachim Müller-Lancé, pictographs for Pacific Bell Yellow Pages. (Abdullah and Hubner, 2006, p.144).

Stock photography rates a special mention here since we are concerned with photography, not as art, but as a tool for the communication designer. The application of stock photography in design illuminates this problem. The business of stock photography is predicated on the
notion that a single photograph has the potential for multiple applications (Lupton & Miller, 1999):

A happy family holding hands and gazing at their new home may have been shot to sell real estate, but when [the photograph] is offered for use in a catalogue it may be used for its symbolic dimension rather than its literal content. The same photo could be used to sell life insurance, government bonds, or aluminium siding. (p.128)

As Lupton and Miller observe however, in stock photography, the information contained in an image is at odds with this drive towards the generic (p.133). It is no coincidence that we see the use of editorial illustration and diagram in situations where concepts are difficult to grasp or too specific if shown through representational means. Conversely, where there is nothing specific to gesture towards by way of an explanation, it does not follow that there is nothing there to be communicated. For example, it may be impossible to point at something in a generic workplace and pronounce that a particular worker or strata of the organization is clearly subordinate to another, but through the less realistic visual modes of illustration and diagram we have the means to express visually that which is intuitively grasped by those in such work and pictured in their minds' eyes. A corporate structure diagram easily makes visible the well-known but visually indistinct differences between workplace strata, in the same way that a family tree, another common information design, expresses the relationship of individuals to a larger organization.

Secretive/revelatory

Photographs may have gained an "insuperable power to determine what people recall of events" (Sontag, 2004) and yet, photographs can not possibly capture whole relations or economies within the social realm because such interactions are often invisible. Anthony Woodiwiss (2001), makes a scalpel sharp distinction between vision and visuality. Vision, in essence, is that which we see in the world around us which purports to be unmediated; a view of the world which could be described as empirical or observable, even photographable. Visuality on the other hand is a way of describing the world through structural models which help us to understand its workings. This difference, between what we see with our eyes, and what we can make visual in our minds, has a political dimension. In an obvious example, we are reminded of Marx's "famous architectural metaphor of base and superstructure" (p.38),
which is essentially a relational diagram. Hazel Henderson's *Layer Cake with Icing* is a political model that works in a similar way because it makes visual that which is not photographable or able to be represented in a realistic manner. Henderson explains that:

The icing on the top is the private sector, which rests on the layer below, the public sector. The top two layers are the only ones economists typically measure. But in this analysis, there are two lower layers that are non-monetized and invisible to economists, but which are really supporting the whole thing. These include the Love Economy (unpaid productive work like raising children and maintaining the household, serving on the school board, do-it-yourself housing, rehab) and Mother Nature, the vast wealth of biodiversity that keeps our air and water clean and provides all the food and bread and resources we need to sustain life, which go completely uncounted. (Mau, 2004, pp.135-136)

One can not go out and photograph either Marx's or Henderson's model, but through a diagrammatic explanation, we may fix these visual metaphors upon the page or screen.

When the visual communicator is confined to using realistic images only, he or she is effectively attempting to communicate by pointing at objects. This is essentially all realism allows. To explain the shortcomings of such a means of visual communication, Goldsmith (1984, p135) tells of her analysis of Schonell's (1932) *Essential Spelling List*. His list comprises around 400 words which he proposed form the basic vocabulary for children. Goldsmith says, “I could find only about 120 words that could be directly illustrated (of which only eighty could be called reliable)”. Even at an early age then, children's language is already dealing with non-object words. In other words, realistic pictures, at best, will easily illustrate only about one third of the written language for children. As we grow and learn more of the world and our vocabulary develops, an even smaller percentage of words are used to deal with concrete things: As children we have encountered many of these objects, but we have not encountered many of the subtleties of, for example, social interaction. We must be able to picture verbs as well as nouns.

Visual abstraction provides the only means to approach such abstract concepts visually. And yet, this is not the only way in which information design can express the truths that realism can not see and capture. There is an inherent honesty in non-realistic visual modes proportional to their distance from realism: Immediately upon seeing an image that is clearly not photographic, the reader knows it was authored by someone. There is no denial of authorial voice, and so, such an image may be openly critiqued as being only one person's point-of-view. Information designs or diagrams clearly declare and reveal their conceptual and constructed
nature. But where a sociologist would use the term construction in a more figurative sense, we may use it literally: Information designs are often created using construction tools within vector-graphics software on the computer (Bounford, 2000, p.6), and information designs appear constructed, even to the point where they use the primitive shapes of circles, squares, rectangles, and triangles that we remember from our childhood building blocks.

All images are subjective, are the work of someone (Wurman, 2001, p.31), so it follows that the images to be trusted are the ones that explain to us by their very appearance that they have been 'made up'. On the other hand, since its early history, accounts of photography tended to separate the photographer from the photograph and empower the photograph as an independent print of the world (Green-Lewis, p.7). Photography lies through pretending that it's not structured, by pretending there is no author's voice or agenda.

Lupton and Miller suggest that the interpretive view leads to a better understanding of graphic design as a social activity. However, I have aimed to demonstrate here that a perceptual view of design can also lead to a better understanding of how pictures and diagrams can communicate in the social sphere. In contrast with the positive potential of information design, I will show in the next chapter that a highly personal, interpretive and subjective approach to image making can actually diminish the potential of the non-realistic image within the social sphere.
A visitor to Matisse's studio: 'But surely, the arm of this woman is much too long.' 
Matisse: 'You are mistaken. This is not a woman, this is a picture.'

Chapter 5: Exemplars studied along the realism continuum

I have explained in my Chapter 2 that illustration is experiencing new-found popularity at the time of writing. However, rather than this indicating a new visual literacy abroad in the field of communication design, I argued that the rise in popularity of illustration was a progression from the designer-as-artist phenomenon of the 1990s. I will focus on this aspect of contemporary commercial visuality in order to make clear that quantity and ubiquity alone are not evidence of high visual literacy. Here I will show that some of the new illustration may even be evidence of low visual literacy as it is pressed into service, like pop music, to promote only itself and its maker. In this regard it is not graphic design as we have known it but more of a convergence of urban art, doodling and character design. In the context of creating strategies to improve visual literacy among students, the visual literacy theorists exhort the showing of examples, but at the same time we should be clear on what the examples are showing. As Ausburn and Ausburn tell us, to be visually literate is to be able to tell the difference between the "superficial and the valuable messages" (1994, p.288).

Following this description of the state-of-play in design imagery I will examine some of the definitions of visual literacy. Christopher Crouch (2008) sees visual literacy as an active process which may be “developed so that it involves a critically analytical reading of visual texts” (p.195). If the contemporary images can be criticised using the parameters of this thesis, then those parameters can be added to strategies to improve visual literacy. In light of what I have shown in the previous chapters, I will attempt to refine and augment the work of the visual literacy lobby specifically as it obtains to realism. Rather than take all illustration as evidence that its makers are visually literate, I will choose examples which illuminate particular faculties of the human visual system. This aspect of what it means to be visually literate has previously been overlooked. I will, in the last part of this chapter, study some exemplars of high visual literacy according to measurements built upon my research. I will analyse a handful of single image visual texts and some comic strips which I intend will each show something pertinent about distance from realism. Then I will examine a longer,
more complex piece in terms of its relationship to realism and its use of caricature to ascertain that my thesis can be the basis for a concerted critical analysis of visual design.

Poor visual literacy in the new illustration

Illustration is popular again, tellingly, in the leading fashion magazines (Klanten & Hellige, 2005). However, it is not enough to be surrounded by illustration and to be using it for more design tasks; we need to know why we are using it if we are to be confident it is communicating that which we think it is communicating. There is no reason to address the new illustration on the terms of this thesis unless something needs improving in those terms. Also, should illustration again fall out of fashion, it will be difficult to argue for its reinstatement unless we know its strengths and can argue for its use on the basis of these.

If a clear indication was needed about the recent pervasive nature of illustration, then it arrived in the form of the cover of the 28th Dunedin Film Festival catalogue [Figure 32]. This image caught my eye while I was lecturing at Otago University on the South Island of New Zealand. Here was a regional film festival, as far removed from the geographical centres of the western world as a western city can be. The festival was promoted using, among other graphic devices, a catalogue whose cover might well warrant the inclusion of a filmic image. Instead, the cover employed an illustration to promote the festival's collection of films. None of the feature films chosen for the festival used animated elements (other than in opening credits) which might justify the drawn aesthetic of this cover image.

As Ruddigkeit (2003) observes, “The stream of pictures from photographic archives seems to have been replaced by a revival of illustration. We have rediscovered the power of the
individual and personal appeal of illustration in advertising and graphic design”. Given this thesis’ undercurrent of prescribing illustration for more design tasks than those for which it is currently employed, the author should be delighted with this new concentration of and on illustration. However, I believe we need to hesitate before endorsing all of this new illustrative work.

There is a disconnection between many of the new illustrators and the newly illustrated. As I showed in my Chapter 2, the recent boom in illustration had a direct antecedent in the designer-as-artist phenomenon of the 1990s. In some ways the new illustration is further removed from visualising a particular message than was the design of the deconstructionists. Much of the new work is an end in itself rather than pictures which illustrate particular pieces of text in designs or written articles. In this sense, such work is redolent of pop music: a promotional form which might entertain but exists to advertise itself as a throw-away commodity (Clarke, 1995). As I shall demonstrate, this is a particularly pertinent analogy with several of the recent illustrative works.

The designer-as-artist phenomenon has spawned a weird hybrid the likes of which has not been witnessed before. Typical aesthetics may involve multiple small elements—often sampled and ‘remixed’ from other sources—and abundant colours combined together into a larger and more chaotic scene. Clarity is not a requirement since these graphics often carry no message at all other than one of self-reference (Figure 33). This self-promotional trend is perpetuated by design trade journals such as IdN, and several popular websites, including Canada’s Drwum.ca (that it was voted Best Canadian Weblog of 2007 confirms the popularity of illustration) which are devoted solely to illustration, but focus on the creators rather than the editorial or other contexts for which the images may have been created.

Figure 33: Friends With You, Aqui Uzumaki self-promotional flyer, 2003.
This over-abundance of imagery in the service of self-perpetuation is celebrated in several quarters. *Maximalism*, a book produced by design publisher Rotovision dedicated to this phenomenon: "Maximalism celebrates richness and excess in graphic design following years of minimalist rule. A profusion of color and luxury brimming with excess is demanding a return to sensuality [...] for decoration, luxury and fantasy" (Rivers, 2004).

The desire to break free of past constraints is mirrored in the recent explosion of collectible figures (Figure 34) decorated by designers seeking to escape two-dimensionality. A quick survey of the recent styles of illustration and the styles of 3D design for these toys shows a strong visual correlation. The toys too are visual promotions for themselves—they more often than not have no back-story provided by a comic or animated film—and are left to drift between contexts. Jody Boenhert (2006) examines collectible character design as a parallel phenomenon to ‘remixed’ graphics. Many young graphic designers are involved in the creation of both:

A beginners' guide to this sometimes bewildering graphic universe might feature Hello Kitty, Rob Reger's Emily the Strange and James Jarvis's In-Crowd. Contemporary character design, abstracted and reduced to the essentials, samples and remixes existing visual codes. Disney characters are not welcome here; nor are the alternative comics characters of the past century, such as Fritz the Cat or Tank Girl. Pictoplasma is defining the perimeters of a new genre. Jamie Hewlett [Tank Girl designer] may make the Design Museum's criteria (as winner of the 'Designer of the Year Prize') but his characters do not appear in the Pictoplasma archive. Lars Denicke of Pictoplasma explains: "We are looking for iconic characters that gain their meaning through their design, its reduction and anthropomorphic appeal and through their setting, and not so much through a genre and its narrative implications." (Boenhert, "Emotion Graphics", 2006)

Boenhert speaks of sampling and remixing, formerly terms associated with pop music. Rinzen, a design studio based in Brisbane, believes that design and illustration are, like pop music,
‘up for grabs’ and can be ‘remixed’ (Figure 35). Rinzen seems well aware that illustration can be the new rock ‘n’ roll as its exhibition projects take their names from well-known pop singles such as the Monkees, *Daydream Believer*. The collective has embarked on several projects where illustrations have been put forward by one design studio to be worked over by another. “RMX breathes life into the exquisite corpse. 39 international players render a surrealist panorama, a 3.6 metre long, 120mm high frieze available as a 5-part poster pack. Shrinkwrapped 360mm x 120mm package.” (FreshRMX, n.d.)

Figure 35: Rinzen’s Fresh RMX project.

The mention of the corpse, apart from being a reference to the surrealists, suggests a kind of nihilism as cool detachment. This attitude is in keeping with one of the common themes of the new illustration and the associated collectibles: The mutilation of cuteness. This is a kind of hyper-punk sensibility that sees vandalism done to the images of childhood (Figures 36 and 37). Is this, I wonder, what has taken the place of rock ‘n’ roll? Since alternative rock music went mainstream in the early 90s, there has been less viable musical space in which youth can rebel. The visual avenue is one in which frustrations can be vented and a virtual vandalism or violence can be indulged.

Far from the visually literate graphic grit that accompanied the punk movement of the 70s and the later grunge phenomenon of the early 90s, this kind of illustration and design often features all the colours of the rainbow expressed through friendly, curving lines and rounded shapes. Sinister content is couched in upbeat and decorative visual excess. If synaesthesia occurs in all of us as Ramachandran proposes, then these designs are contradicting themselves, perhaps deliberately but perhaps unknowingly. Their lack of explication prevents either assessment. Rinzen, for example says of each of its RMX projects, only that it “follows
its own rules” (Showroom: Character Design, 2004). Similar things occur in information designs such as Grundini’s (Peter Grundy’s) where strong colours and consistent shape seem to make light of heavy content. However, the designer has knowingly used what he describes as “approachable graphics” (personal communication, March 17, 2008) to draw the viewer in to engage with the content. In any case, in information design, the viewer may discern without overt explanation, that the graphics have an illustrative or explanatory role beyond mere decoration.

Figure 36: The new punk?, Mecha Fetus Visual Blog poster by Paul Robertson and Figure 37: Niedlich by Eikes Grafischer Hort.

Elsewhere, this wider trend of decoration is evident in architecture and industrial design. One contemporary magazine which presents, with little or no insight, detached, unquestioning images of all kinds of design is actually called Wallpaper*. Wallpaper* according to its own media kit, sells a global lifestyle, though what a global lifestyle is remains unexplained. Judging from the content of the magazine it is something to do with an appreciation of design for design’s sake, on a global scale. The magazine’s name is not without irony in the context of what is discussed here. The asterisk poised at the top right of the masthead prompts us to look for the explanatory footnote but, tellingly, there is none. If anything it might get us to ponder that name further; what is its significance? According to the magazine’s original editor, Tyler Brûlé (2004):

The asterisk was a device of its time, in one sense. The magazine had a slightly whimsical quality, and the asterisk referenced a number of logo devices. And then, of course, it was an asterisk in the true sense of
the word in that it drew the reader’s attention to the tagline of the magazine, which at the time was ‘The stuff that surrounds you.’ We thought that the word Wallpaper needed a qualifier.

Interestingly, wallpaper, the paper with which to decorate walls, not the magazine (which is now selling franchises in new markets in the former communist bloc territories) is also experiencing new-found popularity. Busy backgrounds and ornamentation, the bane of the modernists, have returned with a passion especially in graphics and interiors.

Ornament is clearly an integral part of the dominant visual language of the moment. The extent to which it has resonated with the public at large can be judged by the ubiquitous presence in the homes of Habitat-shoppers of the Toord Boontje filigree light shade. In Copenhagen, an entire hotel was redesigned from the inside out, as part of a Volkswagen-sponsored initiative called Project Fox. The carpets, wallpaper and furniture now teem with the kaleidoscopic explosions and fantasy pattern-scapes created by a group of designers and illustrators selected by the trend-conscious Berlin-based design publishers Die Gestalten. In Barcelona, too, the Maxalot Gallery has commissioned designers such as Hideki Inaba, Joshua Davis, eBoy and Rinzen to create a collection of wallpaper designs that, as they put it, ‘celebrates the re-birth of wallpaper’. (Twemlow, 2001)

In the pursuit of improving visual literacy, I ask why are wallpaper and ornament back? A hundred years ago Adolf Loos in Ornament and Crime said that decoration represents backwardness or even a degenerative tendency. What would re-attract the design world, if not the wider world to decorative design? A banal desire for celebrity, following on from the deconstructionist period of visual design where the designer was at last given a margin of fame, does not in itself explain the excessive aesthetic, only the impulse to self-expression. A combination of other cultural ingredients has also led us to this point: a celebration of low culture, the post-modern decontextualising of everything via the remixing method of design (these designers cut, share and paste in an unreflective way because the technology enables such practices), and a generation of visual practitioners weaned on 1970s visuality recently coming of age: As Albert Camus said, “A man’s work is nothing but this slow trek to rediscover, through the detours of art, those two or three great and simple images in whose presence his heart first opened” (L’Envers Et L’Endroit, 1958, p.33).
The context for such designs, rather than one precisely defined in a communication design brief, might be globalisation: In a world where we have access to and are inundated by a huge range of visualities, this cornucopic design might be an honest visual reaction to those incoming messages. For their own part, Rinzen (Figure 38), and many other young design practitioners studiously ignore any distinctions between design and art, commercial commissions and self-expression. This often results in their work floating free of any contextual anchor. For those looking for meaning, the work seems only to point to itself and to other enigmatic examples that seem somehow to avoid referring directly to the globalised panorama which may have conceived them.

However it arrived, the compulsion for self-expression through design means that where there is no carefully targeted message to transfer, there is no need for clarity. This, combined with a reaction to a visually hyperactive world, might be enough to explain these excessive and obscure designs.

It is difficult for a designer or critic seeking meaning in visual communication not to see this whole milieu as hopelessly noisy, regardless of whether it is a function of a furiously busy world or not. In *Obey the Giant*, Graphic design critic Rick Poynor opines: “Our triumphant
age of plenty is riddled with darker feelings of doubt, cynicism, distrust, boredom and a strange kind of emptiness" (p.79). Put another way, "We have reached Utopia and it sucks", according to Richard Tomkins, Consumer Industries Editor of the Financial Times (Tomkins, 2000). These graphics seem to reflect that we have available to us everything, here and now. Is this visual heaven or hell? The difficulty finding the designerly purposes of this work lies in the lack of articulation by the practitioners as to why it's done. This certainly seems to be Poynor's difficulty with some of the bright young things of Australian design, Designiskinky (DiK):

At this point in its life, DiK is perhaps poised between two kinds of activity. The friendly, non-critical tone and regular features such as a gallery of personal mugshots sent in by site visitors suggest something sociable, inward-looking, cliquey and not especially serious. But the site's intention to act as a forum and participate in a global design discussion also implies wider responsibilities and, if it's to be convincing, a commitment to higher standards of thinking and presentation.

Every so often there are signs of frustration, too. 'I feel that a lot of the older generation Australian designers... are actively destroying our international design abilities,' says Justin Fox in a DiK interview. 'We seem ashamed of our design work and this is so wrong.' In April 2003, DiK will present its first design conference in Sydney, titled 'Semi-Permanent', with contributions from many of the designers featured on the site. If the aim is to sharpen perceptions of young Australian design and encourage real debate - and not simply to provide yet another occasion for self-referential 'celebration' - then a more critically aware approach is essential. (Poynor, "Instant Content", 2002)

While we can't assume these new illustrators don't know what they are doing, there is something in Poynor's critique in that we also can't assume a thorough grounding in the history, contexts and science of visual communication if these practitioners seem incapable of articulating their own motivations and methods.

A brief sample of these new illustrations shows that contemporary design has the potential to make the world a visually noisier place. A place where colour and sound no longer have associated meanings. Where clutter and repetition in single pieces of design, let alone across the gamut of burgeoning work, negate contemplative space. Where design reflects no function other than that of selling itself and where its form shows avoidance or ignorance of aesthetic proportion, though seemingly not for any political reason, designs may be consistently presented in pretty, candy colours. The same bright colours are used to show weapons as are used to show the female form (Figure 39). One sees the fetishisation of the images of war and sex, combined with the ignorance of the communicative power of colour, line and shape. It is
as if, to accentuate the fashionable aspects of these visuals, subdued colours have become ‘last season’, and bright candy colours of every hue are the new black! The Rinzen mural (Figure X from neomu) looks uncannily like someone fiddling while Rome burns: the quintessential symbol of decadence.

The creation of images for the sake of it, or perhaps in the hope that a folio will be acquired by an art-director or client, ultimately leads to the devaluation of the design process. The art-director or the client choosing the style becomes the party making the design decisions. In this sense, much of the new illustration carries on exactly where deconstruction left off: the designer is divorced from visually literate decisions about the function of the graphics in the context of the message, but rather pursues his or her own idiom leaving the art director or client to make the visual choices. The new illustration seems to have been hi-jacked before it amounted to anything. These graphics may honestly speak or reflect through their cosmopolitan styles of being overrun by globalisation, but they in turn add to this graphic noise and accelerate it in a centrifugal cycle. Another valid response to noise is to try and turn it down.

While it should never be said that illustration or any design must be undertaken following a proscriptive set of rules, it would certainly help communication to understand that there are good psychological and sociological reasons for employing illustration to communicate effectively when the intention is to confidently impart a message from one party to another. This communication will be all the more resonant if the illustrator understands more fully that certain colours and shapes do have certain associations and effects; that a reduction in certain details is likely to elicit a particular response. Otherwise, in the face of the next cycle of fashion when illustration falls out of favour, how do these practitioners argue for its importance? As Max Bruinsma has said, “For the responsible designer, the ‘anything-goes’-idea can turn out to be as paralysing as it may have seemed liberating at first sight. A reaction to this aesthetic ‘free-for-all’ may be the return to the established knowledge of the trade” (1997, p.4). Hopefully, since the ‘established knowledge of the trade’ has been lacking with regard to pictures, another valid reaction to the ‘free-for-all’ may also be a desire to find out more about how images communicate. This may help establish a new base from which picture making exploration and experimentation can be made.
Augmenting visual literacy

A strategy endorsed by Fransecky and Debes (1972) and Wileman (1993), to raise visual literacy, is the showing of examples to pupils. According to Mallan (1999), however, who asks what visual literacy is ultimately for, “Students will not become ‘readers’ and more rounded individuals with a heightened sense of social responsibility and awareness simply because well-intentioned teachers ‘immerse’ them in picture books” (p.200). As I have just shown, some examples may, in any case, be counterproductive for the raising of visual literacy, where their creators are not interested in imparting specific messages. Anne Bamford in her *Visual Literacy White Paper* declares ‘awareness of intentionality’ to be an indicator of visual literacy. In that case, much of the new illustration is not exemplary at all, since it has no ‘intention’ in a conventional design sense. Bamford tries to add something substantial to this stand-by strategy: The showing of examples may prove very useful in promoting visual literacy if combined with critical analysis. Bamford phrases this strategy in the following terms: “Visual literacy includes critical knowledge. This is best developed through exposure to interesting and varied images and through thoughtful and thought-provoking questioning and discussion” (2003, p.5).

Bamford declares that, “There can be no dictionary of meanings for the symbols of visual communication [...] visual communication is made up of presentational symbols whose meaning results from their existence in particular contexts” (2003, p.3). To this end she has devised a table which can be applied to all images (see Appendix D). This strategy attempts to cover the social interaction implicit in using images to communicate. However, because of the acute social focus, the visual system of the viewer is not really a consideration in Bamford’s table. We might perhaps read realism and its alternatives into her criteria: For example, at point two against ‘Issues’: “How is the way the issue is shown in the image similar to or different from how you see this issue in the world?”; her point two against ‘Information’: “What information has been included and what information has been left out?”; and points one and six against ‘Persuasion’: “Why has a certain media been chosen”; “How has the message been affected by what has been left out or is not shown?” This last question repeats both Goldsmith’s and Gombrich’s findings that the most realistic image is not the most communicative, and Wileman (1993, p.120) who proposed the following question
as a criterion regarding 'Visual Design Considerations': "Does the visual contain only the essential information?" However, it would be of benefit to ask overtly under 'Information', in light of what I have demonstrated in this thesis, "what degree of realism is used in this picture and why?" As we have seen, this question is of fundamental importance to the ways an image can communicate.

Bamford's table of questions details some useful questions planned to help ascertain the 'intentionality' of an image. However, questions such as 'why has a certain media been chosen', or 'what information presented is factual/manipulated/framed?' do not prompt an understanding of the physical operations of vision. Rather, these questions work in the same way as Lupton and Miller's problematising of interpretation, and take vision itself for granted. As long as visual literacy competencies are prompted and described in these terms, teacher and student are relying only on shared or dissimilar cultural understandings of imagery and the visual instincts of the image maker. A combination of strategies which make a problem of both the psychology and sociology of vision would seem best, in light of what I have ascertained in the previous two chapters, to help explain and improve visual literacy. At the very least a discussion can ensue which seeks to find out where and why individual approaches might be appropriate.

A major issue for visual literacy should be the knowledge of what the visual system responds to and what it is on the look out for. If these models of understanding the visual system that I have explored are to be applied for image making (as they will be in the next chapter in the student case studies) they should, in theory be applicable to critically analyse existing images. In such a capacity I use these models now to show the strengths of a range of illustrations and diagrams. What these images have in common is some distance from realism. Having established a small expansion in the boundaries for visual literacy strategies, based on the aspects of image that I have so far identified, I now provide further clarification through a critical appraisal of exemplars of picture-making. Each example will throw light on the aspects of vision that I have so far studied in the thesis.

I will examine exemplars of high visual literacy as they pertain to my criteria of reductions in realism, and in steps decreasing in realism along the continuum. Following my findings in Chapters 3 and 4 I will concentrate firstly on pictures that are photographic or highly realistic,
then on images which comprise silhouettes, then those which invoke perceptual constancies, and on to those which draw on gestalt closure for their effects. Within these broad categories I will comment on images that; are realistic; de-identify their subject but are otherwise realistic; show the loss of interior detail—the image functions through silhouette or detailed outlines only—; are exemplars of line drawing with interior detail (Since the line drawing as a mode of rendering is consistently shown in Goldmith to be the most communicative, I will give it special attention here); establish a 'system of seeing' and work within it; and those that show where image meets text.

Finally, I will examine a longer text in terms of its relation to realism and through an examination of its use of caricature. This will be an appraisal of a widely broadcast children's text, Thunderbirds, to explore whether the concepts developed in this thesis would be applicable for a concerted critique of a visual design. I will explore this in the terms I have so far established in order to reveal what made the show so visually literate and unlock the key to its popularity.

Photography and realistic images

The realistic image

This thesis may seem in many ways to be a treatise against realism, but this is not the case. I hope a more accurate description would be that it argues against the over-use of realism. Photographs are, of course, of use to us in visual communication. The issue of specificity alluded to in the previous chapter can be made positive in the appropriate circumstances. When we see a photo of a specific person, it really is recorded light, reflected off that real person; a copy, as close to the real thing as possible in two dimensions, of an actual person. Photography then is an entirely appropriate communication medium if we are documenting that specific person; likewise, for places. A photograph is also particularly good at capturing texture in a way that communicates viscerally to the viewer. Food and drink and their freshness are well portrayed by crisp and clear photography. But in situations where a person photographed is an actor or 'talent' for a commercial, photography's impossible task is to get real, specific people to fit the generic role they are assigned: young mortgagee, sensible retiree, and so on: Cast such that they do not draw attention to their 'not us-ness'. This approach grows ever more tenuous and suspect as each part of the world becomes more
multicultural and multiracial. As I have shown in Chapter 4, in photography's 19th century infancy, practitioners were concerned precisely with photography's inability to avoid being specific. While this argument regarding photography's 'proper' place in visual culture has long been played out, the design community (especially advertising design) has continued regardless. Frank Zachary (editor of 1940s magazine, *Holiday*) followed a very particular approach, called 'environmental portraiture', which plays more to these core strengths of photography: "An example of environmental portraiture is a photograph for a special issue of *Holiday* on New York City showing highways and parks czar and power-broker Robert Moses standing omnipotently on a red girder over the East River" (Heller & Pomeroy, 1997, p.46) (Figure 40).

![Figure 40: Environmental portraiture: Robert Moses by Arnold Newman. In such a photograph, the 'talent' or 'actor' plays only himself.](image)

**The deliberately real image**

In the picture below, the illustration is photorealist enough to help us suspend disbelief for a moment, but appears drawn enough for us to immediately question that suspension. In this regard, its rendering is deliberately 'real'. This image, despite its almost photorealist nature is all about graphic shape. It is the nightmarish cape and horns and the absence of light in a large portion of the picture—that this shape can barely be contained in the frame of the picture—that creates such a powerful sense of foreboding. The fact that in reality these are harmless creatures is only of secondary relevance. Even a great white shark would look much less threatening to the reader when s/he turned the page to arrive at this double page spread advertising outboard engines. The atypical viewing angle accentuates the drama of the fish's shape. The fisherman's unknowing hand on the gunwhale adds to the sense of vulnerability. (Figure 41)
Figure 41: Painted illustration for outboard motor advertisement by Akira Yokoyama. In spite of the detail in the image, the graphic shapes propel the meaning and emotion of this design.

Since a paradox is at the heart of this thesis—that one may communicate more accurately through less accurately rendered images—it seems fitting that one of the most appropriate uses for realism is for the depiction of the unreal. In the first-person, point-and-click computer game, *Exile*, for example, the realism in texture mapping and lighting effects helps provide a sense of immersion for the game-player, in an otherwise outlandish environment (Figure 42). Importantly, the makers did not include human figures in the computer modelling, but instead keyed in video clips of real actors.

Figure 42: Vividly rendered, hyper-real 3D design (by Seth Fisher, Stephen Hoogendyk, Ron Lemen, Francis Tsai) from the computer game, *Exile*, (Presto Studios) create an immersive visual experience of a non-existent world.

5: Realistic humans that also evoke empathy in the viewer are notoriously difficult to achieve in 3D modelling. The quest for 'perfect' computer modelled humans paradoxically has lead to cadaverous apparitions in the gaming and filmic realms when the designers find themselves in the depths of what has been termed the 'Uncanny Valley'. This visual state was named by Japanese roboticist, Matsuhiro Mori in his *Bakimi no tani* (*The uncanny valley*) (1970).
De-identified subjects

A simple inversion of an image will break an immediate connection with the reality to which it referred and allow for transmission of a different message. The following example is taken from *Sports Tonight*, a news segment on Australian television (Figure 43). For this segment the show’s graphic designers have hit upon an ingenious way of getting the most from existing photographic images: Through inversion the images are precise and generic at the same moment. Following this process, the players in the picture become unrecognisable to us and we begin instead to look at what activity is taking place in the picture. Specificity is a problem with photography when the meaning of the image does not benefit from specifics. A picture of David Beckham, in a news context may be problematic since his image is not only synonymous with football but also with merchandising and even celebrity gossip. If the image is meant to capture something about football, rather than a specific sports-celebrity, the photograph of that specific person begins to be less than ideal for the intended task.

![Figure 43: Simply making a negative image from a positive will make the subjects difficult to identify, thereby directing viewer attention away from identification toward action. Medley (after Sports Tonight)](image)

Subjects may be also be de-identified and made more generic through cropping. Iranian posters have recently received some long-overdue recognition. In my view, if we can generalise about them at all, what makes them special (apart from the striking Farsi calligraphy) is their approach to image. Unlike the use of photography for design practised in the west, Iranian poster imagery seems deliberately obscure. The images themselves tend to offer glimpses rather than a good look at whatever is captured. In the poster at Figure 44 by Ali Khorshidpour we see a bird wing rather than a complete bird. Counter-intuitively, this focus suggests more about flight than a complete bird would. In other words, this detail can evoke something other than the specific creature to which it belongs. This allows other interesting aspects of photography to come to the fore, such as its ability to sharply render textures and vivid
colours as interesting compositional elements within themselves. Since most western critics have, again, concentrated on the typography evident in these works, I sought the opinion of one of Iran's celebrated graphic designers, Pedram Harby, about why parts of the photographs are obscured or removed. I wondered, was this approach following on from an Iranian art tradition? Harby responded, "In Iran, from past till present, we have always been told that the use of religious personalities' images are not allowed and suitable. That is one of the reasons that you barely see the use of such images" (personal communication, June 3, 2004).

Figure 44: Poster by Iranian designer Ali Khorshidpour shows one approach to avoiding representation.

Of course, this tradition is not merely a restriction on artistic expression but a complex set of cultural parameters which able designers have long happily worked within. The visuality built over centuries through the denial of representational pictures is not about to collapse under the weight of the 'new' medium of photography. Egyptian graphic designer and calligrapher, Ahmed Moustafa further explains the prominence of abstraction over realistic representation in the Islamic arts as a function of history:

You cannot say these scientists [Arab scholars translating and expanding on the drawings and schema of Plato, Euclid, etc.] in botany, mathematics, medicine piled up such a body of knowledge with the notion of not being able to draw. But in the 10th century Ibn Muqlah, the great scribe and translator, made the theory of proportional Arabic script, based on Euclidean theory [...] So it is inconceivable that the artist will go back and portray the outer shell of that reality'. (Daines, 1996, p.10)

Silhouettes

Realistic outlines without interior detail

The airline safety card is created to reinforce the message of the flight attendant's safety demonstration. These cards are largely graphic as they need to work across linguistic barriers. Generally speaking, the illustrations on the cards show realistically proportioned figures and
aspects of the aeroplane environment in outline but disregard most of the interior detail of these. This approach, exemplified in the Lufthansa card at Figure 45 achieves a number of objectives. First and foremost it highlights through colour the important information in each frame. The reduction in detail allows colour to come to the fore. As Rick Poynor suggests of this style of graphic in his chapter Blank Look, “If it has an aesthetic character it is one that has arisen from the modest aim of giving only as much visual information as is needed to convey the basic facts. Anything more elaborate would slow down a potentially urgent message” (“Obey the giant”, 2001, p.78). Happily for Lufthansa, the gold colour of its logo also works well as a highlight colour demanding attention. The absence of colour and uniformity of outline in the human figures defuses any sense of emotion that would be attached to such situations in reality. At the same time the realistic proportions suggest a serious and matter-of-fact directness for the message.

Interestingly though, an earlier use of an outline or silhouette approach to graphics imbues the design with enough warmth to seem appealing. Tom Purvis’s travel posters for the LNER also remove interior detail leaving only realistic proportions. The technology used to make these pictures—screen-printing though hand-cut stencils—encourages flat areas of limited colour in the finished design. Often white silhouettes (the areas of the paper left un-inked) are used to suggest positive figures rather than empty space (see Figure 46). Other than the subject matter the chief difference between these posters and the other kind of travel image shown in the Lufthansa card is the colour usage. The airline safety card makes clear the object of attention and its operation by allocating the limited colour to only these aspects
of the design. In the travel posters, the ‘blank look’ allows the potential traveller to imagine him/herself in the serenity of the seaside—there is no specific other shown to disturb this daydream—while managing through the choice of colour to remain warm and inviting to the work-weary Londoner. In both cases, the outline-only characters deny recognition: We need not and cannot ask who these figures are, so we must ask instead, what are these people doing?

Figure 46: Tom Purvis’ (circa 1935) railway poster designs take advantage of the limitations of the serigraph: blank paper is put to use as positive shape.

Figure 47: Steff Geissbuhler’s Peace, 1985, is a welcome exception to the ‘weaning off’ from the apparently childish delight in anthropomorphism.

Steff Geissbuhler’s Peace poster (Figure 47), was chosen by curators Elizabeth Resnick, Frank Baseman and Chaz Maviyane-Davies for their exhibition and book, The Graphic Imperative (2005). The poster was designed to commemorate the 40th Anniversary of the bombing of Hiroshima. The image encourages reconciliation between two “giant” nations, Japan and the U.S.A., symbolized, hilariously and ironically in the two modern-day myths, Godzilla and King Kong gazing lovingly into each other’s eyes while strolling hand-in-hand into a new dawn. Geissbuhler includes just enough information in the silhouettes to allow identification of the creatures, and to show—since we see into the roofs of their mouths—their heroic and monumental stature from a low vantage point.
Another powerful example from the same exhibition catalogue is the iRaq poster by Forkscrew Graphics (Figure 48). Its silhouette references the famous iPod publicity but also shows that what we visually recall of the tormented Abu Ghraib prisoner is the forced stance in stark graphic outline.

![Figure 48: Forkscrew Graphics, iRaq, 2004, is a gruesome parody of the well-known iPod silhouettes.](image)

**Perceptual constancies**

*Line drawings with interior detail*

Since the category of line drawings was consistently demonstrated in Goldsmith's review of illustrative experiments as the most communicative, I will explore some of the potential of line drawing in more depth. In Hergé's *Tintin* we see realistic settings peopled with iconic characters. The backgrounds—street scenes, railway stations, airports and ships—are executed with vivid precision; Hergé, after a time, even employed an illustrator, Bob de Moor, specifically to draw these backgrounds. Often the source material for his visual fiction was photographically captured from the real world. McCloud sums up this approach to image making:

> Storytellers in all media know that a sure indicator of audience involvement is the degree to which the audience identifies with a story's characters. And since viewer-identification is a specialty of cartooning, cartoons have historically held an advantage in breaking into world popular culture. On the other hand no one expects audiences to identify with brick walls or landscapes and indeed, backgrounds tend to be slightly more realistic. In some comics, this split is far more pronounced. The Belgian 'clear line' style of Hergé's *Tintin* combines very iconic characters with unusually realistic backgrounds.7

Hergé makes very clear this separation between 'cartoon' characters and precision drafting in the background drawings, especially of architecture (street scenes, actual edifices such as the
Geneva train station, and so on). Scott McCloud succinctly describes this separation between character and background as if it encourages a kind of role-playing while reading: “one set of lines to see. Another set of lines to be” (p.43).

However, this separation is not used to foreground the characters at the expense of the background. The lack of shadow in Hergé’s line-drawing makes us look at the drawings; yes, they are objectified (in the sense of rendered objectively) but these drawings make us view and measure the background in a way a photograph of a real place never would. Often in Hergé, it is only the lines that tell us where there is a corner, of a building for example, or the edge of the pavement. To ‘read’ the images in Tintin we must look carefully at the lines (Figure 49). The photograph, and even a realistic drafting that includes light and shadow and accurate colouring would allow us to take the background for granted, and to read the characters as travelling across, in front or on top of this background, focussing solely on the action. This is never the case in Hergé. We are meant to read the background objectively but not to take it for granted. Every line that communicates something is painstakingly drafted. Moreover, the line work in these ‘backgrounds’ appears to be of a consistent weight, giving the drawings what Scott McCloud describes as a democracy of form (1993). Following on from my findings in Chapter 3, we can say that this line work technique promotes a gestalt sense of belonging among the details so rendered: They are accorded the same level as each other in the visual hierarchy of the image because of their matching line weights.

Figure 49: Hergé seems to have a filter on his eyes which allows through only what is necessary: behold the Captain’s spokeless wheelchair in The Castafiore Emerald (La Bijoux de la Castafiore).
To ascertain Hergé's intention to give equal precedence to his characters and action, we need look no further than the Hotel Sznorr sequence in *The Calculus Affair (L'Affaire Tournesol)* (1956). Here we clearly see text as graphic, and graphic as text. The diacritic used in Bordurian (a fictional language we can only imagine the sounds of) is based on the name (in the English translation) of Bordurian dictator, Marshall Kurvi-Tasch. Such is the tyrant's despotism that the diacritic of his language, derived from his famous moustache (perhaps Hitler and Stalin were both in Hergé's sights?) pervades all aspects of Bordurian life and manifests itself in the architecture of the capital city and the industrial design of its vehicles (Figure 50). Such is the communicative power of Hergé's vision that a whole style, the *Ligne Claire* approach to comics has grown up around his work. Joost Zwart, Yves Challand and Moebius are perhaps the best known illustrators to have further developed this technique.

Another European comics artist, Italian Milo Manara, works with detailed and accurate line drawings to create surreal images. According to Mitchell (2008), "any picture may become a metapicture, whenever it is employed as a device to reflect on the nature of pictures" (p.19). Manara's reflected cayman drawing (Figure 51) from his comic *The Great Adventure* (1988) can be described in such a way as a metapicture: This image is remarkable for drawing to our attention the way that water reflects light, and the ways it does not. Seen from a low perspective on a river, moon and boat are, reasonably, reflected across the horizon. The cayman being much closer to the viewer should not be reflected across the horizon but across the plane where its body intersects with the water. Sounds effects certainly should not be reflected at all! But Manara cleverly draws our attention to the fact that this is a visual medium only (comics) and that everything within the medium is under the control of the artist.
Gestalt closure

Gestalt understanding of colour and shape and closure

As Scott McCloud has eloquently observed, action in comics actually takes place between frames and within the mind of the reader (1993). His subtitle for *Understanding Comics* is *The Invisible Art*, for this reason. The implication of this observation is that a complete distillation of image down to nothing can still be meaningful so long as good clues are given either side of the image: The 'missing' image, which will be different for each reader/viewer, is part of a sequence. Any comic will demonstrate this happening, but few, I believe will do so as eloquently as Milton Glaser's *Red Chair Painted Yellow* (Figure 52). Glaser's removal of any character or 'actor' from the scene emphasises that the action does indeed happen only between the frames in comics. The clues he leaves are perfect: the paint pot and the red chair changing frame by frame, daub by clumsy daub until the final scene has the chair defined only by its shadow on the floor and the wall at its back.
Ryan Pequin’s comic at Figure 53 shows closure, or lack thereof, on the obscured speech bubble, suggesting a refocusing on behalf of the central character, away from the words of his associate, and on to the cup he holds in front of him. It puts the aural into the visual realm in such a way as we can imagine the sound being ‘turned down’ as if part of a soundtrack. Instead of being replaced by other sounds or music as we might anticipate in film, it is replaced by a mute visuality. In this sense it is another metapicture, describing as it does some of the unique potential of a comic panel where the aural is slave to the visual, and disturbing closure to affect a pan-sensual understanding of a strictly visual medium.
Establish and work within a system of seeing:

George Hardie, Professor of Graphic Designer at Brighton University, and well known for his axonometric approach to illustration has said, “The search for a style of drawing is never as interesting or important as the search for a way of observing, seeing, or thinking” (2005, p.134). Developed, allegedly, to cover up an inability to draw academically, Hardie’s axonometric projections constitute a system of seeing that, firstly, easily allows a set of several drawings to belong together, as per the illustrations shown at Figure 54, and secondly, especially when applied to forms which in the real world are organic—a highly atypical use of this architectural projection—leads the reader of the image into a visual game in order to decipher how the image illustrates its text. In the case of graphics for music, Hardie seems to have been acutely aware of the viewing situation of his audience: most likely seated enjoying the recording, holding the record sleeve in hand while reading the lyrics. Over repeated listenings and viewings, perhaps over the course of months, the illustrations, such as those for the dust-jacket of Genesis’ The Lamb Lies Down on Broadway, may slowly divulge their encrypted content.

Even da Vinci appears to have sensed the communicative potential of such a system of seeing: “It is very clear that although Leonardo knew the laws of perspective perfectly well, he seems to have given precedence to the older system of parallel projection in many of his sketches” (Uddin, 1997, p.3).

Where image meets text

Integral’s design for Köln-Bonn airport is significant in terms of this zone along the realism continuum where image comes closest to text (Figure 55). Intégral’s design for the wayfinding program at the Köln-Bonn Airport in Germany employs two basic shapes (with six suble
The Japanese approach seems to derive from an e-mail author’s personal experience of emotion rather than simple observation of emotion: When one smiles, one can feel the lower eye-lid crinkling upwards though this may not be so obvious in another. This accords with Dondis’ and de Sausmarez’s notion of ‘body-felt’ understanding of forms in space.

Caricature

As I will show in my next chapter, caricature as a pictorial technique seems to be located independently of the realism continuum: A highly realistic image captured by a photograph may be distorted using the computer to create a caricature, but a caricature may also be made using the less realistic line drawing, or even from a drawing made to Fussel and Haaland’s (1978) specifications of minimal interior detail. However, it is difficult to conceive of a caricature being developed within a drawing of any less detail than this since caricature drives towards making clear the difference between objects of the same class (to solve the homogeneity problem) while distillation or the removal of identifying details works ultimately towards making objects within the class generic.

Figure 56 is an advertisement for women’s boots in which a woman’s legs are exaggerated to provide a startling break with realism, to refute any notion that this image is about a specific person (the face would more likely be foregrounded in such a case) and to accentuate the subject of the advertisement. The “spotlight” psychology I discussed in chapter 3 is at work here with the designer having performed the spotlighting on the viewer’s behalf. In effect, this is a caricature of the boots, to show that they are big and chunky (compared to the norm of women’s footwear) and to simultaneously distinguish them from those by other makers.

Figure 56: Editorial advertisement for boots in which the designers have performed the ‘spot-lighting’ on behalf of the reader. Design: Stephan Ganser/Hans Jürgen Lewandowski. Photography: Axel Jansen.
According to Porszky, Young and Patton, who complain that pictures are assumed to be unimportant in education, “It is almost as though the educational system is seeking to wean the student’s mind off graphics by climaxing in books that are all words and no illustrations” (1999, p.107). One thing we might do is to look at the imagery available in a society where this ‘weaning away’ does not occur. As we have already seen above, one cultural approach to emoticons shows a more subtle understanding of how visuals may reflect emotions. What can design from Japan, where grown men in business suits read comics on the way to work, show us for about caricature? My interest in this research derived initially from a study of facial expressions. It appeared from my own experimentation that less representation in a picture of a face allows for a more direct communication of the emotion. In Japan the mainstream cinema is anime or animated film rather than ‘live action’ film, and this phenomenon in itself is worthy of consideration. One of the many noticeable attributes of such film is the way in which character’s faces, even in the more serious of these works, may be momentarily (and perhaps even grotesquely, to unaccustomed western eyes) stretched into an embarrassed grin, an angry scowl or a hearty laugh in order to give primacy to the emotion being expressed. The more general nature of the emotion rather than the specificity of the character seems to be of prime importance, and Japanese visuality seems to have just the right techniques to communicate this (Figure 57).

Figure 57: Miyazaki’s Porco Rosso shows the Japanese tendency to momentarily obscure a character’s specifics in order to amplify, through caricature, the emotion of the moment.

Just briefly, before embarking on my major critique based on the understanding about caricature developed in Chapter 3, I want to discuss the antithesis of caricature. Julian Opie is a pop-artist whose work is often described in terms of its relationship to commodity culture.
Mindy Ross, director of public art for the Arts Council of Indianapolis describes his work as follows: "Underneath what appears to be a straightforward almost comic-strip use of line and color, lies an exploration of the role of the individual in an era of mass production and an alluring visual language that marries the banality of street-signs with the slickness of high culture." ("Julian Opie: Signs", n.d.). However, it is possible to describe Opie's work in a way pertinent to my research. In terms of what was explained in Chapter 3, his portraits are images created using the mechanics of caricature. Instead of exaggerating aspects of the face further away from the norm however, the artist moves each sitter's features back towards an imagined norm of where eyes, nose and lips generally sit on a face. He shows us how the sitter is like everyone else by 'un-exaggerating' the features that make them unique (Figure 58). At the same time this creates a subject who appears mute and accepting, a series of shop front dummies emerges from these paintings; characters who are completely desensitised to everything, bereft of emotion save for perhaps the merest hint of shock. In terms of what I described in Chapter 3, these are distant people shown close up without being reintegrated!

Figure 58: Julian Opie's portraits are, in-effect, anti-caricatures that reduce each sitter's features towards a universal configuration.

Caricature and realism in the same visual text

Here I embark upon a longer critique of a visual text, as an attempt to put into practice Christopher Crouch's (2008, p.195) idea of "treating visual literacy as an active process" and developing it "so that it involves a critically analytical reading of visual texts". Thunderbirds is a children's T.V. series produced by Gerry and Sylvia Anderson that ran for two years in
the mid-1960s, but which has been repeated, internationally, many times since. As with many productions from this husband and wife team, the adventures of the Tracy family and their emergency services organisation, International Rescue, are portrayed through the use of puppetry and highly detailed sets. This is an ideal visual text to examine in the terms of this thesis, specifically because it makes clear the particular strengths of realism and the strengths of distillation. It is a text that includes both kinds of images, and the combined use of such images is crucial to the way its design functions and to its longevity with fans over several generations.

The Thunderbirds' rescue missions are on a ridiculous scale given that in nearly all episodes only one or two persons are in peril—in one rare exception, The Mighty Atom, where an entire city (Melbourne) is threatened with radiation poisoning, it is the wind, not International Rescue, which saves the populace. Despite this exposure of a gaping chink in the I.R. armour, Thunderbirds remains compelling viewing precisely because the boys are not there to prevent disaster from happening but to rescue survivors of the spectacle: to welcome to the club those who have pushed their lives and their machinery to the limit. In the few situations presented where those in peril are rescued before a calamity, the calamity still happens: the explosions can never be long-contained on Thunderbirds, that would be like offering Guy Fawkes night without the fireworks.

In Thunderbirds it is the transparency of the puppet characters, their unobtrusiveness, that allows the real essence of the series, its celebration of machine-power and technological catastrophe, to be pulled on strings, to centre stage. The Thunderbirds marionettes have particular advantages over actors and even other puppets in this regard. I will examine what these are and explain how they reveal themselves. Firstly, In a purely psychological sense the Tracy brothers could be said to be 'good-looking'. Attractiveness may be attributed to symmetry in the face, and the facial features being arranged within an average space. Such features indicate "developmental stability in the presence of environmental and genetic challenges, and therefore provide a possible indicator of health (and therefore perhaps fertility)" (Grammer & Thornhill, 1994). To engage in a discussion about strong and continued lineage with regard to puppets is of course bizarre but we can argue that the Thunderbirds puppets are handsome,
and indeed they were modelled on real people. How children (ultimately the main audience of the show) relate to 'attractiveness' is open to conjecture, but the absence of disease or signs of deformation that makes faces alluring also evidences a 'normal' or bland face, and this is vital to the success of Thunderbirds. Where the features of a face are configured within an average range, that face is generic enough to become 'transparent' (at least to a white male audience) in the sense that it doesn't draw attention to itself as 'other'. This allows for viewer identification: not only can the young viewer relate to such a character, he can virtually assume the role of that character in the adventure. The Tracy boys are certainly average in this sense. But in combination with their averageness is the subtle exaggeration of certain facial features such that the eyes are larger than would be seen in a typical face; this too is integral to the visual impact of the series.

This balance between normality and caricature did not previously exist—In various Anderson series prior to Thunderbirds the puppets' characteristics were too exaggerated—and seems to have been lost after the Thunderbirds phenomenon. In the later series, Captain Scarlet, for example, where the proportions of the characters are far more realistically human, the characters have become perhaps more handsome but any "heightened response" (Rhodes, 1996, p.25) through exaggeration has evaporated. And, as we shall see, the crucial relationship between 'man' and machine is lost in Captain Scarlet because of this realism.

While the Tracy marionettes avoid too much in the way of exaggeration, other Thunderbirds characters are less circumspect in their design; the faces of Parker and the Hood being particularly noteworthy for their very distinct appearances (Figure 59). A parallel may be found in Tintin. Each of Hergé's characters looks unique and has highly specific traits. The Captain has a beard, bad drinking habits and a terrible temper, the Professor is shabby, slightly built and very hard-of-hearing, and so on. These kinds of characters, in Thunderbirds as in Tintin are doubly unique for being distinct in appearance and for appearing only as that character

6. Certainly, a great deal of care was taken with regard to the look of the puppets: "The thirteen main puppets for Thunderbirds were designed and sculpted by John F. Brown, John Blundall, Christine Glanville and Mary Turner. The team was given six months to create the characters, basing many of the faces on pictures of actors in Spotlight, the actors' directory: heroic lead character Scott Tracy was based on the young Sean Connery [...] IR head Jeff Tracy was modelled on American actor Lorne Greene [...] Brains resembled Anthony Perkins [...] and Alan Tracy was based on lesser known American actor Robert Reed [...]". (Bentley, 2000, pp.15-16)
(unlike, say a unique looking character actor who is called upon to play many different roles). These characters operate in the sense of being ‘other’ and are often the butt of slapstick jokes or the pity of the central character(s). As we shall see, these exaggerated characters play a pivotal role in the viewers’ relation to the futuristic machinery of *Thunderbirds*.

![Figure 59: 'The Hood'.](image)

Figure 59: 'The Hood'. Certain characters in the *Thunderbirds* universe are exaggerated more than the central figures in order to accentuate their ‘otherness’. (Series production design: Bob Bell)

To return briefly to Herge, his one character without physically unique features and almost devoid of personality is Tintin himself: Tintin is the cypher or avatar that allows the reader to enter the story unobstructed. The only traits Tintin does display are those of loyalty, bravery and intelligence: Unspecific yet noble qualities to which the young reader might be assumed to aspire. In this sense, where ‘blandness’ (or lack of specific and obstructive qualities) allows association, the young viewer has, in *Thunderbirds*, five potential roles (each of the brothers) to assume while watching the show. The specificity of the ‘other’ characters also ensures, through comparison, the generality of these central ones.

Tellingly, however, “it was initially envisaged that the ‘star’ of the show [...] would be the supersonic reconnaissance rocket Thunderbird 1” (Bentley, 2000, p.13). Clearly the production crew understood, even before the show first went to air, that most of its appeal would lie with the machinery. In light of this, the ‘blandness’ of the Tracy faces avoids obstruction, not only of viewer identification, but more crucially, of the Thunderbirds hardware itself. It is no coincidence that the show’s working title of International Rescue, which placed a clear emphasis on the actions of the characters, was later abandoned and the title as we know it, taken from the machines themselves, was adopted.

Where *Thunderbirds* really comes into its own is incorporating the puppets into their futuristic surroundings (Figure 60). While the puppets ‘walk’ a fine line between blandness
and exaggeration, the settings and machinery into which they are placed look surprisingly realistic. This results from a combination of factors. On Tracy Island in particular it is the very accomplished architectural models, interiors and exteriors alike, that contribute substantially to the realism of place. And this realism of place helps in our willing suspension of disbelief. The camera work and modelling which forces perspective into these small sets, and the editing which slows the footage down to create the sense of grand spectacle, combined with the dust, dirt and pyrotechnics (from Bond movie effects maestro Derek Meddings) also allow the unfeasible to appear almost probable.

![Figure 60: Scott Tracy. Thunderbirds features cartoon-like characters but carefully detailed and much more realistic sets. (Series production design: Bob Bell)](image)

It is vital to note here that the machinery is not particularly high tech: the jets and rockets sound like the jets and rockets of 1964 (when the show first aired). The car and truck engines are definitely burning fossil fuels; the noise, the dust, the oil and smoke all tell us so. It is the scale of the machines that is awesome, not any particular innovation of flight or conveyance. The sights and sounds that are already familiar to us in our urban surroundings are important to help us suspend our disbelief but what they really signal here is a triumphal celebration of twentieth century muscular technology projected into the future.

It is useful to recall that Thunderbirds was made during the space-race (and that Jeff Tracy is a retired astronaut) and the belief was abroad that technology could deliver us into a glamorous Utopia. Thunderbirds is essentially a compelling re-presentation of the Futurist aesthetic where even the production crew were convinced of the superior efficacy of machine over man. This homage to futurism manifested itself behind the scenes in a dedication to the machinery of marionation. To make the perfect character, literally man as machine,
Anderson and his team began to experiment with electronics to match dialogue to the puppets' mouth movements. The fibreglass head of each puppet was fitted with a solenoid connected to special tungsten wires on which the puppet was strung. Pulses could then be fed down the wires from a tape recorder running pre-recorded dialogue, and these pulses would trigger the solenoid to operate the puppet's mouth perfectly in sync. Over the next five years, this process was constantly refined into the technique that became known as Supermarionation. (Bentley, 2000, pp.9-10)

The celebration of technology and its machinery is then foregrounded through the use of puppets—man-machines—instead of people. And it is the other machines, rockets, jets, transporters, trucks, with their grand scale and their explosive force, that really drive the show. Not for the Thunderbirds production design team the polished white synthetic appearance of later sci-fi such as Star Wars or Battlestar Galactica, but a gritty, noisy, shuddering, smoking world of machines exactly as imagined by Marinetti. The movements of the machines carry the narrative along, while the characters themselves are but simple, lightly-built beings borne along and aloft on these dirty, great juggernauts.

Among these characters, the Tracy boys' features are 'normal' and handsome. But, as mentioned, there is some exaggeration. The heads are outsized compared to their bodies and this of course draws attention to the face. In the faces themselves there is some exaggeration of eyebrows which in turn draws attention, ultimately, to the eyes. The Thunderbirds puppet eyes are big in order that we are drawn into them and feel sympathy for these characters (in the same way that babies eyes have an appeal through their relatively large size). But more importantly they appear big because their pupils are dilated. This, in concert with heavy eyelids, suggests an almost drugged calm; the boys appear 'spaced-out'. The drug, naturally, is adrenalin.

This concept may seem less far-fetched if we look at the context of Thunderbirds, or perhaps the zeitgeist of the late 50s/early 60s, as being that which also gave the world the monstrous cartoon creations and automotive art of Big Daddy and Von Dutch. Their creatures too are

7. Filippo Tommaso Marinetti published his famous Futurist Manifesto in 1909. His tirade includes not merely an exultation to the machine but a celebration of danger, accident and injury.

8. In Post-war (WWII) America, Ed 'Big Daddy' Roth and Von Dutch became subculture favourites for their automotive art and autobody stylings. They were also known for their decals, an extension of the illustrative style used on the sides of warplanes, applied to cars and as graphics on t-shirts. Von Dutch is probably best known (appropriately in this context) for his infamous 'Flying Eyeball' logo.
high on the deadly adrenalin rush of being barely in control of hugely powerful machines. This is a prevalent theme in popular western art of the time: characters whose eyes are wide with fascination, anticipation, fear and lust. "As other machine-obsessed subcultures spread from the 50s into the 60s (particularly hot rod street racing) eyes went beyond the early popping proportions and became symbols of a hysterically detonated domain of unbridled hedonism and orgiastic destruction" (Brophy, 1994). It is no coincidence then that from time-to-time we are also shown sweat on the brows of Virgil, Alan and Scott. These scenes invariably follow loss of control of a craft and suggest that, on these occasions, the boys have gone too far, have overdosed on the thrill of the 'trip', and 'crashed'.

If we assume that the handsome, transparent looks of the Tracys allow us to 'be' them for the duration of the show, then it is us strung out by the rush of this thrill ride and this is what makes Thunderbirds so captivating. Like addicts however, they always return for another fix, climbing back into the machinery and strapping themselves to it; in Virgil's case, almost born into the driver's seat of Thunderbird 2, as if being delivered into the world of machines time and time again. His toboggan ride from Tracy Villa to Thunderbird 2 sees him limp and powerless between the jaws of gravity and technology. On completion of his descent—shown as a repeated motif, a ritual of man giving himself to machine—the end of the chute and Virgil collapse in perfect unison into the shape of his tailor-made pilot's seat: Virgil has literally become a part of his flying machine. These are the 'men' of the future, not in control of their destiny but delirious in their enslavement to it; enraptured in their embrace with brute power.

The Hood, long-suffering nemesis of the Tracys is portrayed, not so much as an evil corruptor—since each of the Tracy boys has already been corrupted by the only earthly thrill worth knowing—but as little more than a charming rogue. This is exactly because he is a member of the same club: the machine-addicted. He is one of them because he is related to the House of Tracy, but more so because his one ambition, that burns like the flames in his secret hide-out, is to have the Thunderbird machines for himself. Indeed, the Hood has strong parallels with the charming Parker (and it is useful to remember that Parker too was once a criminal) since each clumsily embraces the machinery, often coming off second best. Neither is ever seriously injured but, as in cartoon violence, ends up with a blackened
face and tousled hair; a figure of fun to be laughed at complete with the accompaniment of the cartoon-voiced saxophone: 'wah, wah, wahhh'. Most importantly, we can see in the Hood's eyes that, just like the young audience, he is in the thrall of the machinery. We must sympathise with him because, after all, he only wants what we want.

As a perfect non-example of the effectiveness of large eyes, Anderson's Captain Scarlet featured puppets whose eyes were smaller and whose features were not exaggerated at all. Tellingly, these were characters in control of their environment, not addicted to it. The agents of SPECTRUM, unlike the boys at International Rescue were not under the spell of their machinery (though it was every bit as spectacular) and, by association, neither was their audience. This certainly accounts for Thunderbirds relative longevity as a public favourite. It is the strength of Thunderbirds above all the other Anderson series that it achieves in its characters this perfect transparent balance between averageness and exaggeration. It is precisely this balance that allows the unique relationship to exist between marionette and machine.

With the Thunderbirds marionettes only the merest pretence is made towards truly human appearance (Figure) or movement. The suspension of disbelief is made happily and voluntarily by the audience in the (far from obtrusive) knowledge that these figures are not really flesh and blood. Nor does Thunderbirds require of us that we be convinced of these figures' 'souls' or even motivations. It is enough that in their ponderous and fragile ways they move across the set, as much part of the machinery of inexorable progress towards a right and proper conclusion as the vessels they pilot.

With the removal of real actors and the reduction of character to mere parts in the machinery, Thunderbirds can present miniature spectacle maximised to a fantastic scale. While the giant-sized machinery and the exotic locales are outside of our experience, the visceral thrill of screeching tyres and jet engines are familiar enough to guide us, entranced into this otherwise unfamiliar realm. Through a rich and highly literate visual code, to which the look of the characters—sometimes 'transparent', sometimes part of the machinery—is integral, the drama can be pulled (literally in the case of the marionettes and the machines) inexorably towards its explosive conclusion.
Conclusion

The strategy to measure and improve visual literacy through discussion of examples, can be strengthened if the questions which generate the discussion, as proposed by Bamford et al, are augmented with questions regarding a picture's relationship to realism. The knowledge of what the visual system responds to also provides a good range of critical tools with which to examine pictorial examples. I have attempted to demonstrate here that my research has led to some new approaches to appraising design visuals in a methodical way: That images can be taken apart using these terms. What I seek to explore through some student case studies in the next chapter is whether images can also be put together on these bases.
A new language, visual or verbal, must be couched in a language that is already understood

—Ivan Chermayeff

Chapter 6: Student case studies

Background to the study

This thesis has identified a gap in graphic design theory and subsequently in the teaching of the subject. One of the ways to bridge the gap is to design teaching modules focusing on image. As I explained in my introduction to the thesis, a major aspect of typography is the choosing of type appropriate for a particular message. Type is categorised in several different ways, and some of the categories, such as 'text' and 'display' suggest the uses to which particular typefaces should be put. Here I want to observe whether my research so far can assist the student in choices about images for particular contexts. In this chapter I set out the briefs to four university design projects based on the image theories examined in this thesis. These projects, and the student responses to them become case studies which allow me to observe whether students were able to assimilate the new knowledge from this thesis and transpose it into pictorial information. These case studies are not research into perception, rather they are research into educational practices in design based on perception.

Purpose of the studies

In these studies I observe where successful assimilation and translation of the research occurred. I also include non-examples, that is instances where the student response shows limitations in the theory or the teaching materials. Prior to the projects I try to ascertain students' experience of considering realism as a criteria for designing images. Following the projects I observe whether the instructional material based on my research assists students to make choices about images. Reflecting on these case studies, I observe whether assignments focusing on image can provide exemplar content and explanation to help students understand how to make images for particular purposes and contexts.

Participants and settings

These studies were undertaken with the cooperation of 40 graphic design students from Edith Cowan University (ECU), Perth, Australia, and five students at Otago University (Otago), Dunedin, New Zealand. ECU students were given three projects to carry out based on the
research, and the Otago students were asked to make one, more substantial project. In both groups the projects were part of the students’ assessable work program for a semester. The projects briefs were designed by me to fit into pre-existing unit (paper) outlines in pre-existing design courses. It is for this reason that there were three projects for the ECU students and one for the Otago students. In both universities the students were recruited from the final (third) undergraduate year of the graphic design programs, but in essence these are two different studies based on the same research.

Data Collection

Data was collected in a range of forms comprising student responses to questionnaires and students’ designed responses to project briefs. The data was sought to compare knowledge before and after the projects: Students’ level of experience regarding the implications of realism and abstraction in pictorial communication prior to lectures and instructional materials being given was compared with the work produced following the lectures and instructional materials. To best assess the students’ submissions for the projects I wanted to find out if they had any experience of choosing or making images depending on how realistic those images were. I surmised that, armed with this information, I would be better able to determine the effectiveness of my instructions when the projects were submitted. Firstly, to ascertain this experience I gave each of the ECU students a visual questionnaire prior to their introduction to the suite of projects. Student responses to that questionnaire are detailed below. Secondly, during the introduction to each individual project, I asked the students if they had previously designed for a similar project or context. Responses to these questions are included at the beginning of each project section. My observations regarding the assignment carried out by the Otago students—an animation project—are structured somewhat differently to accord with the more open brief given to these students. These observations are based on the comparison of the students’ work with their written responses to a questionnaire. This questionnaire was given to the students before they received any instructional materials or began their work. Students were asked to complete the last question of the questionnaire as they were finalising their animations later that same semester. Responses to the questionnaire are included in the appropriate section of this chapter. This animation project allowed for
more student autonomy (in keeping with the pre-existing unit plan): The brief was open as long as the theory presented in the lecture was addressed in some way and the project paid additional attention to the possibilities enabled by moving images and "integrating other sensory experiences" (Debes, 1969b, p.27).

Structure of these studies

This chapter is divided into sections devoted to each of the four projects listed below: The first three projects listed were carried out by students at ECU while the fourth was given to Otago students. At the beginning of each section I set out the parts of the thesis which I have developed for a student project brief. After that are edited examples of the instructional materials (lectures which include pertinent exemplars as per the discussion in Chapter 5, and/or instructions given in class for each of the projects). Following those materials will be the brief itself; then student responses to the brief (in the interests of brevity I will not show all responses to each brief); and finally, a concise summary of the student works including observed shortcomings or particular strengths and successes. The sections of this chapter are built around the following projects:

- 9 pictograms project.
- Editorial illustration project.
- Information design project.
- 'Flicker of recognition' animation project.

There will be a further summary of the studies at the end of the chapter describing common themes in student responses and limitations.

It is not my intention to show that these assignments must be the ones through which image is taught, but to show that the theory and conjecture upon which these were based are appropriate starting points. From these points the graphic design educator can structure a course about the role of image in communication, beyond the prescriptions for photography proposed by the Neue Schweizer Grafik, and alternative or complementary to interpretive communication theories such as semiotics.

The research up to this point has proposed strategies for image making and for image critique: An understanding of the strengths and weaknesses of photography (specifically
the problems of specificity and context); an understanding of the potential for silhouettes and outlines (from a psychophysical understanding of shape, size and colour constancy); an understanding of how the visual system decides whether things belong in a group (gestalt principles of line, shape, colour and orientation); and an understanding of caricature (through the mechanics of mapping against and exaggerating away from an imagined norm).

Prior to the projects: Assessing student knowledge

In order to best judge the effectiveness of these assignments, I created a visual questionnaire (Figure 61) through which to assess students' previous experience and understanding of image. I wanted to know specifically if the students had considered that images might be rated along a continuum from realistic to abstract. Using pictures derived from Wileman's 'concreteness-abstractness' continuum (Figure 9, p. 59) the students at ECU were asked to place unlabelled pictures of a shoe along the continuum in to what they regarded as the appropriate positions. No student responded that they had consciously considered images in this way before, however, when the completed visual questionnaires were returned, they showed some consensus. In all cases the photograph of the shoe was considered the most realistic and was placed in to the first position on the left of the scale, labelled 'most realistic'. In all cases the semi-circle with scallop shape was placed in the position of 'least realistic' on the far right, and the 'cartoon' shoe was in all cases placed immediately to the left of this least realistic position.

Figure 61: Visual questionnaire: Students were asked to place the shoe pictures (unlabelled in the original questionnaire) into the appropriate positions along the above scale labelled 'most realistic' to 'least realistic'.

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The only variation in the responses was in the second and third positions from the left of the scale (Figure 62): 17 of the students thought that the silhouette belonged as the second-most realistic, while 23 students thought the line drawing should be in this position. The former responses accord with my argument from Chapter 3 that the silhouette is more realistic, while the latter responses accord with Wileman’s positioning of the line drawing as more realistic than the silhouette. When questioned verbally about this variation, those that preferred the silhouette tended to cite its accurate outline rather than issues of tone. Most students who chose the line drawing as the more realistic cited its high level of detail rather than its accuracy.

![Figure 62: An example of the student responses. The only variation in responses saw approximately half the student group place the silhouette in the second position while the other half placed the line drawing here.](image)

The general consensus exhibited in the positioning of these pictures suggest that students had a developed sense of where these pictures belonged on the continuum without any instruction. There was some disagreement as to which was more realistic, the silhouette or the line drawing. The group of 40 students was split, approximately in half, over this decision.

In addition to this visual questionnaire, prior to the commencement of each of the following assignments, students were asked questions about the creation of pictures pertinent to that assignment. I will recount those questions and student responses under the 'Theoretical/Conjectural' heading at the beginning of each project section. In every project case study, the approach to teaching picture making was completely new to the students according to their responses to my questions. As with the visual questionnaire detailed above, this instructional material was previously unknown to the students. Any observed successes or failures within the following case studies then are more likely attributable to the studies themselves than to students’ previous experience.
In Chapters 2 and 4 I explored the trend in reduction of detail seen in information design. Following my exploration in Chapter 3 of why distillation works in visual problem solving, I wanted to test the students with a project whose solution relied on reductive image making. I asked the students if they had designed pictograms before. None had. I asked how they thought they would go about making a pictogram: What did they think pictograms were for? Responses included 'to replace words', 'so you don't have to read much', and 'to get the meaning across quickly'. What were the typical visual elements of a pictogram and why? Responses included that pictograms were 'simple', 'basic', or 'looked like stick-figures'. Students thought that the reasons for this reduced appearance was so that pictograms 'stood out', 'were quick to see and understand', 'are like an alphabet', and 'worked like a code'. I also asked, since this was a main aim of this project, how would one go about making a set of pictograms? Students were much less forthcoming with answers to this question. 'Pick a theme' suggested one student. When asked to elaborate she explained, 'If it was a set for a hospital it should be clean and clinical looking, but if it was animals the set should be made around body features'. When asked why one visual approach should apply across the set she replied that this 'would hold them together'. She could not elaborate beyond this except to say that they would be visually 'the same'. None of the student responses referred to attributes of human sight or psychology. Nor did they include notions of realism or its visual alternatives except where these were implied through the terms 'basic' and 'simple' which might be defined as opposites to 'realistic'.

I explained to the students my research pertinent to this project. I summarise those aspects of the research again now. In Chapter 3 I dealt with the idea that the human visual system is constantly solving the problems of the visual world—making object hypotheses from novel visual data, for example—and that attempting to solve this problem requires subconscious and conscious mental effort. Illustration, unlike photography which tends to re-present reality, has the potential to help solve this problem on behalf of the viewer by moving away from realism. One 'problem' for the visual system to contend with is 'what is an object'. In other words, in our visual field, which thing or things that we are looking at
constitute one object and which another, and how can we recognise an object as being itself even when it has turned around and now appears different: This is the problem of 'object constancy'. This problem is pertinent to pictogram design, and can be resolved through some design techniques which amplify particular signals for which the brain and eyes are on the look-out.

Another visual problem is determining which items belong with which group. Students were introduced to gestalt notions of pattern and belonging. The brain will organise things by shape and orientation, but it will also group objects by colour though their shapes and orientation may be dissimilar.

Dondis, in her Primer of Visual Literacy (1973), tells us that all images, no matter how realistic, have at their core an abstract composition. This abstraction allows for 'all-encompassing' meaning. The level of realism used by the designer then may be a means to strip away detail to allow this all-encompassing reference to become readily apparent. It seems likely that a reduction in real world referents will also have a powerful effect in the viewer in helping him/her to group objects using other cues such as colour, shape and line-weight, even where these have been artificially introduced by the designer.

In terms of the realism spectrum I have tried to establish in Chapters 4 and 5 that pictograms are closer to words in their visual abstraction than they are to visual reality. In this sense, the coherence evident in a typeface through its letters' similarity in size, shapes and weight, the presence or not of serifs or other signifying particulars, is echoed in pictogram design through properties such as size, shape and line-weight and the treatment by the designer of the outline of the pictogram: whether or not it has sharp corners or rounded, for example. The Intégral/NORM design for the Köln-Bonn airport that we saw earlier (Figure 55, p.154) was a particularly good example of this as it integrated a small range of lines and curves into both the project typeface and its pictograms.

I explained to the students that this psychological approach to distilling images, which limits point of view, colour, outline method and so on, adds up to a 'system of seeing' which the designer can (and in the case of pictograms, must) apply to his/her disparate objects to create a sense of group belonging.
Lecture/class materials/instruction for pictograms project

In the lecture and instructional materials through which this project was introduced, emphasis was placed on the adoption of a 'system of seeing'. I explained to students that this concept was similar to that of 'style'—in the sense that an illustrator or visual artist may have a style, for example, Picasso's cubist approach to painting that unifies his body of work—but the system of seeing differs from style through being more analytical and in deliberation towards creating the specific impression of belonging for the individual elements to a set.

As mentioned in the introduction to this section, the problem of object constancy can be partially resolved by the designer on behalf of the viewer if the designer knows to what the viewer's visual system is predisposed. This problem has been solved by most of the student examples through the following techniques: Firstly, viewing the object from the most pertinent angle for ready recognition (through the lecture materials students were advised to consider the definitive angle from which to communicate the object; which angle showed the most information or, more importantly, the most pertinent information to help in recognition or definition of an object or function); and secondly, edge detection, amplified through the actual drawing of an edge (nothing in reality has such an outline, but as shown in Chapter 3, the eyes do send electrical signals to the brain when an edge, a difference between foreground and background, is detected). This edge is what may be amplified through the drawing of a line to clearly delineate foreground and background. Having established that the existence of a drawn line can do this, using illustration we can exaggerate line further still, through, among other techniques, thickening the line. This is especially important in pictogram design, as we can see in some of the preceding student examples, because a uniformly thick line applied to a range of disparate objects can help create the impression of belonging for those objects to one coherent set.

With regard to the visual problem of grouping, as discussed the brain will organise things into groups because of their shape but it will also group objects by colour though their shape may be dissimilar. These visual problems are in part solved by the pictograms through the distillation of image. This distillation may result in: A reduction or removal of noise (visual detail unhelpful for the recognition and definition of object and function) from the object and/or its background; An introduction of similarity of shape into a set of objects
to strengthen the sense of belonging where, in reality, such objects may not bear a close family resemblance; An introduction of similarity of outline (perhaps a subset of the previous function or of the next, colour) where in reality no actual outline exists for any object; and an introduction of unity of colour, where in reality such a family of objects may not have similar colours. In the brief, students were asked to keep to one colour only and its tints as well as being told to pay careful attention to outline.

A key question students are asked to bear in mind throughout this introductory assignment is ‘why draw?’; what advantages can drawing and diagram have over photographic realism? What kinds of filters can we introduce to reality through drawing and diagram? What systems of seeing?

**Commentary**

Angry face. From a book where it was used to illustrate anger. Expression somewhat ambiguous: suggests to some viewers elements of surprise, fear, disgust, pain and/or exasperation.

Anger pictogram. How is this different to the photograph? It’s not a specific person yet still conveys the emotion without distracting questions about situation or ambiguous facial expressions suggesting other emotions. We find emotional expression in the merest hint of a face.

We invent meaning and narrative even where it may be unintended. Two flat shapes suggest parts of a broken pillar; one piece falling towards the ground.

2D shapes may feel approachable or foreboding depending on what they suggest of the real, 3D world.
Commonality of shape will cause the human visual system to group objects accordingly. Here the objects belong as a set of three triangles, a set of three squares, etc.

However, such grouping may be interrupted and usurped by the introduction of colour among the shapes. Now the shapes exist as a set of green shapes, another set of red shapes and another of blue.

In the research there’s a trend visible in design towards distillation (not simplification) in logos and pictograms but not in graphic design imagery in general.

Perhaps because designers are unaware of how or why an image distilled down from the realistic to something far less detailed can still convey meaning, in fact more meaning and emotion in the appropriate situation than a realistic image.

Accordingly, our first assignment is to look at this distillation away from realism. And we’re going to start with icons. These are not simple in the sense of easy to design, but the result is a visually simple image to view and understand.

Otto Neurath is the father of the modern pictogram whose work attempted to create a visual ‘Esperanto’.
Often overlooked in the research, the Tokyo 64 pictograms by Yoshiro Yamashita kicked off the post war move towards a visual language.

The Japanese design team were very conscious that most foreign visitors to the Tokyo Olympics would not speak or read any Japanese so an attempt was made to create a visual language pertinent to the games.

A successful set of pictograms has a system behind it. A means of visual organisation from which it is derived. Such a system may comprise a limited number of shapes and angles as in Otl Aicher’s designs for the ’72 Munich Olympics.

Aicher organised his figures on a grid using a small number of modular parts that could be reassembled to make up the different sporting events. This modular approach could be likened to Arabic numerals on a digital watch.
Vision

Figure 74: Benincasa-Husmann. Turin 2006 Winter Olympics icons.

Figure 75: Intégral/NORM. Detail of type/pictogram modular design.

Figure 76: Renner, Müller-Lancé. Yellow Pages pictographics.

Commentary

Benincasa-Husmann designs for Turin 06 are much more fluid and expressive by comparison but still conform to a tight set of rules regarding shape, colour, tint and composition to achieve coherence.

The cool colour of the background provides an appropriate winter setting, but more importantly makes it clear that these images are part of the same group: glyphs in the same visual language.

Intégral’s designs for the wayfinding program at the Köln-Bonn Airport in Germany. Two basic shapes (with six subtle variations to each) are used, not only to make up the pictograms but also the unique typeface for the airport (by NORM Typographers).

Thus, words and pictures are expressed through the same set of rules creating arguably the most coherent wayfinding program yet devised.

Sharing some of the fluidity of the Torino Winter Olympics program, the Bell Pacific Yellow pages pictograms still conform to a system that sees any new images rendered in the same fashion as the pre-existing set.
Commentary

Each item has been modelled in 3D then rendered with a single light source and a 50% threshold on the highlights and shadows. No mid-tones exist: anything lighter than 50% grey becomes white, anything darker becomes black. The choice in execution comes from rendering the object in the 3/4 view which allows the most relevant understanding of the object.

Set of animal pictograms designed by Cyan for the computer game ‘Riven’. These are executed using common shapes. Vector fills only: no lines. The effect is also to create the impression of a fictional tribal art through primitive shape.

Fun and flexible but perhaps not consistent across the range. Point of view is inconsistent. The same is true of crucial aspects such as line weight and colour fill.
Project brief for pictograms project

This brief was set more as a test of the theories behind it rather than a potential real-world examination of pictogram design. Hence there are no considerations in the brief or the assessment regarding 'appropriateness' of design to market or audience. In addition, students were reminded that to some degree pictograms, like alphabets, need to be learned: it was unlikely that any of their images could be seen and readily understood outside of their contexts. In this sense, for the purposes of this assignment, they were not attempting to create something that would be universally and unambiguously interpreted in the same way: The visual coherence of the designs was the prime consideration.

Design a set of 9 pictograms. These need to be about a single subject (tools, zoo animals, foods, clothing for example) and/or for use within a unified environment (e.g. shop, airport, zoo, national park, etc.). Your Icons should be in black, greyscale or one hue only (but you may use tints).

It is important that the set of icons you create looks like a coherent group. Aspects such as curves and line weights become as crucially important as they would be in a typeface design to create a sense of belonging for each element. Some kind of system is necessary upon which to build the designs (such as the grid we saw in the introductory lecture)

This project lies somewhere between typeface, logo and character design. Bear in mind throughout your development work, this question: Why draw? Why do we have pictograms when we have cameras that can quickly and easily photograph most objects? What potential does a reduction in realism offer to the pictogram designer?

Present as an A4 electronic PDF document + an attached document giving a written rationale for your design, e-mailed to your tutor by the end of the session in Week 3 Fri 17th August. This equates to three 3hr sessions (9 hrs) in class plus 4hrs per week (12 hrs) outside of class in which to complete the assignment.
The History of Apple.

Figure 80, Jerrad Grigg

Figure 81, Max Griffin

Figure 82, Thomas Fuglem
Summary for pictograms project

In terms of grouping via pertinent viewing angle, the 'History of Apple' (Figure 80) icons above are particularly successful: It is apparent from the design that the student had adopted a particular viewpoint (a front elevation) which shows the computers from the point of view most familiar to their users. However, when he arrived at the rendering of the 'tower-type' Macs he soon discovered that their front elevation did little to make them readily identifiable. A side elevation was adopted for the towers in the knowledge that this view (a profile which accentuated the unusual feet and handles) would make these particular models recognisable, but also in the hope that introducing this view would not tamper with the family resemblance of these models to the overall set of pictograms. At a glance these models do seem to belong in the set despite the change of viewpoint. This appears to be because the point-of-view is still an elevation perpendicular to the vantage point of the viewer; no three-quarter, oblique or perspective view has been introduced to the set, and consequently the same 'system of seeing' applies. Less successful is the rendering of the Mac Mini (fifth from the left) in this set. Here, some foreshortening of the drawing occurs through perspective, as if the viewer is positioned slightly above and not perpendicularly in front of the object. However, given that the keyboards in the models to the left of this example are propped up on their stands, giving some impression of foreshortening, a precedent is more or less set such that the Mac Mini does not look completely out of place.

'The Block Family', Figure 81, impresses because it is an exercise in purity as far as the brief is concerned: The student appears to have been less concerned about practising for some imagined real-world design project he may be given in the future—a commission to design a practical set of pictograms with some industry application—and more focused on the 'system of seeing'. He has also taken the grouping concept to a pure conclusion by designing a literal family. It is the rigidity of his system, strict adhesion to 45° and 90° axes in the context of human figures, that makes the result humorous and memorable. More than in any of the above examples, this set is held together through commonality of shape.

The 'Hospital Pictograms' in Figure 82 contain a far greater range of shapes. Here, the student has wisely employed a red, lozenge-shaped background field for each of the items in order to create uniformity, in the same way that disparate objects may be placed in glass cases
at a museum to curate a themed exhibition.

Perhaps a more successful attempt in a similar vein is the set of computer icons in Figure 83. This student has also placed his pictograms in 'glass cases', but some attention has been paid to imposing a small range of shapes upon a wide range of pictograms. Each of the items has had its corners rounded off and a certain uniform thickness of line has been applied such that these pictograms would constitute a set even when removed from their boxes.

The tool set in Figure 84 works without the benefit of bounding boxes. Uniformity of colour works here as it does in all these sets, but rather than line-weight or curve shape holding these tools together as a family, it is detail that is the glue. The level of detail, the similarity of details (white scalloped hand-grips) and the rhythm of detail (white cooling vents on the power tools) all work to create a visually stimulating set suggestive of movement and action: All highly appropriate to the subject matter. Also of interest is that this set of pictograms shows that scale (attention to size constancy) is not important in terms of belonging for the elements in a set—it is a rare spanner that is as large as a chain-saw, though there are such tools—and may only be of secondary importance for object recognition.

Detail is remarkable too in the sets of zoo animals (Figures 85 and 86). Again we see the students relying on the bounding boxes to help create a sense of 'set'. However, Figure 85 has compressed the animal shapes so much towards a few geometric primitives (at the cost of easy recognition in a couple of instances) that it benefits not at all from the boxes. Meanwhile, recognition of the animals in Figure 86 actually suffers because of the boxes: the similarity of the grey shapes behind each head disallows understanding of the object through silhouette or figure/ground relationship. As we have seen in Chapters 3 and 5, outline shape is an important aid in identifying objects.

In these last two examples, the limitations of colour imposed by the brief unites the set as it does in the other examples. However, the real colour of the animals might allow these pictures to be more recogniseable. In some situations colour may be less about objects belonging to a set and more importantly about recognition of the original objects.
Editorial illustration project

Theoretical/conjectural for editorial illustration project

In Chapter 3 I dealt with the psychology of seeing. Firstly through an examination of the visual system and its problem solving capacities, (which found instructional expression in the 9 Pictograms Project above) but then of the more surprising, recent findings of visual psychology: The 12 pictures proposal which I saw as dovetailing neatly with the existing concept of the realism continuum; and the caricature proposal and its implications for visual communication. It is these aspects of the psychology of seeing—firstly, the realism continuum and secondly, caricature—that I explore through the design for, and analysis of student responses to, an editorial illustration assignment. As I have detailed at the start of this chapter, none of the students had dealt previously with the realism continuum. At the start of this project I asked what the students knew about caricature. One student responded that caricatures 'make fun of politicians and celebrities'. Another responded that cartoon characters used caricature to 'make them look a certain way, like giving a bad guy a big, evil grin or pointy ears'. I asked whether students had ever thought about how caricatures are made. None had but in response to my questions one student replied that caricatures 'exaggerate faces'. Beyond this the students could not articulate where these exaggerations come from. One suggested 'exaggerated from how that real face looks, when we see the real person or in a photo'. The idea that the exaggeration comes from a comparison of that real face with an imagined 'norm' was new to them.

Prior to the first project students had been asked to place pictures in order depending on the level of realism shown in the picture. Prior to this second project students were asked to place a caricature of the shoe somewhere along the same scale. For this activity the variation in responses was greater. Furthermore, placement seemed to depend to some extent on where the student had previously placed the line drawing and the silhouette. The results are summarised at Figure 87.
I have already observed that Annibale Carracci thought a good caricature more true to life than reality itself. However, given that only two students equated caricature as the realistic equal of the photograph, it seems that for the uninitiated at least, it is hard to agree with Carracci. It is unclear from these student responses where the caricature sits on the realism continuum. The clearest connection arrived at by the students seems to be one linking the caricature to the line drawing. Students were questioned about this connection, and most of their answers cited the visual similarities between the 'style' of the caricature and the line drawing. I found with this project that the idea of caricaturing non-face objects was anathema to the students prior to the project. This might explain why many of the students regarded this shoe caricature as equivalent to an unexaggerated line drawing. However, importantly,
none of the students thought the caricature the least realistic nor even rated it as unrealistic as the 'cartoon'. I will discuss some observations about the caricature at the end of this chapter. The concept that one could approach caricature in a methodical, even mechanical way, and that anything may be caricatured was also a revelation to the students, as it had been to me during my earlier research. I explained to them what I had found while reading face-recognition theory and the psychophysics of seeing. I repeat those findings here.

Recent work on the functioning of the visual system (the eyes and brain) suggests that the brain does much of the work of seeing, filling in detail and making suppositions, especially when the eye is not forthcoming with information for reasons such as low light or long-distance. I suggested that this explains the different ratio of work performed by the eye and the brain when shown images of the same subject but rendered with different levels of realism. This in turn explains the utility of the realism continuum as a model for understanding and choosing imagery to communicate a particular visual message. This aspect of the theory manifests itself in 'Method A' of the Project Brief. Of particular interest here is the notion of a realistic outline accompanied by an absence of interior detail: what special communicative powers might silhouettes have?

As I explained in Chapter 3, in the section 'The Eye and Brain Do Different Things', the realism continuum has at best been a loose model. Where it has previously used, for e.g. through the efforts of Wileman, it is unclear and needs further testing whether his order of illustrations from realistic to iconic is correct. Testing that order informs part of the rationale for this particular project.

The other aspect of theory examined in this project is caricature and its utility for visual communication. Work by face recognition experts posits that caricature may be a way that the brain categorises and remembers visual stimuli. Since most of us have to deal with people every day, we are all experts in distinguishing one face from another and caricature helps to increase those differences, potentially aiding recognition. There is a further argument that we can and do caricaturise many things, not only faces, in our visual memories of such things. Caricature is essentially an exaggeration of existing forms. In order that our minds can exaggerate these forms, we must have a pre-existing impression of a 'norm' for that category of things. Without a norm to compare things with we can not conceive of exaggeration. The
norm comes about through the overlaying and averaging in the mind of previously seen and memorised examples of that thing, be it a face or an object or an aspect of the landscape. Any deviation from that norm can be exaggerated visually by the caricaturist and, potentially, any image maker who learns the mechanics of caricature. This aspect of the theory manifests itself in ‘Method B’ of the Project Brief.

With this, more elaborate assignment, especially since the students had an option as to how they approached the project, it was pertinent to ask the students for their written feedback on how they applied the theory and whether they thought it was helpful in making their images.

Lecture/class materials/instruction for editorial illustration project

Students were introduced to the concept that to illustrate is to depart from realism. Even the most meticulous, representational illustrator must leave out some details and/or exaggerate others. Students were also given an instructional session on caricature, in which they were introduced to the concept of ‘norms’: That norms may exist for anything visible and that anything, not just human faces, that departs from an imagined norm may be further exaggerated away from those norms to create a caricature. Since face recognition experts largely agree on the mechanics of how a caricature is extruded from visual information, I firstly wanted to see if I could build instructions for the students based on these mechanical observations. These instructions can be seen in my lecture materials for this section. Beyond this utility of instruction, I was looking to see from the students’ responses if they found caricature a powerful or even useful mode for visual communication.

Vision

Commentary

Similar content may be rendered differently. This different form, though rendered less accurately may, paradoxically, allow for a more accurately focused message. In this case a message about bad weather to advertise raincoats.

Figure 88: Briggs & Greenwood, Hosiery logo, and William Merrick Raincoats logo
Any particular object may be photographed or drawn realistically, or it may be drawn in a more distilled manner: keeping only the details that help define its function. These details themselves can be further distilled until all specifics of the original are removed. This seems to allow for generality of meaning and greater emotional impact.

There are different ways to depart from realism. A simple inversion of a photograph can break the link of specificity, so that this image becomes more about football and less about celebrity, David Beckham, since he is virtually unrecognizable among the inverted colours.

What potential is there for illustrations of the impossible or fantastic that use realistic techniques (chiaroscuro light, colour, detail)?

We see with the eyes AND the brain. The brain is actually doing most of the work. The eyes sending signals to the brain in only a limited range of circumstances: The '12 pictures proposal' of Werblin & Roska.
Figure 93: Tom Purvis. East Coast by LNER.

Figure 94: Olivier Kugler. Palermo detail.

Figure 95: Donald Nijboer. Graphic War: The Secret Aviation Drawings and Illustrations of World War II (2005).

Vision

Commentary

Removing detail within realistic proportions.
A post-impressionist, post-photographic method of poster making. This image making technology encourages flat areas of limited colour.

Keeping interior detail within unreal proportions.

In this case, the setting and the vehicle are caricatured (by German illustrator Olivier Kugler): those things that make them different from a 'normal' urban landscape and a 'normal' car are exaggerated by the illustrator.

Choosing the right level of realism for the message.

A reduction in detail can allow the salient points of instructional graphics to become more clear.
Caricature instructions

1. Find a suitable picture of your subject.
2. If it's a famous woman, ask yourself what does a 'normal' woman look like? Draw a norm for your subject. This can be done by moving the features around inside the face outline to create 'configural relations' that feel neutral. The 'norm' will be different for each student depending on their experience of faces.
3. Overlay the subject with your norm.
4. Notice the differences and exaggerate these differences even further away from where they appear on your norm.
5. Remove source material and norm illustration to reveal your caricature.

All characters may be caricatured, not just celebrities.

Any object or thing has the potential for caricature.
Even Colours may be caricatured. Landscapes may have an imagined 'normal' colour. Where a scene differed from this norm, the colours may be exaggerated further still.

A norm may not actually exist but can be invented in the mind from an averaging out of previously experienced examples of that category of object.

Anti-caricature (Julian Opie portraits of the band, Blur). A trickier concept than caricature as it is counter-intuitive to how the brain records visual information. Here we compare our subject to a norm then pull any differences in the subject back towards the norm.
Project brief for editorial illustration project

Since there are two quite different aspects of the psychology of seeing to be examined—firstly, the realism continuum and secondly, caricature—students are given in the Project Brief two possible routes by which to approach their illustrations: via the continuum or via caricature. Students were given two options in this brief. This was in order to explore as much of the theory as possible in one project (a constraint imposed by contact time with students), but also to test whether students would voluntarily explore caricature as a means of graphic creation. Given their reticence when the brief was introduced, I was happy that several students attempted to make their illustration using the caricature methods described in the lecture, especially since their finished designs were not made to pursue the ‘making fun of’ their chosen subject.

Illustrate one of the articles (listed below*). Present your illustration as an A4 portrait PDF document AND a second A4 document which includes your source images and rationale (see overleaf) e-mailed to your tutor by the end of Week 9, Fri 5th October. This equates to three 3hr sessions (9 hrs) in class plus 4hrs per week (12 hrs) outside of class in which to complete the assignment.

The illustration needs to be made in a manner appropriate to your understanding of the article and its audience. Because your final outcome for this assignment will be an illustration, you will necessarily be departing from ‘realism’ to some degree to make your image. You need to consider carefully how much departure is required, and how you will depart. In addition to the usual considerations regarding composition, point of view, colour, texture and line, your editorial illustration needs to use one of the following methods:

A) The realism continuum. How realistic will your subject(s) look? Would it make more sense for them to be photographically precise or stick-figure simple, or somewhere in between?

or

B) Relative to a norm. What is the perceived norm for your subject? Would your image communicate the way you want it to if it were more exaggerated away from the norm (caricature) or pulled back towards a norm (anti-caricature)?

See the reverse for further instructions ...

* Elderly get to grips with gadgets
http://www.guardian.co.uk/technology/2007/sep/06/news
The world weeps for Luciano Pavarotti
http://www.thefatpost.co.uk/index.php?storyID=8517
Kids On ADHD Drugs - Dangerous Path to Addiction
http://www.onlinejournal.com/artman/publish/article_672.html
If using method A)

Image-search using Google and/or any of the online stock image libraries. Download (or screen capture) a realistic version of your subject. Place this image into your second document as a reference. (Include the URL in small print at the bottom of the page)

Draw a distilled version of this thing/person. For e.g. if it’s a person, the distilled version may simply be a stick figure or a ‘man’ or ‘woman’ pictogram as seen at an airport.

Place the images at either end of a line. Roughly estimate where your editorial illustration sits between these two points. For e.g.

Provide a brief rationale as to why you chose that level of realism, and whether thinking about how realistic your image should be was helpful for the meaning of your illustration and why.

If using method B)

Image-search using Google and/or any of the online stock image libraries. Download (or screen capture) a realistic version of your subject. Place this image into your second document as a reference. (Include the URL in small print at the bottom of the page)

Draw a ‘norm’ for that person or thing, even if such a norm does not actually exist. Explain briefly why you think this is the norm for this person or thing. For example:

Provide a brief rationale as to why you chose caricature or anticaricature, and whether thinking about exaggerating your image away from a norm (imagined or real) or reduction towards a norm was helpful for the meaning of your illustration and why.
Elderly get to grips with gadgets

My illustration is not a realistic way which has only shapes of each person like an advertisement of iPod now. It is only one or two levels out of ten of realistic if this level of realistic assumes the realistic way is ten and unrealistic way is zero. Because these people of shapes are still have a few details of each person and you can still guess what are they doing like walking, running, leaning against a wall and so on.

For this illustration, I wanted to try to do how distinguish people who are getting to grips with new technologies or not. The people who getting to grips with new technologies are filled inside of the shape with 0 and 1 of numeric which mean is all digital data is composed of 0 and 1. So for filling inside of these with the numeric, I did not need the details of inside of shapes, because of I wanted accent the numeric inside of shapes.

The realistic illustration is not necessarily impressed every time. The simple design affects the people with erasing many details as normal designs, like advertisements of iPod. I think many kind of recognisable style for this topic. But I chose simple style, because it is not much leaves an impression on people my idea which filling with 0 and 1 in the shapes. And it is hard to recognise that numbers if the objects have a details. And I also believe this word that is “simple is the best”.

Daisuke Fukushige
Article: The world weeps for Luciano Pavarotti

Method A) The Realism Continuum

For this assignment, I used a few different images to produce my illustration of Luciano Pavarotti. I chose a level of realism almost halfway between photo-realism and pictogram simplicity, combining the realistic outline provided by the photos with minimal detail and stark black and white to imply the form of the image that is not actually shown in full.

Thinking about how realistic I wanted my illustration to be was helpful, in that I realised I wanted to present a rather iconic pose of the singer, use only black and white for the palette, have a fair amount of blank space, and to distill the qualities of the image down to the bare minimum yet still be evocative of his larger than life persona.

I feel this added to the meaning of the illustration, in that by leaving a lot of blank space on the canvas and, for example using only a simple white line to show the outline of the jacket, provides an unconscious "filling in" of the image by the viewer. This highlights just how ingrained in people's minds that Pavarotti is, and how much of an iconic figure that he was.

David Deas
The article “Kids on ADHD Drugs - Dangerous Path to addiction, has been chosen for my illustration. The source images shown above were used and point of view, colour, texture and line were taken into consideration during the creation of the illustration. The realism continuum was chosen (method A) and the realism of the subject in the final illustration was around 30%. The figure is not a stick figure, nor does it hold exaggerated features like a caricature, would. It is proportioned realistically and displayed within a cartoon-like form. This cartoon like form was chosen to represent the editorial message as the editorial subject matter is related to children and the ‘fake’ representation of the editorial's subject matter (Ritalin) within society offers a candy-like bandaid representation to parents for their children. The soft candy feminine colours also further support this point. The message has been represented through the opposite sex of that in the photograph. An innocent girl (whose innocence is supported through long hair, pretty features and a down-turned head) has been chosen to further push the message of vulnerability from the child’s perspective and the fact that they are in the hands of the adult generation. Further rationale as to why I chose the particular level of realism of the subject and other composition decisions are listed below:

- Child's stance looks somewhat muted and expressionless through the undefinable face. Through her slouched appearance, she looks to be dismayed and her outstretched hand shows a acceptance of the drug and a possible yearning for the drug through guided dependence.
- The child is surrendering to the candy-flossed and grossly incorrect knowledge that 'this is good for me'. Her willowy frame also incorporates the addiction that could be evident in later life.
- The 'happy-go-lucky/all is well' appearance further supports the message and the girl's mother (authority figure) who is unknowingly handing the child the medication, (believing it is good for her) is also in-line with the 1940's advertising of the time (which was rather fakie in it's approach).
- The oversized Ritalin bottle demonstrates the over-use of the drug
- The money in the girls hand creates a scene that is almost like an on-the-street drug transaction
- Money falling in the background is a symbol of the large corporate pharmaceutical companies who are winning out by making patients out of healthy children.
- The symmetrical, lined dots in the background that blur in parts aim to represent strife for order in the children. The blurred dots in parts show the effect through the child's perspective to highlight the numbing and amphetamine effects.

Helen Connor
Elderly get to grips with gadgets: Using Method B, Caricature

I didn’t want to use a photographically precise image of an old person, as that would contain so many other details that would cause viewers to read the body language and get mixed messages of what’s happening. In a photo there is too much detail that you can’t just send out a simple message, there’s always other elements that tell another story.

This image shows a caricaturing of the elderly woman’s features. The hair and nose are made bigger and the glasses are now clearer. Also she is shown hunched over in exaggeration of a posture of an old person.

If I added any more detail to the old lady then other questions would be asked. I didn’t want the old lady to be the focus, I wanted people to look at the image as a whole, and take in everything, without concentrating at one area for too long.
The article I chose to depict and illustrate was 'The World weeps for Luciano Pavarotti'. After reading the article, I began to think of Pavarotti and things that reminded me of him. I began to think of icons that resembled him and that were linked to his career as the one and only Pavarotti.

Below is a diagram of my brainstorming:

From the above list I chose to focus on the area that he was so well known for, his Voice. I then decided to place my entire focus on where the voice comes from. I chose to portray the mouth in black and white to emphasis the fact that he has passed away. B&W commonly being used to display the past. Now a simple B&W close up of a mouth would not be enough to illustrate the article. So I chose two more items from the list. Firstly the Rose - which resembles love, emotion and the heartfelt performances that he gave each and every time. (Plus the fact that they were thrown to the stage) By keeping the colour in the rose, all these emotions come alive. But I still needed one more thing to make this complete and make this Luciano Pavarotti's. What better to show this than his iconic White Scarf. The scarf followed Pavarotti to many, if not all of his shows. And there you have it .... A tribute to Luciano Pavarotti.
I chose to do my illustration on the editorial found in the online journal website the article is titled "Kids on ADHD drugs: A dangerous path to addiction."

http://flickr.com/photo_zoom.gne?id=1448038546&size=m

Here is a simple picture of a doctor that I referred to. I always get positive ideas from the general idea of a doctor when they're looking out for their patients best interests. In my opinion this is a very normal picture of a doctor.

As I read the article I was made to realise that more and more doctors are over prescribing Ritalin to children as a quick fix to children that seem livelier than others.

In the reaction to express this article I exaggerated a doctor in the appearance of a devilish looking fiend that is offering the drug Ritalin to solve problems as a quick fix.

This expresses the immorality behind dosing children up on drugs and Ritalin.

Michael D'Silva
Summary for editorial illustration project

The figures chosen (six from a group of 40 students) are not necessarily the best examples of resolved graphic design but were chosen so that there was a review of one illustration per each article for each of the two methods prescribed to the students. Each student describes in their rationale a deliberation over the image toward creating particular meanings. It is this ability to construct the image themselves that is allowed by a move away from realism. Photographic realism would disallow many of the methods these students have explored. However, these particular illustrations are also chosen because they reveal some problems with, or the boundaries of, the brief, or they expose an issue in the theory that will be worth further research.

Firstly, I will review an illustration made using Method A, the realism continuum, for one of each of the three articles, and secondly I will review an illustration made using Method B, caricature, for one of each of the articles: A total of six figures will be reviewed.

Figure 102, illustrating *Elderly get to grips with gadgets*, uses an aesthetic from an existing, global advertising campaign for Apple's iPod. Not only is this adopted aesthetic shorthand which allows the viewer to quickly read the pop culture reference, it becomes deeply ironic, and sourly humorous. The silhouette of the old woman and her very immobile payphone are the antitheses of the original campaign's young cast and demographic and its advertised product. The digital connectedness of the younger crowd, shown through the texture mesh of zeros and ones has a doubly powerful effect of lowering their contrast and therefore providing the impression of perspectival depth to what would otherwise be a very flat image. Interestingly, the student has rated his illustration as "only one or two levels out of ten of realistic". However, there is clearly enough detail in the outline here to show through stance, accessories (the walking stick) and clothing (the outline even expresses that this woman has on a long coat) the age of the person contained in the silhouette. Similarly, the reader could guess with some accuracy at the age and gender of the other figures. When quizzed the student offered that his illustration and the popular airport pictogram for 'person' were both silhouettes and were therefore of a like level of realism.

Figure 103, illustrating *The World Weeps for Pavarotti*, is a very good example of using the realism continuum. This image sees the student removing detail, but keeping the accuracy of
outline in much the same manner as the student at Figure 102. However, Figure 102 makes no pretence at a background whereas this illustration works more in terms of a threshold adjustment: we can imagine that the student has decided to shut down the light and boost the contrast of a photographic print such that all aspects brighter than 50% grey (skin, pale shadows in the shirt and scarf) are simply made white. Aspects darker than 50% grey (tuxedo, hair, eyes, mouth, darkness of the stage beyond the singer) are made black. Rather than negating the background (as the intense, flat green has done in Figure 102) this blackness brings a sense of the cavernous opera stage into the image while providing graphic punch through its lack of realistic detail. The vast expanse of black also works well as a heavy cloak of darkness appropriate to acknowledge the demise of a 'larger-than-life' personality, and sends the viewer's eye back to focus upon the subject since there is no detail to rest upon in the black. It is this removal of detail that this student found most beneficial when considering the realism continuum.

In terms of the position of the image on the realism continuum, this student appears to have a similar concept as the student at Figure 102. Logically Figure 103 would be further to the left (as this student has rated it) since it contains more interior detail. I strongly argue in Chapter 3 for silhouette with a realistic outline (and any image with a realistic outline and possessing more interior detail than a silhouette) to be considered as very close to realism, firstly because of the findings of the 12 pictures proposal, and secondly, and logically, because a silhouette is a possibility in the unmediated visual world. However, I acknowledge here, through these reviews and the students' rationales (the example discussed immediately below is accompanied by a similar rationale to those above) that my concept may be more accurate logically but seems a difficult concept to intuit, even for these clearly talented illustrators.

Figure 104 illustrates a story on the over-prescription of drugs to mis-diagnosed children, *Kids on ADHD drugs*. A reduction in realism can be achieved through a reduction in detail, as we have seen this can be a result of the removal of interior detail towards silhouetting. However, this illustration makes exceptional use of a different method; vignetting, to remove quantities of visual information. It is mostly the framing of this picture that removes the realism. The effect is still similar: a denial of information from which to make accurate judgements that allows and then compels the reader to close the visual story. But further, since
the framing is so atypical of pictorial representation, it effectively becomes a non-framing of the subject. Nothing is really at the focal point of this image. Far from this being a poor composition, it adds strangely to the appropriateness of the illustration by creating a sense in the viewer of being drugged; normally the politics of editing dictate that the subject of the picture is held within the frame, either centrally or on the visual 'thirds' of the image. This is a kind of editing that helps establish the importance of the focal subject. Here however, the student's non-framing very effectively shows what the article describes in writing: that we are being denied information about the prescription drugs situation. At the same time the image illustrates an unexpected method of reducing realism.

Beyond this, moving away from realism has allowed this student to manipulate colour towards a 'soft, candy, feminine palette to further accentuate her take on the article.

It appears initially that the caricature responses to this assignment were less than successful because none reflects one's understanding of a typical caricature, usually a rendering of a celebrity or politician. However, it is precisely because we have approached caricature from an angle where it might benefit a wider range of visual communication, and applied the mechanics described in the lecture materials methodically, that these student examples are worthy of close examination. It is the potential for caricature and not its known capacity that I am concerned with.

The first of the three caricature examples, Figure 105, illustrating *Elderly get to grips with gadgets*, shows an exaggeration of posture, skin colour, the enlarged features of the elderly, the wrinkled face, and the raised eyebrows and inaction of confusion. The subject's clothing colour too is amplified through a lack of shading, texture and fold detail. The student has declared in her rationale that detail is removed from the image of the woman so that she is not the entire focus for the reader. Finally, the composition comprises a somewhat humanist ensemble through the use of a pencil line rather than crisp, clinical vector graphics: this is firstly a sympathetic portrait and secondly the line has the uniting effect we witnessed in the 9 Pictograms Project. Not surprisingly in light of the research, which tells us that anything and anyone may be caricatured, this is a useful image because it shows that a caricature can still be an anonymous and somewhat abstracted character. In the words of Dondis, can be an 'all-encompassing' image that refers to many more examples, in this case examples of elderly
people, in the real world. It appears that the use of caricature does not have to be strictly aligned with specificity.

Caricature requires a relationship between a unique individual and an imagined norm in order that we know which features have been exaggerated. Figure 106, illustrating The World Weeps for Pavarotti, still works to some extent since, in the brief, the students were told that their illustration would fill an A4 portrait page. In this regard then, the mouth is certainly much bigger on the page than any real human mouth. It that sense it is exaggerated. However, to some extent a mouth, especially one reproduced photographically, is still regarded as ‘mouth-sized’ because of the psychological faculty of ‘size-constancy’ where we know how big something really is regardless of the size at which it is presented to us. Inside the mouth sits a rose, the focal point of the image through its placement and its colour. This appears exaggeratedly dramatic in contrast with the monochrome adopted, according to the student's rationale, to reflect the sombre occasion, of the rest of the image. Size-constancy in relation to the rose may counteract the size-constancy of the mouth to some extent (is it easier to conceive of a bonsai rose or a giant mouth?) but is not aided by the inclusion of the scarf which, in this unusual context, may appear to be something else, perhaps chewing-gum.

Not a wholly successful image but one of great interest to me in that it has pushed at the boundaries of one of the image-construction methods I am seeking to establish.

Figure 107, illustrating Kids on ADHD drugs, is interesting because it shows a caricature, not merely away from the appearance of an existing person (the illustrator's concept of a 'normal doctor') but towards another character (a devil). According to the student this approach, through the mechanics of caricature, allowed him to reveal the immorality of over-prescription. From the original the dark eyebrows have been grown, the hair made blacker and shiny, the lab-coat made whiter and crisper through removal of shading and detail. The shape of the head has been exaggerated from the source image also, with the forehead expanded outwards and the chin narrowed further. On top of this caricature, the student has introduced aspects not present in the original: red skin, chest and facial hair and horns. These extra features invent a sinister atmosphere not present in the source material which was innocuous. This process raises an interesting question worthy of further exploration: at what point can the visual exaggeration of one subject make it appear like the norm of another?
A general observation about this project is that, of the two methods offered for image making, only eight students (in the sample of 40) opted to use the caricature method. Some students remarked that they had never tried caricature and didn't think they would be good at it. Some of these seemed unconvinced that caricature could be methodically applied to a source image to create an illustration. No one (of 40 students given the brief) attempted an anti-caricature.
Information design project

Theoretical/conjectural for information design graphic project

In Chapter 4 I examined the difference between two concepts of seeing: Seeing with eyes, and seeing as understanding, in the sense of ‘I see what you mean’. I stated that photography can show us real things as they appear in the visible world; that it is adept at showing nouns (to borrow a term from the linguistic realm). On the other hand illustration and diagram, I argued, are good at showing us the otherwise invisible relationships between things; these less realistic modes are adept at showing verbs.

For this particular project I asked the students to reflect on what a diagram might allow for visual communication that a photograph could not. No student in the group had considered these two approaches to image as points along a continuum of realism; as alternative ways of addressing the same subject matter that might reveal different things about that subject. One student suggested that ‘diagrams are for showing you how to do things’. Another student said that ‘they show how things work’; another that, ‘diagrams can measure things’; and another said ‘diagrams compare things like statistics’. When asked if these tasks were possible with photography students responded, ‘You would have to think very carefully about lighting so it was really clear what the photo was telling you to do’; ‘not really because a graph is not something physical’; and ‘Yes, you can compare something like the height or size of people’.

Students were again asked the question ‘why draw’ when you want to measure or explain something visually, why not take photographs? I explained to them that drawing implied a reduction in realism. At the very least such a reduction must prompt a search for meaning beyond the representational: As an image becomes less about merely capturing the light reflected off an actual object, it prompts us to look for different kinds of meanings. Other aspects, such as the relationship between the things pictured, rather than the identity of things themselves, can become more apparent.

The diagram or ‘information design’ is of particular interest to me in Chapter 4. I explained to the students my research with regard to this form of graphic design. As a visual mode it may include such things as charts, graphs, tables, instructional design and schematics. Anatomical drawings, circuit diagrams, airline safety cards, cadastral and topographic maps, periodic tables and family trees are specific instances of this kind of design. The essence of
These models is that they show, in an organized fashion, that which is not readily apparent to the eye in the real world. "To document and explain a process, to make verbs visible, is at the heart of information design" (Tufte, 1997, p.55).

These diagrams that follow are intended, like a well written news-story, to provide a context rather than, in the manner of photography, a sliver of reality frozen and removed from context. As we have seen in Chapter 4 and as we shall see in the Animation Project that follows this section (which hinges on the phrase 'visual literacy') a common trend has been for visual theory, especially that concerned with art and design, to be expressed in language associated with linguistics. To use such language here, to compare the properties of photography with those of less-realistic visual modes, we can say that good communication is not about pointing at things. You can not for example, as an English speaker expect to make yourself clearly understood in France by merely pointing at objects. Since the camera can do little more than point, it is not the ideal tool with which to communicate complex concepts to a broad audience. Most words are not stand-ins for those things at which we can point. Language is more abstract and sophisticated than that. It takes the subtlety of drawing, diagram and written language to be able to encapsulate those things which we cannot readily see with our eyes. As McCloud puts it: "Realistic images can't easily pass into the realm of ideas but for iconic imagery it's much more simple" (1993, pp. 89-91). So, in this project, students, armed with the above sociological knowledge, set out to explore what kinds of information could be structured and organized into a coherent information design using non-realistic visual modes.

Lecture/class materials/instruction for information design graphic project

Students were reminded that the general rules of hierarchy and reading direction still apply in this kind of visual communication. Especially given that each information is a kind of narrative with a beginning middle and an end that explains a relationship or an economy. Students were told that gestalt considerations were of paramount importance in this project too. Rather than have reality structured by nature before our eyes and then capture this with a camera, visual information can and must be organized by its designer into groups and categories, and links may be made between individual items or groups through the use of
colour, lines, typography and bounding boxes among the other techniques already explored in the previous projects.

Finally, a new set of rules was revealed to the students. Certain limitations (new to the students) regarding colour are brought to bear in this mode of graphic design because its aim is to inform in an unambiguous way. The students were made aware of Umberto Eco’s (1985) assertion that culture plays a leading role in the perception of colour, specifically in the very limited ability in certain cultures to discern differences between certain colours. Colours are best defined in opposition to each other and this has the effect of limiting colour’s meaningful potential to six cardinal points: red, green, yellow, blue, black and white. The psychophysical effects of ‘simultaneous contrast’ were explained to the students as one way to extend the colour palette in a communication design. Students were told that a key aspect of colour use in information design was that similar colours should be next to each other to allow for simultaneous contrast, that this would allow the users of their information designs to more easily discriminate between like colours.

Arnheim tells us that to some extent we all see the same way: otherwise visual communication can’t happen. The role for the information designer is to understand to what extent this communication can be unambiguous: In wayfinding systems for example, the aim is not to make the cleverest, image-only graphic that can be one thing to all people: no such graphic exists. The aim is to make things clear, to remove ambiguity, and in many cases (in real world applications such as airport terminals, bus stations, web navigation) to communicate to as many people as possible. In this sense the designer’s role is an empathic one. S/he must have a knowledge of the cultural limitations to perception as described by Eco but as these apply to a range of visual codes, not only colour.

With regard to the complex models the students were attempting to communicate, the only thing necessary to communicate at a glance is that there exist relationships. The trick then is to keep the audience interested enough, and not in the least frustrated, to remain looking until the schematic is deciphered. The examples shown in the lecture material should all fit these criteria.
**Commentary**

There are infinite ways to draw diagrams. Just some are dealt with here.

I'm interested in exploring their strengths for showing relationships not visible to the eye.

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**Figure 108:** Visualliteracy.org

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**Figure 109:** Colton. Comparative image in Atlas.

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**Figure 110:** L. Hugh Newman. Beetle life-cycle.

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We understand new things in terms of things we already understand (Wurman). Comparison and scale are of vital importance to information design. Diagram and illustration allow us possibilities of comparison that would be difficult if not impossible to achieve through photography or realism.

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Time and space can be easily shown in one diagram, or a single illustration. To achieve this life-cycle schematic through photography would take a year.
Diagram and illustration allow us to see relationships not visible to the eye: Underground or under the skin.

Regarding colour in your diagrams: While colour is a powerful means of separating and classifying information, it is difficult for us to conceive of a range of colours and much easier for us to delineate between the cardinal hues and tones: blue, green, red, yellow, black and white. If you require more than 6 colours and have to rely on tints and shades, try to ensure their proximity in the graphic so the reader may easily differentiate between these similar colours.

Aesthetics are still an important consideration. Good visual design should attract the reader to the graphic.

Rarely can a complex system be apprehended in a single glance. Logical design and visually stimulating graphics should hold the reader's interest long enough for him/her to decipher the information.
Infographics are memorable because of this form/content relationship: Colour harmony and aesthetic balance may draw the reader into a disturbing discussion on ethnicity and income, water wastage or population distribution.

The basics are more important than ever in an info design. Given that the unspoken brief is that the information design will in some way make a complex model understandable and digestible, simple principles such as reading direction and hierarchy must be correctly managed.

For e.g, the family tree diagram, in spite of the tree metaphor and upward growth, is best understood as growing downward.
Project brief for information design graphic project

As per the 9 Pictograms Project considerations of gestalt are important still for this kind of ‘seeing’. Rather than accepting the visual reality presented to our eyes or captured with a camera, visual information can be organized by its designer into groups and categories, and links may be made between individual items or groups through the use of colour, lines, typography and bounding boxes among other techniques. Students were reminded to think carefully about ways of visually contextualising their content and to control every aspect, leaving nothing to chance: Shared colour, for example, will establish strong connections where these connections are intended, but it will also establish links even where none is intended.

Information architecture graphic. A3 landscape format graphic + A4 written rationale. Due Week 13 Fri and November. This equates to four 3hr sessions (12 hrs) in class plus 4hrs per week (16 hrs) outside of class in which to complete the assignment. PDF file e-mailed to your tutor. Your job is to create in Illustrator an information graphic that makes visible something which would otherwise not be visible. In other words, something you could not go out with a camera and photograph. Just what that is is up to you, but read the following carefully for clues ...

- Design a diagram that explains a complex system. See the ‘Inspiration’ list in the right-hand side column and refer to the lecture materials to see the kinds of things some information architects have mapped out in the past. Your graphic should make visible relationships not visible to the eye. The aim is not necessarily to create a graphic that is instantly understandable (complex data can rarely be understood quickly) but to make it inviting and interesting (not confusing) enough for readers to take the time to go through it carefully. Ideally, it should be a graphic that explains something you feel strongly about. For example, you might think too much money is spent on weapons and not education, health or other social programs. What are the statistics on that and how could you make those visibly interesting? Remember to compare. For eg maybe your interest is in climate change. You might explain that an environmentally friendly house could put electricity back into the grid but compared to what? How many megawatt hours of electricity does an average house in Perth draw down from the grid each year? Or you might compare a house in Oslo to a house in Chittagong. You have to do the research to find the stats. Use all the things you have learned so far. Considering regarding composition, point of view, colour, texture and line are vital to this assignment. Colour is a means of classifying and separating data (such as the railway lines on the London Underground map). Remember what you learned about line and shape and a ‘system of seeing’ in the pictograms assignment. Would pictograms be appropriate again here? Think carefully about typography for this assignment too: You will need to give your graphic a title, and more than likely you will need some text to explain parts of the graphic. There are infinite approaches to visualising information. Some of them can be found here: http://www.visual-literacy.org/periodic_table/periodic_table.html

- Provide a brief written rationale about your processes and design decisions made during the making of your graphic. Explain which aspects of the unit have helped you create this diagram (if any). Specifically, describe how and why your Info graphic avoids photographic realism.

- Make sure you reference your information. For eg if you got your statistics from a website, brochure or newspaper, make a note of the source in fine print at the bottom of your graphic “Source: ...”
In answering the brief for World’s Wealth I have considered easily recognisable graphics, and simple linear structure to convey the information. The color scheme derived from the color of bacon to reinforce the design and the nature of the information.

Also, white relates to the colour of bacon fat and to the mostly wealthy Caucasians. White colour unites the human figures with the wealthy nations shown at the right by using gestalt.
Happy Australia
research and development

I designed an information graphic driven by the statistics of Australian Happiness, according to that of three groups: work, education and relationships. Ranking them in order of satisfaction and their size in population with the overall relationship of Australians and the average Australian satisfaction.

The problem was to design a system that would support the amount of data, finding visual relationships between the data and keeping the aesthetic open, friendly and inviting.

One solution to such a problem was to adopt the method of scatter growth, with color-coded properties to each segment. This method allows for multiple ways of presenting the data, while still being organized. It also allows for the objective relationships between the data to be visualized with clarity, the immediate size differences and the colour comparisons.

Three methods of scatter growth were worked with, (a) the middle axis was split in two, the top being work and education at the top and the bottom being relationships. (b) operated in a similar way, with two axes, happiness level was at the top and population size was at the bottom axis, this exaggerated the relationship between population size and happiness and created a compendium of the data, an "us VS them" scenario. (c) Was the best model, its axis was radial, and kept the data from being skewed, while still forming objective relationships between data.

To prove the versatility of the system I had developed, a extrapolated wedge was explored comparing future population density and current founts of happiness.

Statistic source: ABS

Figure 119, Uriah Mathews
I immediately think of pirates when I hear the term digital piracy. For this project I wanted to depict some of the startling facts about worldwide piracy and the money and figures that digital piracy generates.

Because of the idea of pirates I tried to brainstorm different ways that I could depict this information, and keep with the theme. Some other ideas that I had were: a treasure map, old world map showing the different routes of the pirate ships, however instead of nautical charts, the routes would be depicted in a networking format.

The final idea began at creating the cross-section of a pirate ship. The first idea was to create a whole ship, and to cut-away a piece in the side of the ship, showing the inner workings, and to then present the facts, as though they were happening inside the ship. Upon reflection I realised that this method would be too difficult. I kept the idea of the cross-section, but instead of showing the 'inner workings' I overlayed various images that represented pirates instead (treasure chest, sword fighting and cannon balls).

I have tried to keep the text to a minimum; the graphics would not be able to convey the message by itself so I have made various parts of the facts bold and big. This way people are able to get an idea of the numbers involved, and with a short sentence underneath the main heading, people are able to get an idea of the revenue that digital piracy creates.

These are the main facts that I wanted to get across. The graph of cannonballs gives people a quick breakdown of the money that can be created in separate countries. Initially I wanted to show a lot more of the world's countries, however there was not enough space in the diagram.

Daniel Lattimer 10043378
**SECURE YOUR HOME IN 15 MINUTES**

- Result:
  - 3,896 new home owners (217,860; 18%)
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  - 3,896 new home owners (217,860; 18%)

**Design Rationale:**

The graphic was created to illustrate how to easily secure your house, in three simple steps. Inspiration from classical information design and the Royksopp music video: Remember me. I created a line in a angle and mirrored it to create the basic grid for the house. Then I created three different levels, and pushed them more and more backwards to create the exploding view. By doing this the viewer understand this is one house and that there is different parts of the same.

Colours are vital and fresh, with a split pastell background. Background colours are chosen to blend in to the back. Since I have a coloured background, the zoom parts with white background comes out and the viewer notice them.

The illustration style used is naive and almost cartoonish, to make it simple. Strong colours and black outlines. Some transparensy is used to illustrate glass windows and doors.

Repetition is also used to help user navigate, all the zoom-ins have numbers. And at the bottom of the page the same numbers are represented but here they have text to describe the illustrations.

Thomas Hervik Fuglem
Student nr. 100 38 506
Summary for information design graphic project

Given that in each example shown above the student was new to designing information based on tabular data or statistics, the designs show that the method of introduction to and explanation of the possibilities of information design have potential as a means of teaching. I will examine each design below in terms of its relation to my instructional materials.

Of all the information designs included here, Figure 117, by George Domahidy, most clearly demonstrates the contextual qualities of information design. This graphic places all the methods for saving energy within a silhouette of a house: We instantly associate each of these methods as domestic activities. Reducing realism down to this iconic level has allowed this strong contextualisation. Perhaps less successful is the colour use. While the narrow palette of colours allows for a clear coherence within the design it tends to make certain associations that were not intended by the designer. For example, the red appliances seem to be more strongly associated with the anvils (the measures of carbon dioxide output) than the yellow ones but there is no reason evident for this association.

A more considered use of colour is evident in Figure 118 by Blagoj Micevski. The white absence of colour is used to link parts of the design (the one-in-ten person at the bottom right with the higher earning human figures; these human figures with the maps of the U.S. and Japan; and all of these with the text, 'Belongs to 2% of adults'). As to the human figures themselves, these work through their precise outline to help convince us that this is a serious issue. We have seen in the previous student project (the Editorial Illustration Project) that even a silhouette with no internal detail (as in Figure 102) can still be age specific. In the case of Figure 118, the silhouettes appear to be in the 20-50s age group. Not too specific, but entirely appropriate since the graphic is about earnings and therefore about working age.

Figure 119 Proportion of the population who are satisfied with their lives, (which I will refer to as Happy Australia in the interests of brevity) does help to reveal invisible relationships, one of our defining qualities of information design. The data revealed are certainly not something that can be judged with certainty by looking at people in the street. Besides, this is data that covers the whole country of Australia: too large a crowd to be judged in one photographic image or one physical glance. The student has taken great care to create an engaging and accurate graphic. He states: "The problem was to design a system that would support the
amount of data, finding visual relationships between the data and keeping the aesthetic open, friendly and inviting.” He is to be commended for approaching the information design from two other possible directions before settling on the third, which he saw as most appropriate.

In terms of any pictorial reference, this graphic is totally non-realistic, relying only on abstract diagram and text. We can see at a glance (though it is unclear in this glance what the subject matter might be) that the graphic is describing some relationships. The fact of all the data being mapped using only circles immediately suggests to the reader that these data have something in common. The main short-coming with this, initially very striking design is with regard to the colour discrimination issue mentioned in the theory paragraphs at the introduction to this section. It is difficult to tell the difference between the various yellows and greens used. In the key the difference is less problematic because simultaneous contrast allows us to see the gradations. Further, the student has introduced new colours which appear to be hues existing between the more cardinal, rainbow hues set out in his key. The colours applied then appear to be dependent upon where the statistics place them in relation to the central hue for those 10 percentage points of ‘happiness’. From the student’s key we can ascertain that the yellow and green used in most of the graphic are just a small bandwidth of the colour possibilities allowed in the key graphic. Essentially then, this is a problem of calibration: rather than using only the 60-80% colour range (there were no people surveyed who reported being above 83% satisfied or below 59%) the colour range in the key could be compressed such that six easily distinguished colours (perhaps the six cardinal colours we examined in the introduction to this section) are used to capture the happiness range from the 50s to the 80s.

Music piracy by its nature is a rather secretive activity, that is, not readily apparent to the eye. In addition it is concerned with a non-visual medium, so as subject matter qualifies well for infographic treatment here in *Digital Piracy* (Figure 120). The problem here is the internal logic of the chart. The student has said in his rationale that some thought was given to the visual metaphor: “I tried to brainstorm different ways that I could depict this information, and keep with the theme”. Ideally the information graphic designer invents a language. A language must have rules if it is to be received in much the same way it was sent, especially if we are to remove ambiguity. The cannonballs work well as a quick comparative indicator.
of amounts (regarding dollars lost) but the treasure used at the bottom right is a much more easily understood, ready-made pirate-based analogy. Either approach would work for this student, but not both. Also students were told in the lecture materials that however they indicated values, these must hold true throughout their design, and this is not reflected here: if six cannonballs roughly equals $45 million, then nine cannonballs (not eight) should be used to show approximately $70 million and so on. Similarly in the top right we have a title “Value of Piracy” followed by the international breakdown of that value, whereas, in the bottom half of this layout, the values themselves become the titles in a sensationalist approach to the revelation of the data. Again, one approach or the other, but not both, can work. In terms of hierarchy we read the title of this one first. In purely textual designs we then would read left to right and down the page. In this design however, the size of the triptych graphic across the bottom half of the design makes a detour for our attention before we finally arrive at the breakdown of the international economics of piracy at the top right of the page. The identically toned grey boxes in which the cannonballs sit invite us to regard them as a set in which we can compare the individual elements. The cannon works well as a pointer while sticking with the logic of the piracy metaphor.

Figure 121, Secure Your Home in 15 minutes, shows a house in an exploded drawing in isometric projection. This approach allows a view of the house, that would not naturally be attainable, in order to reveal at once key locations in the house pertinent to its security. The student’s rejection of perspective allows him to show as much information regarding the interior and exterior of the house as possible without resorting to plan views and elevations. In any case, these latter views may be counter productive in showing relationships within a house. We have already seen in Chapter 3 that there are several good psychological reasons (including size constancy) that show the brain has ways of strongly overriding the more camera like aspects of the eyes, specifically perspective, as a way of seeing. This graphic uses colour as information with the student making special mention of the absence of colour in the ‘zoom parts’ (insets) to make these stand out from the rest of the graphic. Beyond this, different hues are employed to separate the rooms of the house from each other, changes in saturation separate interior from exterior, and, finally the various parts of the house are separated from the background though value. There is some confusion, however, in the
graphic with regard to the insets. The labels, “1”, “2” and “3” imply sequential steps in a process; imply a relationship here that is not necessarily the case: In logical sequence, locking the door would be number 3. In addition, the front door (not just the garage interior door) and perhaps even the upstairs balcony door, should also be indicated by the No.2 inset. Remember that one of the functions of info design is to remove ambiguity. As it stands, this graphic could possibly be interpreted as ‘leave these particular doors unlocked and/or open’. As with the above piracy graphic, this student’s approach has been to explore information design as an imagined studio brief for a real-world project. In a political sense it appears to support the status quo, though to this student’s credit, crime against property has not been sensationalised and in fact he quotes his sources regarding a general decrease in crime: this is not a graphic inspired by the fear-mongering agendas often associated with main-stream media.

Another student project I will mention briefly for specific reasons is Figure 122, Greatest Rock Moves. This deserves special mention because of its light-hearted approach to this often dry visual mode; an approach which hits at the heart of information design by questioning its central tenet of unambiguity. Via a cross-pollination of the grunge typography from rock posters with the demographer’s or environmental designer’s tool, ‘icon-man’, this student has explored the humorous possibilities allowed by such an incongruous collision. Incongruous because icon-man is usually employed to demonstrate ways to perform important tasks; the direction to a public toilet, for example. The resulting impact between clinical form and light-hearted or frivolous content, especially with the addition of ‘official names’ for the moves, seems especially ironic.
A flicker of recognition (animation project)

Theoretical/conjectural for animation project

The following animation project was presented to five students from Otago. From the visual questionnaire given to the ECU students it is apparent that students can make 'common sense' choices about images: They used realism as a criterion for assessing and choosing images in a way that was common throughout the group. This suggests a level of visual literacy shared by graphic design students even though, prior to the instructional material being presented, students struggled to articulate their choices verbally. Given that students exhibit some of this ability without instruction we might call this inarticulate visual literacy, 'visual intuition'.

The project put to the Otago students sought to find out more about the background of students attempting it. This project began by asking students to describe their visual intuition and visual experience in responses to a questionnaire. This part of the questionnaire was answered prior to any material being presented based on the issues surrounding realism. By the completion of the project students had been shown instructional material and lectures had been given describing my research to date. Students were asked to complete their questionnaires by reflecting upon what they knew before the project compared with the knowledge gained by the end of the project. In order to try to 'push the boundaries' of visual literacy the brief for this assignment was open as long as final submissions showed some attention to the theory presented in the lecture (including rejecting it if it did not accord with their understanding of images) and paid attention to the possibilities enabled by moving images and "integrating other sensory experiences" (Debes, 1969b, p.27). To this end, there were few specific questions to put to the students. Instead they were asked questions that dealt more broadly with issues of visual realism and its alternatives. Did this new material accord with their own visual intuition or was it in any way in opposition to what students felt to be the truth about images?

We have seen a number of definitions in the Literature Review surrounding what it means to be visually literate. Each of these definitions was discussed with the group of students who undertook the animation project. I reiterate those definitions here before describing the specifics upon which this animation project was based:
At visual literacy's most basic level, Goldsmith (1984, p.69) insists such literacy include the ability to respond to images as pictorial equivalents of the objects they represent. In terms of what my research seeks to establish however, this is a problematic definition. As I sought to examine in the previous student project (Information design) some important aspects of visuality are concerned precisely with making visible that which is invisible, in other words, rendering visible those things that are not 'objects' to begin with but are instead concepts or relationships between visible objects. A higher visual literacy then might seek to go further and experiment with breaking (where appropriate and for sound reasons) realism's tropes: including 'normal' colour, continuous tone, perspective, realistic proportion, realistic character, in order to find where the cut-off point of identification might be. We might also be able to define the point at which the 'object they represent' ceases to be a specific object and instead becomes a general object for that category. In this way we might further quantify the outer limits of visual communication. Why should this be useful? In terms of McAlhone's (1998) concept of design being a ball thrown and a ball caught, the catching aspect equates to reader or viewer interaction. Where this interaction is optimum the design will be most effective and most remembered.

'The ability to construct meaning from visual images' (Giorgis, Johnson, Bonomo, Colbert et al, 1999, p.146). I certainly want to enable this ability through my research but would add that my aim is to enable students and designers to better 'construct meaning with visual images' too.

Visual literacy is (about) what is seen with the eye and what is 'seen' with the mind (Bamford, 2003, p.1). I agree with this statement too and my previous emphasis on information design was couched in these terms, but on a broader basis it is my intention to seek out the difference between what is seen with the eyes from what is seen with the mind, and to show that it is principally the level of realism employed by the designer that allows this separation.

'To understand and use visuals for intentionally communicating with others' (Ausburn & Ausburn, 1978, p.291). This definition is the most singularly useful since it is a statement of intent that separates this from the other definitions. The Ausburns' definition is almost a paraphrasing of Hollis' definition of graphic design. Their definition best encapsulates the
concept of creating a visual with the intention of communicating a particular message to a particular audience. This is one of the conditions that makes my research specific to design and separates the approach from an artistic one. Key to all of the aspects of seeing that I have examined has been the idea that the designer should know how best to communicate to his/her audience and that, until more work is done regarding how images communicate in graphic design, the student is limited to understanding only typography at any level approaching satisfactory.

- In my research I have examined psychological theories of vision. As a result of that examination I proposed a further criteria to judge visual literacy: a knowledge of that for which the visual system is on the look out. It is not realism per se: realism is a problem that needs to be solved in order to get at what lies beneath.

Further to these definitions I chose to incorporate Debes', the father of the visual literacy concept, who offered the following definition of the term:

- Visual Literacy refers to a group of vision-competencies a human being can develop by seeing and at the same time having and integrating other sensory experiences. When developed, they enable a visually literate person to discriminate and interpret the visible actions, objects, symbols, natural or man-made, that he encounters in his environment. Through the creative use of these competencies, he is able to communicate with others (1969b, p.27).

It is this integration with ‘other sensory experiences’ that forms one of the keys to this animation project (namely the introduction of sound) to work toward immersive design experiences which might suggest further research in the area of instructional design, documentary design and even interaction design.

The purpose of this project was to find out what students could achieve in terms of visual literacy based on what they had been shown and what had been explained to them in the lecture materials. Beyond these exemplars, their work would of course be influenced in some way by what they had personally experienced of the visual arts and design, and the visual world. My thesis and consequently my teaching materials are based largely on
perceptual theories, rather than an interpretive understandings of imagery. One purpose of the animation project was to see whether these two ways of understanding design could co-exist in a productive way.

Lecture/class materials/instruction for animation project

Example materials were chosen for the ways in which they departed from realism, and the surprising communication potential thus allowed. Where an example was particularly realistic in appearance, it was made clear that this realism was a deliberate choice on behalf of the designer/illustrator and not merely a default position.

The importance of wit in design was impressed upon the students. Students were introduced to the concept of the designer as a problem-maker (visual puzzles and puns to be solved by the audience in order that the design is retained in memory) and not just a problem-solver, and to Beryl McAlhone's concept of design as a 'ball of meaning' that needs to be 'thrown' (by the designer) and 'caught' (by the audience).

As we have seen, Bamford says visual competencies are “best developed through exposure to interesting and varied images and through thoughtful and thought-provoking questioning and discussion” (2003, p.5). Debes says “Through the appreciative use of these competencies, [the visually literate person] is able to comprehend and enjoy the masterworks of visual communication.” (1969b, p.27). However, it is the explanation, and not necessarily the designer/illustrator’s intent, that makes the examples effective teaching materials. The words to explain are precisely what the research for this thesis has provided. For this particular project, the examples shown and explained to the students in the Lecture Materials were concerned with:

- Separation of foreground and background. Subjectification of character through various means including caricature and outline to enable viewer identification (among other responses). Objectification of background through various means including more realistic treatment than that given to character. Main exemplars: Thunderbirds, Tintin.

- Silhouettes and outlines without interior detail. Gestural movements: we look at the shape of the overall form rather than getting sidetracked by detail, etc. Examples: iPod T.V. spots, 1930s travel posters, The Shadow: Behind the Mask.
... and what they don't. This image is remarkable for drawing to our attention the way that water reflects light, and the ways it doesn't. It is a meta-image that tells us something of how light works.

Seen from a low vantage point on a river, moon and boat are, reasonable, reflected across the horizon. The cayman (alligator) being much closer to the viewer should not be reflected across the horizon but across the plane where its body intersects with the water. Sounds are also reflected here as Manara draws our attention to the fact that this is a visual medium in the control of the artist.

Separation of foreground from background: achieved through means such as line and caricature, the departure from realism better allows identification with characters and objectification of background for suspension of disbelief.

Cross-pollination of visual forms, in this case the imagery and typography of children's first ladybird books with the cinematic conventions of horror film, can amplify an emotional dimension or help accentuate particular elements within the piece.
Köln-Bonn airport shows high design literacy for a corporate program. This is meta-design: corporate identity that explains corporate identity through its use of icons as logos, and its changing use of logos. Importantly it creates a bridge between images and words, with both being made from the same ‘memes’ (with the help of NORM type designers).

Another meta-visual, Banyai continuously changes our perception of what is real via a series of view-points, backing out of an impossibly detailed picture. In addition, it shows us that a series of stills in a book is a time-based medium not dissimilar to film.

Deliberately ‘real’. This image, despite its almost photorealist nature is all about the graphic shapes through which it creates a powerful sense of foreboding. The fact that in reality these are harmless creatures is almost irrelevant. A great white shark would look much less threatening to the reader, graphically speaking. The fisherman’s unknowing hand on the gunwhale adds subtly to the sense of vulnerability.
Vision

Figure 130: Forkscrew Graphics, iRaq.

Figure 131: Disney, Home on the Range, Studio Ghibli, Our Neighbour Totaro.

Figure 132: Richard Saul Wurman/Michael Everitt, Anatomical schematic.

Commentary

iRaq poster by Forkscrew Graphics from Graphic Imperative exhibition catalogue. Removing interior detail can amplify "graphic punch". The silhouette here references the famous iPod publicity but also shows that what we visually recall of the tormented Abu Ghraib prisoners is this forced stance in stark graphic outline.

Culturally specific visuality. It is not enough to use a particular mode of visuality but you must be aware of its particular strengths. Disney has used anthropomorphism to appeal to its target audience without regard to its special abilities to delineate between characters. Studio Ghibli uses anthropomorphism well for both these purposes but goes much further by inventing an animal that is an amalgam of creatures and their anthropomorphic traits. Totaro, as a cross between a rabbit and an owl is both cuddly and wise.

Designers are not the only professionals to use particular visual modes. Electrical engineers, architects, surgeons and mechanics all use diagrams or drawing of varying descriptions. An examination of these and what they can bring to the visuality of unrelated topics might reveal some exciting new methods of representation.
Visual literacy relies on a sense of the expected and of popular perception. It requires empathy on behalf of the designer for his/her audience. Once this is established and disbelief has been suspended, the visually literate designer can upset the preconceived notions s/he knows the reader has. This can be achieved through one image (as in this anti-racist poster from the Graphic Imperative exhibition catalogue) or, in motion through montage (1+1=3)

Or, by the most visually literate designers, montage in stills! However it is achieved, such a strategy, combined with a knowledge of the visual system's gestalt abilities to group aspects of image can lead to the creation of very powerful and disturbing images. Images can show us things beyond the literally visual world. Not only the invisible relationships between those things but also an entirely emotional dimension.
Project brief for animation project

The brief was given to third year communication design students at Otago who had one semester in which to complete the project. The main idea was that students were experimenting with reference to realism as a departure point. Simply put, what could a departure from realism in their work allow in terms of communication?

Although Bamford (2003, p.3) states that “there can be no dictionary of meanings for the symbols of visual communication,” the purpose of this brief (as the culmination of the research for the thesis and the student projects) was to establish whether guidelines for image making could be established: Not so much a dictionary as an alphabet or a phrase book to an unfamiliar language. Students were asked in a questionnaire to reflect on what visual literacy meant to them and to name and describe some examples that were important to them as nascent designers. This aspect of the project also follows on from the strategies suggested by several of the visual literacy lobby: That articulating in verbal and written communication why a particular image works in a particular way is a powerful means of improving visual literacy.

For the benefit of the reader here, I point out that it might be most useful to view each student's animation on the attached disc (at Appendix C), then to return to their responses to the questionnaire shown on the following pages. It is in these responses that students explain their approach to the project: Specifically what the reduction in realism allowed for them in terms of expressing the mood and/or meaning of the animated piece compared to what they believed prior to the project.

A Flicker of Recognition: Supervisor, Stuart Medley
Moving Image. Narrative animation
A project for the outstanding communication design student with a head for theory and a love of storyboarding and time-based software.
Recommended previous study: (from) DES1 208, 207, 202, 302. Limited to 5-6 students.

This option is based on research of the moving image with a view to improving upon existing communication design forms and conventions. Through rigorous examination of findings and well-documented design processes students will create a time-based design that explores image types from the realistic and the representational to the distilled and abbreviated.
Using software (Flash, Final Cut Pro, Garageband) and any other techniques necessary (including
drawing) develop a narrative animation using cognitive and social theory to describe and develop image, character and animation styles to examine some unexplored possibilities for effective visual communication.

Stuart can be contacted at stuart.medley@design.otago.ac.nz

Student responses for animation project.
Student visual work is on the attached CD at Appendix C. There are five animations shown on the disc. Student responses to the questionnaire begin on the following page and are laid out in sequence to match the order of the animations on the disc.
Caleb Allott: Rise and Shine

PRIOR TO THE PROJECT AND INSTRUCTION: Provide a keyword that matches each of these:

Photograph  Capture  
Drawing  Create  
Diagram  Information  
Caricature  Exaggeration  

In your opinion what is realism?

Creating an image or film that corresponds with how a viewer naturally experiences reality. There are different flavours of realism - what is more 'real' for one person may not be for another. For example, a given person may find Classic Hollywood style of filmmaking more 'real' while another may find this style constructed, artificial or fake, and instead may consider Italian Neo Realism more 'real'.

In your opinion what is exaggeration?

To give a key characteristic more emphasis, make it more prominent.

In your opinion what is simplification?

To make something less detailed. Keeping what is important while removing what is not.

Which is easier to comprehend quickly, a photograph or a line-drawing of the same subject?

It sort of depends on what the 'subject' is. For example, if the subject is a friend of mine, a photograph may be easier to comprehend. However if the subject is a smiley face, a line drawing may be quicker. I'd like to test this out really before answering - but off the top of my head I'd say abstract subjects/concepts would be better suited to line drawings.

Can you explain why?

Where line drawings can be comprehended more quickly I'd guess it would be because they involve less details, less information, therefore are more
efficient in communicating. Another reason why a line drawing may be more appropriate than a photograph maybe that it doesn't correspond directly with reality and as a result allows the viewer space for play with the meaning.

Can you think of any key differences between, say, a photograph of an aeroplane landing and the pictogram/icon of a plane landing seen in 'Arrivals' at the airport?

The obvious one is that a pictogram/icon has less detail. In addition, photographs are of a specific instance while pictograms/icons are more abstract/nondescript. Pictograms/icons, especially the airport type, seem to belong to their own language (or vernacular) which is socially/culturally recognised and acknowledged. Because they are removed from reality, abstracted, they become a language, like ideograms.

Why do you think animals are used to replace people as characters in some stories? Think specifically about the examples we have looked at: Disney's Home on the Range, Ghibli's Totoro, Graham's Wind In the Willows.

I'm not really sure. I'd guess it would be because animals can communicate certain character traits more directly than humans could. For example, a fox might convey someone cunning, or a sheep someone shy or scared.

Why do you think animation and film co-exist? Why is it that one of these media is not used for all (moving picture) narratives?

Because each medium is more appropriate in different situations. There are lots of reasons why, money, audience, subject matter. It is also important to note that the line between film and animation isn't clearly defined. The main difference between these two (which I think to a large extent reflects the situations in which they are used) is that one allows for more human control, that is, more subjectivity in the image. Film isn't totally objective, a filmmaker still frames the shot, chooses what is left out, what is included, what is cut in editing, etc - however it does go a long way toward objectivity: there is a chemical reaction on the light sensitive film (what Bazin would describe as an 'imprint' or 'mold'). At the other extreme is animation - where each cell is hand drawn - resulting in a high level of
subjectivity, of human intervention. Because of this animation can be more imaginative - animators can create there own world. As Tom Tykwer (Run, Lola Run) says “animation suggests anything can happen”.

What do you think it means to be ‘visually literate’?

To be able to communicate and critique visually.

Is there anything in the visual realm that you have liked/enjoyed for as long as you can remember?

Colour and pattern. Visual things that occur in nature, organic stuff, like spirals of sea shells, sand, trees with no leaves in winter (the branch structure), veins in leaves, etc.

About You

What kind of images appeal to you?

Visually rich, considered compositions, strange images.

Do you have any favourite designers/artists/film-makers? Can you explain what it is about these that you connect with?

I appreciate a lot of new stuff in illustration but prefer Hundertwassier and Klimt. I love how visually rich their art is. It isn’t realism or total abstraction, but rather, somewhere in between. They know how to create their own world’s which seem to invade imagination. Their paintings are human, lots of detail and rich colours - you don’t just view them - they invoke feelings.

What does it mean to you to design something?

I seem to change from project to project, trying new methods each time, some of which prove to be better than others. I think this experimentation - not having a set, rigid approach - is important for my design education. At the moment I feel the most important approach is to remain open minded during the early stages of a project - at least the first half. This is very hard. I try not to pin anything down or come up with any solutions. It helps to think subversively or unrealistically. But this must co-exist, at times, with logical, rational and realistic thinking. Design is a paradox, it involves thinking that is at once radical while also remaining decidedly logical. They also must think as an expert but at the
same time also empathically, as the most ignorant end user.

The more I learn about design the more complex it becomes. It involves user, client, commercial, cost, time, etc. I like the descriptions of it as an explosion in reverse or the opposite of chaos. I guess this is where simplification and distillation fit in - a project involves many complex parts (not just in the final product, what is being communicated) and it is the designers role to make sense of these.

Another aspect of design I have noticed is that it is an ongoing process, it continually evolves and develops with no clear end or start of projects. A lot of the time I aren't happy with outcomes or if I am it is usually only for a short period of time - but this is part of the process - the second, third, fourth attempts will always produce better outcomes.

AT THE END OF THE PROJECT: Through this project, what are the key discoveries you have made with regard to understanding the image or the moving image? How has the lecture material changed your thinking or confirmed it, especially with regard to notions of realism or reduction in animation. Think particularly about the image treatments you have used (Whether black and white or colour, colour corrections, realism vs 'cartoon', etc.) and whether these were suggested in the lecture materials or derived from your own experience and intuition about images. What has the approach you have taken given to the meaning or mood of the piece that realism (straight video) could not?

I always like Hunderwassier and Klimt and their work sits between realism and abstraction. So I might have made something like I made anyway. But it was useful to consider realism for the project, and deliberately avoid it for my images. Because they are removed from reality, abstracted, they become a language of their own.
Michelle Michael: Perspective in Motion

PRIOR TO THE PROJECT AND INSTRUCTION: Provide a keyword that matches each of these:

- Photograph - snapshot
- Drawing - depiction, portrayal
- Diagram - illustration, map, representation
- Caricature - interpretation, description, exaggeration, impression

In your opinion what is realism?

Something that does not stretch the truth of what is being represented and gives a non-opinionated view. A photographic image would be the ultimate example of a realist image.

In your opinion what is exaggeration?

Where an element of the representation is played upon to highlight a particular fault or discrepancy. In the visual realm, I guess that a caricature would be a very good example of an exaggerated image.

In your opinion what is simplification?

Where form can be reduced so much as to show only the bare minimum so that an idea can be portrayed. A pictogram or icon is such a visual image of simplification.

Which is easier to comprehend quickly, a photograph or a line-drawing of the same subject?

A line drawing

Can you explain briefly why?

Because a line drawing usually has a reduced background and simplified shapes, there is much less information to process and therefore the idea which is being portrayed is much quicker and simpler to establish.

Can you think of any key differences between say, a photograph of an aeroplane landing and the pictogram/icon of a plane landing seen in 'Arrivals' at the airport?

A photograph would represent 'real life' or 'real images', while a pictogram of this would have no background, and therefore no reference point as to a specific location. A
pictogram would also entail simplified shapes and reduced forms thus becoming symbolic representation of the actual scene.

"When people laugh at Mickey Mouse, it's because he's so human; and that is the secret of his popularity." What, in your opinion, did Walt Disney mean by this statement?

Because Mickey Mouse is a humanized cartoon that is actually an animal, he becomes a universal figure for all of us. It is through his form not being human-like that we can affiliate ourselves with him. It is easier for us to put ourselves in his shoes, what's more is that he becomes ever more popular through the simple irony that he is not human, yet we continue to treat him this way.

Why do you think animals are used to replace people as characters in some stories? Think specifically about the examples we have looked at: Disney's Home on the Range, Ghibli's Totoro, Graham's Wind in the Willows

As in the case of Mickey Mouse, it becomes easier for us to relate to a character when they can be seen as 'universal' and not any human in particular. It also allows for stereotypes to be attached, which can therefore promote a higher meaning within the character. For example the connotations that can be alluded to in a character such as a fox, a weasel or a snake is quickly and almost unconsciously established by the viewer.

Why do you think animation and film co-exist? Why is it that one of these media is not used for all (moving picture) narratives?

I don't think that animation and film necessarily compete with each other, it is more that they are on very different levels to each other. They each target a different audience/market and while this does cross over on occasion, because they are on different levels they give different representations and project different meanings.

Does one of these media have a higher cultural value than the other? If you perceive such a value judgement what do you think the judgement is based upon? Do you agree with it?

Yes, but only because animation is perceived to be 'cartoons'/children's television. However this does seem to be changing due to the status of animation starting to rise. This is particularly through widely recognized directors such as Hayao Miyazaki, and an influx of recent feature length movies marketed as children's yet directed towards an adult audience.
What do you think it means to be ‘visually literate’?

To be able to understand and comment on anything visual.

Is there anything in the visual realm that you have liked/enjoyed for as long as you can remember?

I have a childhood love for ‘Rainbow Brite’ cartoons as well as 60’s Hanna Barbera productions, and ‘Alice in Wonderland’ remains as one of my favourite films. I have always loved children’s books, some of the authors whom I consider to be favourites include Maurice Sendak, Roger Hargreaves, Mercer Mayer and Dr Suess. An object in which I have always had a great fondness for is a ‘View-Master’, there is something that I quite enjoy about the kind of images that are presented in this way, perhaps that it is reliant on an external light source as well as the manual way in which you pull the lever to rotate the disk, I have also recently come across a hand held slide viewer which does a similar sort of thing.

What is your first recollection of an image/moving image/object/scene

The first memory that I have of any sort of moving image would probably be watching ‘The little Mermaid’ at the now destroyed St James picture Theatre as a youngster.

That little game where you have 9 squares that on each side of each square has half of a picture, and the puzzle can only be complete when all sides line up with each other and are in a three by three formation.

About You
What kind of Images appeal to you?

A very hard question to answer as I have such a vast love of all kinds of images, some that I consider to be favourites include vector-style graphics, hand rendered, loosely-drawn sketches, and especially children’s artwork. Any striking photograph or abstract painting will always appeal to me as does clean-lined modernist graphic design as well as ‘good’ non-cliche deconstruction. I also have a great appreciation of street graphics and graffiti, as well as a love for art nouveau and arts and crafts graphic images. A recent book I have come across that I have loved is ‘Street graphics India’ by Barry Dawson.
Do you have any favourite designers/artists/film-makers? Can you explain what it is about these that you connect with?

I have great appreciation for directors such as Tim Burton, David Lynch, Jim Jarmusch and Quentin Tarantino whose works show a view that is often 'far from the norm', the darker side of life as well as often simply promoting the stark reality of life and how they see it. Animators among my favourites include Don Hurtfeildt and Hayao Miyazaki. And due to their design philosophies and references to nature I also consider designers such as Bruce Mau and Friedensreich Hundterwasser to be among my favourites. Other artists, architects and designers whose works I appreciate include Antoni Gaudi, Alvar Aalto, Frank Lloyd Wright's 'Falling Water' and 'Guggenheim Museum', Ralph Hotere, Simon Kaan, Vincent Van Gogh, Leonardo da Vinci, Colin McCahon, Grahame Sydney, Claude Monet, Ludwig Mies Van de Rohe, Rem Koolhaas, Charles and Ray Eames' 'Powers of Ten',

What does it mean to you to design something? (Name some key processes and think about the approaches you might take in producing a short instructional animation. Please think carefully about the design concepts of irreducibility, minimalism or distillation. Why do you think these concepts are important to design?).

To make something better than it has been made before or different to how the problem has been solved before. Irreducibility is something to keep thinking about while you design because for something to work well it should have less moving parts. In a visual design this is still true. Less moving parts might be less noise to confuse you when you view it. This makes the message get through more easily.

What are some of the key issues that led you to studying design in the first place? Please explain the influences, as you see them, that certain defining institutions may have had on your decision to study design (an 'institution' can be your family, school, the media, workplaces, etc.)

Throughout my school years I have always been a painter, but it is perhaps my love of magazines and picture books that lead me to consider studying design at university. Film has always been a strong interest of mine as well, and it was only in my second year at university that I began to study it (yet I had always considered it). It was always a hard choice for me to make when deciding upon what to study at university as I have a very strong maths and science background and almost went down a very different track of anthropology and earth and ocean science. I guess that design held my interest because of
my desire to continue working in an artistic sort of field, as I consider myself to be a visual kind of person. As I have always been a very hands-on person I appreciated this element to design, I much prefer to learn by doing, than by studying as I have always found that playing around with things reaps much greater benefits.

AT THE END OF THE PROJECT: Through this project, what are the key discoveries you have made with regard to understanding the image or the moving image? How has the lecture material changed your thinking or confirmed it, especially with regard to notions of realism or reduction in animation. Think particularly about the image treatments you have used (Whether black and white or colour, colour corrections, realism vs 'cartoon', etc.) and whether these were suggested in the lecture materials or derived from your own experience and intuition about images. What has the approach you have taken given to the meaning or mood of the piece that realism (straight video) could not?

Something which I have discovered through my exploration of moving images is the element of time, where elements can be played with and a certain event shown to happen much quicker or slower than it would in 'real time'. With regards to my project, I guess that the major treatments that I used were to do with colour corrections and timing. As it had always been a focal point of my work to try to illustrate the different outlooks that people have, I found such treatments to be most beneficial to me. I found that I could most clearly differentiate between characters in a way that I couldn't if I had of just used straight video and shot it in a Hollywood, realist way.

After the lecture on outline styles and distillation in pictures I darkened the faces and increased the contrast and colour differences so we are less likely to identify them as actual people and more likely, through the less real treatment, to identify with them as personality types or age-types.
**Rebecca Matson: The Speed of Recognition**

PRIOR TO THE PROJECT AND INSTRUCTION: Provide a keyword that matches each of these:

- Photograph - Realistic
- Drawing - Interpretation
- Diagram - Formal
- Caricature - Exaggeration

In your opinion what is realism?

Realism is the use of visual communication (drawing, illustration, etc) to make an object/item/animal etc look as much like the thing it represents as possible.

In your opinion what is exaggeration?

Exaggeration is the process where one aspect/feature of an object/item/animal etc is increased disproportionately to the rest of the image in order to highlight its importance/significance.

In your opinion what is simplification?

Simplification is the process of taking the most important points of an object/item/animal and using them to represent it with as little visual information as possible.

Which is easier to comprehend quickly, a photograph or a line-drawing of the same subject? Can you explain why?

For comprehension, a line-drawing can be interpreted faster than a photograph for several reasons. First, the amount of visual information/clutter is a great deal less in a line drawing. Second, a line drawing highlights the main features that we use to identify it in the first place. Third, a photograph is devoid of the external elements that would act as cues for interpretation – sounds, movement, smells etc.

Can you think of any key differences between say, a photograph of an aeroplane landing and the pictogram/icon of a plane landing seen in ‘Arrivals’ at the airport?

Icons work on the same principles as mentioned above. They remove all visual noise, almost to the point where no information is left. That is the key to their success. The most salient features of the process of a plane landing, and the connotations that go with it are more rapidly perceived with an icon. An icon is a representation of not only the object itself, but also a process or a chain of events and in this way it takes on a meaning of its own, that a photograph does not.
"When people laugh at Mickey Mouse, it's because he's so human; and that is the secret of his popularity." What, in your opinion, did Walt Disney mean by this statement?

Walt Disney means that by attributing human characteristics, behaviours and mannerisms to Mickey Mouse, we as humans are able to identify with him, and in turn find his mishaps/adventures etc entertaining.

Why do you think animals are used to replace people as characters in some stories? Think specifically about the examples we have looked at: Disney's Home on the Range, Ghibli's Totoro, Graham's Wind In the Willows

Animals are used to replace characters because they have their own 'personalities' outside of their biological make-up. This may be due to their portrayal throughout history. For example: snakes date back to Biblical times with Adam and Eve, and their 'personality' is seen as being sneaky, deceptive, and evil. Using an animal instead of a person as a character is basically using a symbol that people can readily identify as having certain characteristics, without having to explain anything about their character.

Why do you think animation and film co-exist? Why is it that one of these media is not used for all (moving picture) narratives?

Animation and film co-exist because of their unique properties. Film is realistic and can therefore communicate certain things that an animation cannot. And animation is removed from reality and so can communicate things that film cannot. Realism (film) is necessary to depict true-to-life human interactions in a form that makes the viewer feel they could easily fit into the situation. Animation, however, can be likened to making a story come alive. It is more the visual representation of words on a page and comes from the imagination. Imagination is vital to communicate certain ideas and story-lines, and this is where animation presides over film.

Does one of these media have a higher cultural value than the other? If you perceive such a value judgement what do you think the judgement is based upon? Do you agree with it?

Film has a higher cultural value over animation. I believe this is partly due to the mystery of film making. As films appear to depict life as we see it, impressive stunts, super-human abilities, and giant creatures can all be more easily accepted as 'real'. As human beings, we value human life above and beyond all other forms of life. Film is a reflection of ourselves and is therefore we hold it in higher regard. It is also a form of representation that has a
solid foundation historically, which also contributes to its higher cultural value. I agree with this, as I can see the reasoning. I also agree with it on a personal level, as I enjoy nothing more than going to the cinema to watch a film and immerse myself in another world, a mindset that doesn't happen with animation.

**What do you think it means to be ‘visually literate’?**

I think visual literacy is the ability to notice and apply design philosophy and practise. It is not just observing and being able to appreciate/create a work, but also being able to analyse it, dissect it, and give reasoning, justification and empirical evidence for the choice in medium, layout, typography etc.

**Is there anything in the visual realm that you have liked/enjoyed for as long as you can remember?**

I have loved photographs and taking photos for as long as I can remember. I think it is the way they freeze a moment in time, and the process of developing the film and waiting to see what you've captured that I enjoy the most. My Dad has a passion for photography, which no doubt influenced me early on. Since I was very young I have always had a passion for 'art'; drawing, painting, cut and paste, colouring in. Just the act of making marks on paper and creating something unique is a process that I have loved and have taken part in from my earliest memories.

**What is your first recollection of an Image/moving image/object/scene?**

My first recollection is hard to pin-point, as the multitude of photos my Dad took when I was young have created false memories. I can remember when I was about 5 years old, watching a video my parents took of me when I was a new born. It showed my room, where Dad had painted the walls with pictures of Goofy and Pluto and cartoon planes. The images on the walls could be my earliest recollection, but it is not a true memory. In terms of moving images, I can remember watching Fraggle Rock, and the Wombles as a young child. I can also remember vividly the stamp on my hand the nurse gave me when I got my fingers slammed in a car door when I was about 3-4 years old. It was the classic red smiley face.

The first image I recall as being a 'graphic design' is the 'NZ' type logo, where the N is positioned both above and to the left of the Z, and then repeated, making a box:
NZ
ZN
I can remember it as an exercise in 3rd Form Graphics, having to draw it using set-squares and a t-square, and then colouring it in.
Whenever I think of instructional graphics, the first thing that always comes to mind in the airline safety cards found in the back pocket of the seat in-front of you on a plane.

About You

What kind of images appeal to you?

The kind of images that appeal to me have their roots in painting and photography. I love abstract works, as opposed to realistic interpretations/paintings of actual objects. I love mixed media, and find that there is a great deal of freedom and feeling in such works. I love photographic images as they capture a moment that can never be re-created, and because it is such a fine art to get a beautiful photograph.

Do you have any favourite designers/artists/film-makers? Can you explain what it is about these that you connect with?

I admire the pop artists Andy Warhol, Roy Lichtenstein, Robert Rauschenberg. Their work was not only fascinating and beautiful (in its own way) but it also posed so many questions about society and prompted people to think – not just accept the work for what it is. Similarly with abstract artists such as Piet Mondrian, who inspired my bursary photography submission. In terms of film, I love Guy Ritchie as a director, mostly for the way he tells a story and the flat, sarcastic humour that his films include. In films, it is the dialogue and soundtrack that draws me in the most.

What does it mean to you to design something?

Designing something is about the process just as much as the final outcome. I have always followed the process of: brainstorm, research, concepts, research, development, research, refinement, presentation. With critiquing and feedback at every stage.

In terms of animation, the entire process is new to me, however I would follow a similar pattern, starting with ideas on paper, and then translating them onto the computer at an early stage for development and refinement to take place in the final intended medium.

Irreducibility is an important consideration, because if the design can be simplified even
more, then the outcome is not successful (or as successful as it could be). In terms of the design process, refinement should be undertaken with the goal of reducing the design to its most simple and most easily communicated form.

Minimalism is similar to the above. It involves removing all excess information and visual noise and utilises a few simple elements, arranging them for maximum effect. This should be considered during the production of concepts and during development and refinement.

Distillation is not a design concept that I have encountered before. Its definition is "something that consists of the essential points, aspects, or implications of something larger or longer", and so I imagine its application to be similar to those mentioned above.

What are some of the key issues that led you to studying design in the first place? Please explain the influences, as you see them, that certain defining institutions may have had on your decision to study design (an 'institution' can be your family, school, the media, workplaces, etc.)

I have always loved everything to do with art, drawing and creative pursuits. My Dad has had a strong influence, as he is a very visual person and works everything out graphically. If he ever tried to solve a problem he would draw it out, either a diagram or sketches or pictures. When ever he tries to solve a problem he generates a mental representation of it first. He has always said to me that if he could have his time over again he would go to a fine arts school.

As early as I can remember I was always a few years above my peers in terms of my reading age. I think a lot of my imagination and ability to visualise has come from my exposure to books. I have a passion for reading and a dislike for television. I always watched cartoons as a kid, but would readily pass up the opportunity to watch TV in order to read a book.

I was fortunate enough to spend my early years in a small town where the school had a very high teacher to pupil ratio. I think this gave me a strong base for my education and the one-on-one attention and encouragement that allowed me to thrive academically. The move up to Auckland around age 10 exposed me to challenges and opportunities that I would have had otherwise. I can remember going to special art classes after school at another primary, doing ceramics, paintings, carvings etc, which no doubt helped refine my skills and maintain my interest.

High school developed my skills and interests even further. I did Graphics from 3rd form until 7th form, gaining a placement of 2nd in New Zealand in the 6th form external
examinations, and won an Auckland graphics competition for logo design in 7th form.

My bursary subjects were Graphics, Photography, Art History, New Zealand History and English, all of which helped steer me in the direction of a creative-based career.

**AT THE END OF THE PROJECT:** Through this project, what are the key discoveries you have made with regard to understanding the image or the moving image? How has the lecture material changed your thinking or confirmed it, especially with regard to notions of realism or reduction in animation. Think particularly about the image treatments you have used (whether black and white or colour, colour corrections, realism vs 'cartoon', etc.) and whether these were suggested in the lecture materials or derived from your own experience and intuition about images. What has the approach you have taken given to the meaning or mood of the piece that realism (straight video) could not?

Distillation is a new concept for me and definitely helped in this project. I have discovered that in order to correctly identify an object, not a lot of visual information is actually necessary. Six carefully positioned lines can be identified as a cat as readily as a photograph. One of my greatest moments of realisation was while working with the programme Flash. I was attempting to create movement by moving the picture along the stage and motion tweening it. Then the realisation hit me: - all I am creating is apparent movement. Once I knew this I simply placed the pictures of the cat on top of each other and had one disappear and the next one appear. This of course is what animation is all about. Just still images one after the other. Seen quickly they appear to move.

In terms of colour, I discovered that while it is not necessary it does add to the speed of recognition. It definitely adds to the speed of recognition if the object you are trying to portray has typical colours. Black stripes on a cat still identify it as a cat. Add orange and all of a sudden it can be identified as a tiger.

I have taken an abstract approach which allows me to manipulate the image. Breaking the image into different forms of representation highlights the fact that less information still results in accurate perception. Realism was my starting point for this investigation, and I abstracted the 'real' picture into simplified versions from there. It therefore takes on meaning as an exploratory piece of animation, which straight video could never communicate.
In your opinion what is realism?

Realism is a depiction of an object as viewed in everyday life by most people. It contains as much detail as possible for an individual to consider it to be real.

In your opinion what is exaggeration?

Exaggeration is when we take an object or person, study the features that are most noticeable to us, and then recreate them with that feature being more prominent.

In your opinion what is simplification?

Simplification is when you take an object/person/thing and distil it/them down to the barest of elements it would take to communicate to others what they/it are/is.

Which is easier to comprehend quickly, a photograph or a line-drawing of the same subject?

A line drawing

Can you explain briefly why?

I believe that when we look at something, the left-side of our brain quickly tries to compare it with everything we know. The biggest details are the most important so we look at the silhouette of the object first and then work in from elements of importance. For example if we are looking at some ones face we first notice the shape of the head and know instantly that we are looking at another humans head. Since we have seen many heads and know that they consist of certain elements (eye, nose, mouth, ears etc) we then look at those defining characteristics for the next clues. So a line drawing has fewer elements to analyse and so we arrive at the conclusion a lot sooner.
Can you think of any key differences between say, a photograph of an aeroplane landing and the pictogram/icon of a plane landing seen in 'Arrivals' at the airport?

I would say that a photo of a plane landing would be interpreted quite specifically compared to a pictogram of a plane landing. For instance lets say that it was an Air New Zealand plane in the photograph. When looking at the photograph I would recognize that it was a plane landing, but also I would go further and realize that it was an air new Zealand plane, an air new Zealand 747 plane etc. My conclusion, if this was a image used at an airport, that this is a picture relates specifically to air New Zealand, and not air planes in general.

“When people laugh at Mickey Mouse, it's because he's so human; and that is the secret of his popularity.” What, in your opinion, did Walt Disney mean by this statement?

I think Walt Disney was talking about the way that Mickey Mouse does not behave like a real mouse. He walks on two legs, he wears clothes, has a pet dog, sings and dance etc. Through the animation he acts like a human and is drawn with the placita attributes of a human. His balance and weight is animated to reflect how a human walks and moves. His movements are governed by the laws and physical limitations of the human body, al be it a characterization/exaggeration of a humans movement. But perhaps most importantly than these simple physical attributes, mickey mouse shows emotion. When we watch him we understand when he is happy, sad or angry. The animators choose poses and expressions that we see in ourselves everyday, and so can easily read and relate to the character.

Why do you think animals are used to replace people as characters in some stories? Think specifically about the examples we have looked at: Disney's Home on the Range, Ghibli's Totoro, Graham's Wind in the Willows

I think the use of animals allow us to step into a fantasy world a lot easier than a human character.

And lastly, humans are harder to animate and draw because an audience knows them so well. Every movement, look and gesture has to be grounded by these rules. For example, in the spider-man movie there was a lot of criticism that when he was swinging through the city, he didn't look real. A fictional man with spider-powers and super strength doesn't look real swinging through new York city on strands of spider web, imagine that! But of course he is perceived as human, and so people judge him by human standards. If Donald duck was swinging through the city, I am sure we would never hear anyone saying that
it didn't look real, despite the fact that a real duck couldn't possibly do that. That is why when we do see humans they have to be very abstract in order to do unusual things (e.g., seven dwarves) else they must move a lot closer to the way we do (e.g. snow white, Mr Incredible).

Why do you think animation and film co-exist? Why is it that one of these media is not used for all (moving picture) narratives?

I believe that they are two different mediums, that share many commonalities. They both have values that make them appealing and they both allow for certain things to be communicated easier. It is about strengths, weaknesses and production values.

Does one of these media have a higher cultural value than the other? If you perceive such a value judgement what do you think the judgement is based upon? Do you agree with it?

Definitely film has a higher cultural value than animation in the western world. I think there is a perception that animation is for kids, and that it is not for adults. Somehow it cannot communicate the same values and seriousness that film can.

What do you think it means to be 'visually literate'?

I think it means to understand the way visual material communicates. Whether it is looking at a painting, photograph or a design, a visually literate person should be able to understand why the image works (or not), how its elements relate to each other and what can be done to improve it.

Is there anything in the visual realm that you have liked/enjoyed for as long as you can remember?

Animation/cartoons. I have loved them from the moment I saw them and that love has never died away, but has indeed grown stronger over the years.

I think a Gary Larson Cartoon would be appropriate as an answer for this one. There are so many to choose from but my favorite one was the captionless, penguin lying down on the ice near a banana skin. I remember at first looking at and taking a moment to get the joke. Gary Larsons’ work seems to fall into a couple of categories. You either look at it and get it immediately, or else it takes ages to work it out.
What is your first recollection of an image/moving image/object/scene

I think it was bugs bunny or mickey mouse. Pretty vague. Perhaps the wizards apprentice bit from Fantasia. I think the first time I really heard about what graphic design was, the Apple computer Logo. I know I have seen graphic design all my life, but I think that was the logo I first heard of being a graphic design.

About you: What kind of images appeal to you?

A variety of images appeal to me, though it is hard to narrow it down to why I like such a range. I guess there is something in the composition and the technique that speaks to me. I have always been drawn to artists like Rene Magritte or Maurice Noble, who have that lovely style of painting. A style of styled reality. But at the same time I love the energy and life that can be found in extremely rough pencil sketch.

Do you have any favourite designers/artists/film-makers? Can you explain what it is about these that you connect with?

This is a hard question as it always changes and develops over time. At one time I would have said George Lucas, but the latest Star Wars films have diminished his status (I'm sure his heart broken by that!). I guess I would have to give it to the Chuck Jones Warner Bros cartoons. There is something about the quality of movement in them. Very exaggerated movement and very elastic.

What does it mean to you to design something? (Name some key processes and think about the approaches you might take in producing a short instructional animation. Please think carefully about the design concepts of irreducibility, minimalism or distillation. Why do you think these concepts are important to design?).

To design something is to deliberately create something that communicates in the most effective and complete way possible to the target audience. It begins with identifying who your audience is and what you want to say to them. From there you can formulate a strategy that will allow that communication to happen. To produce a short instructional animation I would look at the medium, learn its strengths and weaknesses, and research what has been done before. Then I would formulate a plan of how to produce the animation (storyboard, construction, colour experiments, look experiments etc). Irreducibility, minimalism or distillation are important concepts to design as it is a process that is all
about communication with an audience. Whether that is to go unnoticed and just work (everyday item) or to gather as much attention as possible, a Design must communicate something otherwise it has failed. In order to communicate, a design must have the simplest and most effective imagery appropriate to the subject material. In the design process we must refine our designs down to the most important forms to allow for quick reading, quick understanding, and thus quick communication.

**AT THE END OF THE PROJECT:** Through this project, what are the key discoveries you have made with regard to understanding the image or the moving image? How has the lecture material changed your thinking or confirmed it, especially with regard to notions of realism or reduction in animation. Think particularly about the image treatments you have used (whether black and white or colour, colour corrections, realism vs 'cartoon', etc.) and whether these were suggested in the lecture materials or derived from your own experience and intuition about images. What has the approach you have taken given to the meaning or mood of the piece that realism (straight video) could not?

Realism was important to think about for the design of the characters. I have always loved well designed cartoon characters and it has been good to focus on what makes their design work. Bernard was an interesting character to design as he evolved from one idea into another. I had focussed the start of my design around having a big snobby nose, like we might see in a caricature of someone pompous. As the nose grew higher and bigger, due to me pushing the boundaries, a new character emerged. The pompous arrogance disappeared and was replaced by a sense of pity, weak and feebleness. The character took on a bird like appearance. That made me think about the anthropomorphism possibilities for his character. A bird can be jumpy, shy, timid, nervous and so on. Immediately I realised that this would be appropriate for the main character of the film as the plot calls for that sort of person. Even in the 3d modelling stage, his features were pushed further and more extreme. I discovered that other people related to this character as well. This extreme design appeals to us and yet is a very weak character. It draws us into him in a way that really surprised, and delighted me, as I wanted this kind of engagement from the audience. Animation has allowed my film to be a world of familiarity and extremes. I am able to push the boundaries of character design to get an instant reaction and reading from the audience. The look of the film cannot be achieved by straight video as I feel the amount of detail in video lets people know it is video, no matter how processed down it is.
Daryl Cowan: Overlook

PRIOR TO THE PROJECT AND INSTRUCTION: Provide a keyword that matches each of these:

Photograph: realism
Drawing: expression
Diagram: instruction
Caricature: exaggeration

In your opinion what is realism?

Something that appears real/realistic. Based on fact, I perceive realism to be things like...... documentaries, some art/photography

In your opinion what is exaggeration?

Blown out of proportion, made out to be bigger or better than it really is.

In your opinion what is simplification?

Something stripped back to it's bear necessities. Something in it's most basic form ie taken back to line....... Like stickmen!

Which is easier to comprehend quickly, a photograph or a line-drawing of the same subject?

Line drawing

Can you explain briefly why?

Less detail, more simple the less information should be processed quicker by the brain

Can you think of any key differences between say, a photograph of an airplane landing and the pictogram/icon of a plane landing seen in 'Arrivals' at the airport?

The photograph is based in realism could have any meaning, the icon would bee seen as instructional, like it's trying to direct you to do something.

"When people laugh at Mickey Mouse, it's because he's so human; and that is the secret of his popularity." What, in your opinion, did Walt Disney mean by this statement?

That he is a representation of human, we can laugh at a mouse but because he is not identifiable with specific races so that's OK, he takes on human traits/ identity etc
Why do you think animals are used to replace people as characters in some stories? Think specifically about the examples we have looked at: Disney’s Home on the Range, Ghibli’s Totoro, Graham’s Wind in the Willows

To avoid racial stereotypes, they can represent people autonomously.

Why do you think animation and film co-exist? Why is it that one of these media is not used for all (moving picture) narratives?

Realism vs fantasy, in most cases films are an escape for viewers, realistic, feel involved with the film giving a sense of reality. Animation is pure fantasy, can’t be confused with reality.

Does one of these media have a higher cultural value than the other? If you perceive such a value judgment what do you think the judgment is based upon? Do you agree with it?

Film does, perceived as a higher art form, animation is made for kids?........agree not entirely because it is a complex art for, most cases more complex than film itself.

What do you think it means to be ‘visually literate’?

being able to interpret images without being told what they are.

Is there anything in the visual realm that you have liked/enjoyed for as long as you can remember?

Cartoons.

About you: What kind of images appeal to you?

Broad range but I do enjoy vector graphics/ limited colours, always have

Do you have any favourite designers/artists/film-makers? Can you explain what it is about these that you connect with?

The ronin, animators, there work is really gritty, dark and visually strong go to www.blackdaytowordedom.org for example of their animation. Film........tarantino enjoy the dark content, he views storylines in interesting ways.

What are some of the key issues that led you to studying design in the first place? Please explain the influences, as you see them, that certain defining institutions may have had on your decision to study design (an ‘institution’ can be your family, school, the media, workplaces, etc.)

Always into art and film stuff, first got into design in high school 6th form design teacher inspired me lots, enjoyed having many solutions to one problem rather than one outcome as in maths.
AT THE END OF THE PROJECT: Through this project, what are the key discoveries you have made with regard to understanding the image or the moving image? How has the lecture material changed your thinking or confirmed it, especially with regard to notions of realism or reduction in animation. Think particularly about the image treatments you have used (whether black and white or colour, colour corrections, realism vs ‘cartoon’, etc.) and whether these were suggested in the lecture materials or derived from your own experience and intuition about images. What has the approach you have taken given to the meaning or mood of the piece that realism (straight video) could not?

Complex, but using film and animation I was still able to keep a sense of realism about the project which was important I felt to show that this really happened. Getting away from realism when I needed to was important to delay showing who these guys were until the viewer has time to make up their own mind. The most important piece in determining the mood of the project was the black and white footage combined with the white figures and music, the whole package ended up setting the mood rather than one element. I think I would have known how to see the big picture stuff for this project but the information about silhouettes and absence definitely gave me some ideas that helped.
Summary for animation project

The student projects and their responses to the questionnaire regarding the specificity and the noise inherent in realism versus the generality and quickly apprehended meaning attainable through drawing suggest that they each understand the theoretical underpinnings of the project. As we saw in Chapter 5 the exemplars of visual literacy were all critiqued in terms of how they departed from realism. Likewise the student projects here are each predicated on that departure and are also critiqued below in those terms.

At first glance, these works might appear to be more artistic expression than communication design—Daryl Cowan's perhaps looks the most 'designerly' in a conventional sense as its inclusion of text and its brevity seem to suggest a television commercial for a documentary—but from the intentions stated in the student's questionnaire responses, and the analysis of each piece in the terms of the thesis, it can be argued that this apparent 'artiness' is a function of pushing the boundaries of communication design. The works are not built using existing design templates since we have established that mainstream design's approach to image does not best fit our criteria of visual literacy. These projects don't look like standard graphic designs because the students are all attempting to explore new territory. What they do share is a grasp of realism and an exploration of territory allowed by a departure from realism.

I will describe each student's work to introduce my critique of it, and explain how it was intended to work. I will then ascertain how successful the students were in terms of their own proposals. My critique of each of their works will be dependent on how it addresses the theories embodied in the lecture materials.

*Rise and Shine* is essentially a music clip set to a hip-hop beat. Of course in a music clip, anything can happen. But the student has been clear about what the theoretical basis of the project enabled him to do: A move away from realism allowed him to better construct his own visual language. If this language is coherent then the clip should function through its own internal logic, perhaps the only criteria for a music video. This piece appears to be an examination of daydreaming. The boundaries between the very mundane daily activities of a young everyman (signified by his hat, a lean silhouette and a jaunty, exaggerated gait) and his psychedelic dream states are blurred and then redefined through continually changing points of view, and bombarded by a salvo of superimposed images and words. Throughout,
a surreal, psycho-active state is suggested, exemplified by the enlarged cartoon eyes drifting momentarily out of the obfuscated interior of the character. This student's mixing and deconstruction of media (the lively outline of animation is made especially frenetic here and worthy of particular attention which I will come to) ultimately questions reality itself, albeit in a lighthearted way (the hip hop music and the caricature of movement by the actor that the student videoed and then rotoscoped help avoid any gravitas). This essence of surreality comes from the blend of a trace of realism—the accurate silhouette (except in the instance detailed below) and the mundane activities of the character—with the departure from that realism via the strange, mixed-media textures and the pantomime flatness and yet plasticity of the whole scene. Scenes of suburban banality are interrupted by dysfunction and malfunction of self and surroundings. The overly gestural walking accentuates the series of false starts that the character embarks upon in his quest to set out for a normal day. His stride begins so purposefully but gets sidetracked easily by the hallucinations/dreams/daydreams, only for this dream state to be revealed as a narrow aperture on a wider scene. In this regard the narrative is reminiscent of Banyai's Zoom(1995, See Chapter 6, p?)). For example, he suffers fits while eating breakfast, the convulsions turning out to be the malfunctionings of a T.V. set being pounded upon by the character himself. When the character leaves his house, again with a caricature of purpose, again he gets waylaid by strange phenomena. This time his own outline is conspiring against any sense of direction. This compromise of the integrity of the silhouette is particularly remarkable in terms of the thesis. If, as Simpsons creator, Matt Groening suggests (Idato, “Matt Groening's family values”, 2000), a character's visual identity is best captured in a silhouette, then outline equals identity. This is an excellent deconstructive discovery by this student and worthy of further exploration as its own concept. In the last phase of the video, the character becomes an eye which becomes a puddle reflecting himself. He jumps the puddle to continue his journey, only to be disrupted once more and become trapped within the pages of a children's book which he then finds himself reading. Finally it's all a dream, but, given that he has woken previously, and that the strange film effects persist through the clock-radio alarm, has he really woken?

This student has examined contemporary illustration styles. He says in his response to the questionnaire, “I appreciate a lot of new stuff in illustration but prefer Hundetwassier and
Klimt". There certainly seems to be a rejection of the crisp vector graphics typical of recent illustration and commercial animation, and in its place an embrace of vintage approaches to image making, perhaps the flatness apparent in Hergé's design. As in Hergé, there is also a clear separation of character from background, though here it is generated through complementary colour and relative fluidity in front of stasis.

While subject and object are delineated, different media become unified. Image and text run together in a similar fashion to Run Wake's deconstruction of vintage Ladybird books (Chapter 6, p: Figure). But further to this he has begun to bridge vision and sound: the film effects that make the video appear as damaged print (dust and scratches, etc.) find their equivalent in the crackling vinyl effect on the audio. The audio is also vital in foreshadowing, through the initial use of the clock-radio alarm, that this entire clip is a dream sequence.

In Perspective in Motion, Michelle Michael has used her departure from realism, principally the unrealistic treatment of time and colour, to help define her four characters:

elements can be played with and a certain event shown to happen much quicker or slower than it would in 'real time'. [...] the major treatments that I used were to do with colour corrections and timing. As it had always been a focal point of my [project] to try to illustrate the different outlooks that people have, I found such treatments to be most beneficial to me. I found that I could most clearly differentiate between characters in a way that I couldn't if I had just used straight video and shot it in a Hollywood, realist way.

There is little sense of a plot except that the four characters momentarily share space on public transport. Briefly, through camera position, we share with each their outlook on the moment (through colourised video on board the bus) and a slice of their lives at each of their homes (through black and white stills arranged in sequence). This point of view is passed, baton-like, from character to character; bus driver to the youth, youth to child and child to old man. The made nature of this piece becomes apparent through this changing point of view. This deconstructive tactic puts each character momentarily in the role of director and, as each character also looks directly at us through the camera lens, we too are given a point of view.

Essential in this student's portraiture approach is the concept of cross-pollination between visual techniques. This piece is a hybrid of video and photo-roman. Cinema-verite crossed with Ken Burns' style stills documentary. She has used the stark black and white of a social realist photographer, teamed with a poster-style approach to colour. This is unusual in itself
but the student has arranged the still photographs into a rapid photo-roman such that they almost begin to move, in a flick-book style of animation. Almost, but not quite. By stopping short of this fluid movement she keeps apparent, and even focuses on, the difference between stills and seamless, virtually invisible film. In this way she draws attention to our faculties for persistence of vision and object constancy.

The approach to colour, inspired by travel posters from the 1920s and 30s (but bordering on the hallucinatory look of psychedelic posters from the 1960s) provides a momentarily similar feel to *Rise and Shine*'s altered state, albeit with a more down-beat mood amplified by moments of darkness and glimpses of gritty streets and the black and white photography. This posterised approach is also unexpected in video, especially video with a social realist bent which would generally not want to draw attention to itself as a medium. This is achieved by working through the medium itself, via colour exaggeration in the video, and on the medium, by rotoscoping animation over the video using Flash software. The resulting aesthetic, achieved by tracing directly over the video frames, is particularly spiky and lends further grit to this social commentary by escaping the invisible smoothness of realism. Where colour treatment is used to differentiate between characters—a stated aim of the student—it is less successful since it is not easily apparent that the colour has been adjusted differently for each character's outlook. It is perhaps clearest in the baby's point of view which has very chromatic colours compared with that of the other characters. However, the potential is there for colour treatment to be used in such a way. It was also the student's intent to darken the faces and increase contrast and colour differences so we are less likely to identify them as specific people and more likely, through the less realistic treatment, to identify with them as personality types or age-types. Hence the generic character titles rather than names.

Music is not as integral here as in the previous example but works toward the same ends as the vision. The fact that it is sung by a female and is a low-fidelity recording with a solo voice and acoustic guitar suggests a busker which in turn suggests a certain age group and personality type, perhaps the bus driver's first customer in the video ("a lively youth"). This seems likely given that in the stills sequence for this character we see her playing an acoustic guitar. The song is changed for each character's point of view as is the colour treatment. The student's aim though, sound and image as subjectified point of view, certainly seems worth
pursuing. The lack of polish on the music, and its intermingling with the harsh, mechanical sounds of the bus removes the clip further from the Hollywood realism from which the student stated she was departing. In the student's final scene, a split screen comprising a shot of each character (another departure from realistic cinema) implies that each of the character studies has been running concurrently: a final tinkering with time.

In Rebecca Matson's *The Speed of Recognition*, a breathless hypnotic quality derives from the looping vision teamed with the repetitive and pacey soundtrack. Each of her 'cats' runs through a day and a night giving us the opportunity to see if lightness or darkness of setting enables or disables recognition, aids or hinders it. Her work breaks down each cycle so that we might assess what level of detail works, which movement is best, which outline easiest to interpret, and so on. In essence she has created a visual test-bed upon which other experiments could be built. Because of the student's stated psychological focus, what's most interesting here is the gestalt wholeness of even the scattered elements of the cat. In a couple of is configurations, especially where limbs and tail are disconnected spatially from each other (as per the first running cycle), there is still a sense of grouping. We have seen that objects bearing a common colour and or a common shape tend to provoke a response in the viewer of their belonging to a group. We saw in the first student project, the 9 Pictograms, that this can be achieved through other means such as line. Here we could say the line is allowing the shapes' classification as a group, especially since the line is the shape. However, we must now add the possibility that movement of separate objects alone might stimulate the brain to group objects. This may be movement in a similar way (disparate objects circling in the same direction for example) or on a more complex level, as hinted at here: It could be objects moving in different ways but at the same time and across the scene in the same direction (or the scene moving behind them to suggest direction). Further research could be useful in this area: how different can the objects be and yet still be seen to belong to group if they move at the same time and in the same direction.

In *Bureaucracy*, Brendan Rich purports to explore "a world of familiarity and extremes" via a narrative featuring an anti-hero in some vast public sector building. This student intended to complete the animation using 3D software but most of the story remains (at time of writing) as a sequence of storyboards roughly edited together into an 'animatic'.
To begin the story, the scene is set with a close up on a slip of paper held by the central character, Bernard. We see it from his point of view and so are immediately asked to identify with this character. The piece of paper is regarding his job interview, to take place at 2pm. Then we are shown an establishing shot of the building (though perhaps not for the optimum duration). A wall of paper at the reception desk functions doubly to alienate Bernard from his very first encounter with this place and to signify bureaucracy. Bernard’s appointment slip is taken by the unseen receptionist whose gesturing finger directs him to the waiting room. Bernard glances nervously at the clock (it's 10 to 2).

Bernard finds a workman removing room number signs from the corridor, an absurdly unhelpful activity. Finding the sign for the men's toilet among countless others, Bernard gestures exasperatedly for the toilet. The workman himself is unhelpful, and later, malevolently obstructionist. So begins Bernard’s cycle of trying various floors of the building for various toilets (to enter each of which he needs a sequence of keys and access codes) presumably before it's time for his interview. Each toilet is 'Out of Service' amplifying this lighthearted if not puerile aspect of an otherwise somewhat nightmarish scenario. Finally it becomes a race between Bernard and the workman to reach a working toilet; Bernard finally beaten when the boss of this faceless organization finds him and tears up his application; he is now 20 minutes late for his interview.

The character design here works through the caricaturing of Bernard to almost anthropomorphic lengths: Bernard is smaller than average, his shoulders have been rounded down to nothing, his nose stretched and his eyes made beady to the point where he begins to resemble a mouse or a mole as much as a human. The suggestion of a burrowing animal through this escape from realism amplifies the Kafka-esque, sinister aspects of the character’s interaction with the Bureaucracy.

Though this is a work in progress the resolution of which will remove the stills, the moment of change from animatic still sequence into 3D is really worth examining. This change in media itself is worth pursuing. Similar to the approach in Perspectives in Motion above, one can almost feel one’s brain changing gears. On the one hand the stills require great concentration and a thorough reading of the elements in the shot to gain purchase on the meanings there, and on the other hand the free-flowing animation more or less tells the viewer
where to look; which elements within the frame are the important agents of meaning. Both approaches have advantages regarding communication: In the first, the interaction required between reader and text potentially leads to greater retention of the details of the story; in the second the story becomes more accessible to a mainstream audience as it's presented in a medium with which they would be more familiar. But the combination of the two has real untapped potential. The change here is rather arbitrary, but with reasoning behind it, as in *Perspectives in Motion*, where it is used to differentiate between the here-and-now and the domestic lives of the characters, this approach is at least worthy of further exploration.

Daryl Cowan's *Overlook* is something of a hybrid or cross-pollinated work. Archival film of U.S. World War Two planes being prepared for take-off is criss-crossed by animated figures whose details have been erased leaving only white shapes. These are too crisply expressed to be called 'ghostly' but the sombre and contemplative piano music playing throughout does provide a somewhat haunting mood: An atmosphere accentuated by the initial obscuring of pilots' faces. This absence-aesthetic seems to owe something to the Flash and silk-screen aesthetics examined in the lecture materials. Uncovered footage is only shown when the pilots' backs are turned. This very selective editing is then somewhat let down by the poor timing on a couple of the cross-fades and the text which is shown too quickly to be read comfortably or in keeping with the cadence of the piano. The first piece of text reads, "The 332nd fighter group never lost a single bomber in enemy action." This text sits in time between two shots of a group of men striding along purposefully, and presumably the word 'group' in the text refers to them. The student has rotoscoped over the figures with his 'white-out' approach. We see only flat white silhouettes in the shapes of walking men. Once their backs are turned, the white-out fades away and we see they are dressed as pilots.

Following this is a montage of shots with white-outs fading away to reveal a sequence of faces. Each of which is that of an African-American man. A final sentence of text, following on from the first fades in to tell us, "This is remarkable in itself, but the real story is that they were black". The typography, on a void background, gives the final piece the look of a commercial with a kind of teaser aspect: It’s adding to the content it takes from the documentary rather than merely parenthesising it, and this approach makes it look most like advertising or perhaps a little like a title sequence from a film. Either way, the text suggests that there is more to this story than has so far been revealed.
The student’s stated aims concerned realism and revelation: Realism to show this is historical fact, non-realism to momentarily hide the facts and allow viewer prejudice and preconceptions time to establish themselves. In Cowan’s animation, the choice of black and white was not necessitated by the nature of the historical footage he acquired, as much of this was available in colour. It was a deliberate choice on the student’s part to narrow the focus of his project to a literal black and white space where he could examine the black/white race divide as presented in popular media and begin to deconstruct the metaphorical black and white of stereotypical views and prejudices. Significantly, he has chosen white rather than the usual black for his silhouettes. This is less a statement about race and more about absence: a graphic absence that contrasts strongly with the dark greyish footage for maximum visual effect. This in turn refers to disenfranchisement, a moral absence waiting to be filled by recognition for these men. So the piece has a sociological angle in its attempts to expose prejudice and bias. It very succinctly tests assumptions, stereotypes and visual clichés. This is especially impressive since these attributes weren’t thoroughly covered in the lecture materials.

Daryl Cowan’s research and method are remarkable for their revelatory outcomes. He had earlier tested his project through a series of news images. The most remarkable of these was an image showing two Caucasian policemen dragging a third figure between them. (Figure 135) Cowan had silhouetted this third person through application of Photoshop tools to an electronic version of the image. What is apparent to the viewer in Cowan’s affected image is that the silhouette sports an ‘afro’ haircut. My own assumption upon seeing this version of the image (having not seen the original) and the assumption of the rest of this student

Figure 135: Daryl Cowan (after Greenpeace press release).
project group—two male and two female—was that the policemen, who we identified as being from the New Zealand constabulary, were dragging a man of ethnic islander origin. Cowan then revealed to us the source image (Figure 136). From a Greenpeace Press Release (Auckland, Tuesday 11 May 2004). The third man is also Caucasian but dressed up as Ronald McDonald, sporting a red curly-haired wig. An elegant solution to reveal to the reader that these assumptions and prejudices can work both ways.

While, from my own point of view, the assignments and the initial experiment could be improved (I need, for example, a clearer understanding of the parallels between caricature and the realism continuum as designer’s tools), the student works shown here, with permission from the students, could be used as examples and non-examples to help further explain to new students just how images communicate in graphic design by breaking away from realism.

While I am suggesting that these projects show that image can be taught with some precision, the element of serendipity is not to be overlooked (as the accidental montage between animatic and 3d animation shows in Brendan Rich’s Bureaucracy). Being visually literate should not necessarily preclude being on the lookout for happy accidents, rather, having spotted the accident, the visually literate person should now be able to analyse what made the accident a success and be able to replicate that success, where appropriate, in future projects.

Summary to chapter 6

General observations may be made about these case studies: Prior to any instruction based on my research these design students could make some decisions about images based on
how realistic those images were. The 40 ECU students, in general agreement, were able to place pictures along a realism continuum without previously having performed such a task. Apparently it was understood how realistic each picture was in relation to the others. The five Otago students also showed general agreement in their questionnaire responses given prior to instruction. For example, each understood caricature to mean 'exaggeration'; drawing was seen as a kind of 'interpretation' or 'expression'; and photography was thought to be 'realistic', a 'snapshot' or a 'capture' of something. Meanwhile a diagram was described as having an 'instructional' or 'information' aspect by three of the five students. Worth noting are those descriptions which do not fit the conventional wisdom nor the general responses: One student described the photograph as 'illusion', and another described the diagram as 'illustration'. I was not expecting these answers from uninitiated students but they were rather prescient of the lectures and instructional materials I was about to present. Generally speaking though, students' understanding of the meanings of realism, simplification and exaggeration were in agreement, as were their thoughts on visual comprehension comparisons between line drawings and photographs. None of these understandings are refuted by my research. Consequently, none of what the students knew or had intuited before the projects appears to have been contradicted by the instructional materials that I presented. This suggests that any strengths in the research as bases for instruction lies elsewhere.

Following the completion of the animation project, the Otago students were asked to return to the questionnaire and answer the final prompt. These responses show that, in addition to their previous visual experiences, students felt that the instructional materials for the projects, material which emphasised the key advantages in moving away from realism, had been beneficial. While students had prior experience and knowledge about a range of different techniques for making visual communication—Caleb Allott, for example, cites Hundertwassier and Klimt—and these may have exerted a strong influence on their project designs, each student now has something positive to say about the materials presented to them during the course of the project. Daryl Cowan, for example, says "I think I would have known how to see the big picture stuff for this project but the information about silhouettes and absence definitely gave me some ideas that helped". Rebecca Matson observes, “Distillation is a new concept for me and definitely helped in this project. I have discovered that in order to
correctly identify an object, not a lot of visual information is actually necessary." Meanwhile, Caleb Allott says, "I might have made something like I made anyway. But it was useful to consider realism for the project, and deliberately avoid it for my images." It appears from these comments that the instructional material focused their visual intuition by giving them specific concepts to engage with.

In the rationales for the editorial illustration project and the information design project ECU students' remarks allude to further benefits of instruction based on the research. David Deas says of his work (at Figure 103) "Thinking about how realistic I wanted my illustration to be was helpful". He says it allowed him to accentuate the iconic status of his subject and to engage the viewer of his image through closure. Psychological terms such as 'closure', new to the students, appeared in several rationales for the ECU projects. For example, Blagoj Micevski (Figure 118) says "White colour unites the human figures with the wealthy nations shown at the right by using gestalt". The appearance of these terms suggest that the instructional material is helpful to students in another way: It provides a vocabulary for designers making images. Through such image-focused words the students can explain their design decisions. Perhaps more importantly, when they become working designers, they have words that help explain their picture choices to clients in the form that the client can best understand.

The picture placement activity shown at the start of this chapter, coupled with the rationales given by the students for their illustration and information graphics assignments, show that the idea of considering images along a continuum makes sense for design purposes. The animations students' responses to the questionnaire demonstrate that this idea may even be a helpful consideration when embarking upon a design project. In most cases the lecture materials seem to have been useful, as direct source material on which to build or as exemplars when sufficient explanation is attached for these to become influential on the students during the creation of their designs. What these student projects also reveal is that the theories expressed in this thesis can be applied across the gamut of visual design: from pragmatic, precise, data-based graphics, through pictograms and instructional design and on to expressive illustration and animation graphics.
I envisage a move away from the alphabet as we know it towards a more pictorial approach
—Bruno Maas

Chapter 7: Conclusions and further research

As I have shown in the previous chapter, this research culminated in a series of in-class case studies to observe whether the theories upon which the research is based are communicable to the design student. I acknowledge some limitations with these studies and detail those in the following paragraphs, however, one very positive outcome needs to be made clear. The research has uncovered new ways to explain in graphic design terms the visual effects on the viewer of certain kinds of image. We now know that there is a difference in the way images communicate depending on their realism quotient: Images with less realism tend away from specificity towards universality of meaning. In addition, the removal of realistic detail by the designer allows for other aspects to be emphasised in or imposed upon the image; such as line, shape, colour and orientation. These attributes in turn accentuate connections or relationships that are less apparent in realistic images. Importantly, to help justify image choice in the economically imperative sphere of graphic design, we also know why this is the case and can articulately defend our decisions as designers. I asked in my introduction to this thesis: When a student's work is askew in its visual aspects, is it not better to be able to fully describe what is amiss, and why, rather than to suggest that 'it doesn't feel right'? As a result of this research I have discovered ways and means to describe images to students, and by extension, to clients in more specific terms than those available in a vocabulary concerned only with 'visual instincts', 'intuition' or 'feel'. To have a theory that is workable for a discipline, it is necessary to be able to communicate that theory to those within the discipline and those that deal with its practitioners. Visual literacy theorists recommend the showing of examples to students in order to improve visual competence. However, it is the explanation accompanying exemplars, and not necessarily the intent of the image maker, that makes the examples effective teaching materials. The words to explain and accompany these visuals, and the reasons for choosing particular examples in the first place are precisely what the research for this thesis has provided.

With regard to how images are received by a viewer, this thesis has demonstrated that there is a difference between realistic images and images that are distilled or abstracted away from
realism. I have explored how the less realistic images can be perceived, and that these might actually be understood more directly by the human visual system. This surprising preference of vision was shown to exist because the eyes and brain have to solve the problem of reality; reality can not be taken for granted. In addition, the thesis proposes ways to understand imagery in terms that may be useful for graphic designers in their pragmatic approach to meaning, and importantly, to explain that understanding to the client in the non-visual codes of speech and writing that the client best understands.

To summarise the research I will firstly revisit the chapters to explain the findings from each. Secondly, I will put forward the implications for graphic design theory suggested by my research, followed by the limitations of the study as it pertains to theory. Finally, I will explain two main threads for future research, one of which I have commenced.

I began this thesis following a brief in-class experiment involving two pictures of an angry face; one realistic, the other iconic. The experiment showed some difference between student perceptions of each. My research questions were as follows: Might the different levels of realism within pictures lead to different meanings? And, can the examination of image in terms of its relationship to realism also be a way of quantifying image for the graphic designer? I began a search for these aspects of visual communication.

In my Literature Review I demonstrated that graphic design theory was very much typocentric. Where discussion had centred on the non-textual elements of graphic design it tended to focus on composition rather than the execution of an image. I quoted those theorists outside of the design fields who had attempted to quantify images in order to find out how they communicate. These were found in the fields of art history, psychology and in a loose interest group of educational theorists gathered under the umbrella of 'visual literacy'. A shared concept of some of the theorists from these disparate disciplines is the ‘realism continuum’. Though this concept was not ideally articulated in the literature for my purposes, the notion of different levels of realism causing different responses in the viewer was worth pursuing given the different reactions to my in-class experiment.

Conclusions about the research questions

In Chapter 2, considering that there is a wide range of techniques and media through which to execute pictures, and many visual ways of escaping realism, I sought reasons for photography's
prevalence in graphic design. My findings show that the interest in photography demonstrated by the Bauhaus was spread throughout Germany by the advertising mainstream of the day, and throughout the world by the Bauhaus masters in exile, and later by the Ulm School. In this way photography became the prescribed pictorial mode in Internationalist graphic design. I explained that there had been an assumption made by the Neue Schweizer Grafik that photography—the most realistic method of image capture—was the best way to express images in graphic designs. While many of the assumptions of the Swiss had been refuted by the deconstructionists, they had not rejected the Swiss reliance on photography; once again the focus had been typographic. At least part of photography's success in graphic design comes from the ease with which such pictures can be made and reproduced. I made the case for the enabling and limiting aspects of technology for designers: That the computer set free an ambiguous and artistic design aesthetic not unlike that seen during the machine age. In the last decade, illustration has been much facilitated by the computer. I argued that this technology, in addition to the pursuit of design 'stardom' led to the recent energetic pursuit of illustration. A resurgence of illustrated content in the last decade seems finally to suggest that typographic discussion has for now been exhausted (although below I will propose a new way of classifying type based on my research). The two non-typographic streams of graphic design, illustration and information design, were paid special attention in Chapter 2. However, I noted that while information design seems very much concerned with didactic message delivery to an intended audience, illustration is still couched in terms of instinct and whimsy, as if its particular effects may not be measured or clearly understood. Even in the more focused discourse surrounding information design, contradiction and confusion are evident with regards to images.

In Chapter 3 I attempted to bring together those aspects of psychology that help us understand images. It was demonstrated that the visual system is not so much interested in realistic representation as it is in solving the problem of realism. I explained that the image that disallows identification of a specific subject—through silhouette or reduced detail at a distance—allows other qualities to come to the fore, such as movement. The faculties that help the human visual system make accurate object hypotheses—especially size, colour and shape constancy—and the exaggeration of identifying data through caricature to help solve
the problem of homogeneity, demonstrate that we impose structure on the world in order to understand it. I proposed that the visual communicator who knows how the eyes and brain perceive the world has the opportunity to solve the problem of realism, where appropriate, on behalf of the viewer. We can see and understand things presented to us in less than realistic ways. We may relate these to real things, but we might actually prefer these distilled versions because they are already put into a form similar to that in which our memories store them.

In Chapter 4 information design was explored in terms of its distance from photographic realism. Since information architects themselves have not fully articulated the special communicative potential of their work, I sought to explain that the strengths of diagrams lay precisely in their opposition to pictorial realism. Photography can show us specific, visible things but our understanding of the world must include images and concepts beyond the strictly visible; many important relationships between things and people are invisible but can be made visible through constructed drawings. Through the imposition of aspects such as colour, line weight and viewing angle, the designer can create a 'system of seeing' which implies relationships between the elements in a diagram. It is my contention that such drawings have the added quality of honesty: their appearance is clearly constructed and conceptual and may be criticised accordingly. Meanwhile, photography pretends that it can not be constructed but only tells the truth.

My fifth chapter examined illustrations as examples and non-examples of visual literacy. Rather than assume that the recent plethora of illustrated work is an indicator of increased visual literacy, I attempted to find the reasons for the new-found interest in illustration. I tried to demonstrate that much of the recent illustration is filling a cultural vacuum left in the wake of alternative music, rather than fulfilling a visually communicative role. I have made a case for choosing examples which illuminate particular faculties of the human visual system, and discussing and explaining these in terms of their relationship to realism. This aspect of what it means to be visually literate has previously been overlooked. In addition, I was interested in exploring recent discourse regarding visual literacy which proposes that it should provide critical tools for understanding visual texts. I analysed contemporary illustrations using the parameters of this thesis, suggesting that those parameters could then be added to strategies to improve visual literacy. I critically studied some exemplars of high visual literacy according
to measurements built upon my research to demonstrate that this thesis had supplied some critical tools for understanding visual texts.

In Chapter 6, I set for graphic design students a series of assignments based upon my research. Students were shown that illustrations were implicitly less real than a photograph. They were asked to embrace this implication—to ask themselves, "why draw?"—and to articulate visually, and in written rationales and responses to questionnaires, what it enabled for them as image makers. Their responses to the assignments demonstrate, with varying degrees of success, that this research can lead to a new means of teaching image making. Generally speaking, the concept of the realism continuum (new to all the students in the study) was a useful tool to help explain the difference between pictures that referred to specific things and pictures that were conceptually more all-encompassing. The psychological theory which demonstrated that the human visual system was actually 'solving' reality rather than taking it for granted—such as the perceptual constancies theory and gestalt theory—was useful in explaining why a 'system of seeing' had to be imposed on disparate objects to create the visual impression of belonging. The instructional materials given to the students during these projects seems to have reinforced the students own visual intuition.

Implications for theory

Graphic design, replete with theories regarding typography but formerly lacking a theory of image, can have some guidelines regarding image use based on the findings of this thesis. In addition to Lupton and Miller's (1999) proposal for interpretive understandings of pictures in graphic designs, there can be perceptual understanding of the communicative possibility of images. This perceptual understanding, formerly applied to composition only, gains very much from a comparison between realism and its more abstracted alternatives. I focused on the silhouette, distilled images (as if viewed from a distance) such as pictograms and caricature. The silhouette or outline form has visual impact because it plays to a major function of the eye, edge detection, in clearly separating figure and ground. In addition, its form, less specific than a well-lit photograph, draws attention away from questions of identity to other aspects of a figure such as what it is doing. The imposition of a 'system of seeing' upon a set of pictograms works as a result of an innate mental faculty, gestalt grouping, to suggest inclusivity for elements of a graphic design. Rather than relying on the mythic
instincts of designers, we now have psychological theory to help explain why, for example, coherence is important in design. The notion that caricature may be mechanically applied as an image making technique raises real possibilities for designers too. Design has an economic imperative to communicate to large numbers of people. An appreciation of norms and an ability to amplify departures from norms can help the visual communicator avoid visual ambiguity. Conversely, if ambiguity is desired for a particular visual communication, such knowledge can help the designer avoid specificity. Finally, in addition to giving us a means by which to understand, and to some extent measure image, the realism continuum, with the limitations I will detail below, has been shown to be a useful explanatory tool with which to teach image to graphic design students.

Goldsmith (1984, p.69) explained that being visually literate meant having the ability to respond to images as pictorial equivalents of the objects they represent. However, the studies in Chapter 6 concerned with pictograms and with information design demonstrated that students, armed with the knowledge developed through Chapter 4 of this thesis, could escape this narrow definition. They now had the designerly ability to suggest links and relationships that do not exist as visible objects in the real world. Some important aspects of visuality are concerned precisely with rendering visible those things that are not 'objects' to begin with but are instead concepts or relationships between visible objects. Visual literacy as a definition then, might be augmented to include the ability to make visible concepts which are invisible in reality.

Limitations

With regard to the theoretical approach

The case studies in Chapter 6 suggest that students new to these approaches to image making can assimilate the instructional material and translate it into appropriate visuals. Student rationales and responses to questionnaires suggest that the instructional material was beneficial to their understanding of image. However, I cannot state categorically that students prior visual experience or intuition would not have delivered them to the same visually impressive destinations some of them arrived at here. It is not inconceivable that without any instruction for the projects students could have satisfied the parameters of each brief. It may be that the students with better visual skills, the kind of students admitted
to design courses on the strengths of their portfolios, benefit the least from this kind of instruction. Limitations such as contact hours and appropriate teaching modules in which to conduct this study have constrained this in-class research. In this regard, my case studies might be seen as a pilot study for this approach to teaching image. A dedicated study with less time constraints may demonstrate the benefits of instruction more clearly. For example, students could be given the brief for each project and asked to execute it according to their own sensibilities regarding visual communication. Students could then be given the lectures and instructional material and asked to complete the assignment again. A comparative study could be made on this basis.

I acknowledge other limitations with my research. I have stated from the outset that this thesis would concentrate more on perceptual responses to images since these had been examined elsewhere with regard to general design composition and art but were underexplored with regard to the role of image in graphic design. I have been less interested in the role of interpretation for the understanding of the image aspects of design. My bias has been adopted in order to establish whether we may confidently agree, as a design community, on the ways images communicate because of their relationship to realism. This focus by no means limits discussion of the image in design to psychology but in fact allows for a social application of graphics as I demonstrated in Chapter 4. However, I have no doubt that, whether visually literate or not, the viewer of any graphic design focuses their visual system through powerful cultural and experiential lenses. It may even be the case that the more visually literate the reader the more interpretive and less mechanical is their understanding of an image. Just as reading text becomes a seemingly effortless task built upon innate physiological abilities but is also a highly structured task based on arbitrary cultural codes, so it may be that the reading of images will be improved, as many of the visual literacy lobby suppose, through greater practise. Lupton and Miller began the discussion about interpretation and the role of image specifically in graphic design and Poynor has continued it. My approach here is not intended to compete with their impressive works but rather to augment them on a basic level, to ascertain what we have in common before we decamp into visually interpretive factions.

Maria Nikolajeva and Carole Scott, in How picturebooks work (2006) say of understanding images with text, “analysis starts with the whole, proceeds to look at details, goes back to the
whole with a better understanding, and so on, in an eternal circle known as the hermeneutic circle. The process of 'reading' a picturebook may be represented by a hermeneutic circle as well" (p.2). In this way the reader can look at the text then the pictures, or vice versa, or s/he can dip in and out of each, apprehend the whole page or read using a combination of these approaches. Given that graphic designs, like picturebooks, are comprised of text and image, my exploration of image in graphic design has been via an artificial separation of image from text. However, this has been done as a part of the hermeneutic circle in the hope that, with a better understanding of image and its role in design, someone in the future can come back to addressing the whole. The understanding of text is virtually complete through literary analysis on the one hand (for content) and typographic theory and rules on the other (for the composition of type). It is image that requires the intensive care and hence its temporary removal here from text.

With regard to the realism continuum
Throughout the thesis I have described certain kinds of pictures, especially silhouettes, line drawings and pictograms, and their special communicative qualities more repeatedly and more clearly than others. These kinds of pictures were chosen along the realism continuum specifically because of their distance from realism. However, the realism continuum itself has proved to be more academic than pragmatic as a measure to quantify image. The case studies in Chapter 6 showed that students were easily able to place with some consistency the pictures on the continuum when they had a range of pictures to compare. However, when it came to explaining placement in their assignment rationales they tended to, for example, rate the silhouette as much less realistic than they had in the continuum exercise (see Daisuke Fukushige's rationale, p.195). In other words, placement of images along a continuum seems to make sense as an exercise in itself but is more problematic as a step in image making. It appears to have use as a concept to help explain that distance from realism makes a difference to communication, but without further research it cannot be said that it is a precise measure of that distance. Also, the image types that I have chosen to focus upon seem to have high potential for visual communication (drawing attention away from specific people towards what those people are doing, for example) but it does not necessarily follow that all kinds of
images that may be measured along the continuum have their own unique communicative powers. Further research is necessary regarding, firstly, what kinds of images sit where (we have already witnessed some ambiguity with regards positioning) and secondly, what kinds of ideas these can bring to graphic design. In pragmatic design terms, it is pertinent to pursue why we want this measure in the first place. Fussel and Haaland’s (1978) Nepalese study, an experiment worth repeating with a range of people from different cultures to gauge universality, might even suggest the following order as a ‘recognition continuum’ in place of the ‘realism continuum’: Beginning with the most easily recogniseable kind of picture the order would seem to be, line drawing with shading and internal detail; photograph with background removed; line drawing; silhouette; photograph; and stylised drawing. In part, this is what *Figures* magazine, part of the further research detailed below, will examine, albeit within the didactic confines of information design.

With regard to the limitations of the realism continuum, there was a general consensus among the sample of design students about where each kind of picture sat along the realism continuum. The only variation in their responses occurred with regard to which was the more realistic out of the line-drawing and the silhouette. Not only does this show that my contention that the silhouette is more realistic is by no means apparent to others, when those others agreed with me it was not for the same reasons: Students tended to refer to the accuracy of the outline (one of my reasons) but not that a silhouette may be created from a real object by mere changes in the light. In addition, every student declared that they had never thought about placing images along a spectrum, nor about how realistic caricatures were or how they worked to communicate. However, the students surveyed in this study were at least somewhat focused on visual communication as a chosen vocation. Whether the public at large would respond by placing images along a continuum in such a predictable way is open to further study. Also, when it came to placing the caricature image of the same object upon the realism continuum, the students’ responses were much less predictable than they had been for the realistic to abstracted pictures. In each case, the student projects could benefit from refinement to help ascertain the effectiveness of the explanations of the realism continuum and the process of caricature.
With regard to photography

Gombrich is known for his concept of the 'beholder's share', regarding that which the viewer brings to the image. The importance he placed on the viewer finds its parallel in graphic design discourse in statements such as "we read best what we read most" (Licko, 1993, p.52) which allows for the experience of the reader to be a major factor in the legibility of type. In A Smile in the Mind (1998) McAlhone and Stuart's concept of graphic design as a game of wit and humour—a ball thrown by the designer and caught by the reader—reflects Gombrich's 'beholder's share' more closely, and, for the purposes of this thesis is less typocentric. But do we, after all, 'read' best what we 'read' most in terms of images too? Is the prevalence of realistic imagery, specifically photography, in graphic design (the focus of Chapter 2) one that should be adhered to merely because readers are used to it? Are attempts to move away from it fraught with the danger of losing the reader? The recent wide-spread uptake of illustration as a means of visualising concepts suggests not. However, some survey work could help determine whether the public at large is getting used to a wider range of pictures or whether they sense that such pictures have a communicative power different to that of photography. What special strength does photography have that were never articulated by the Internationalists?

Future research: Possibilities presented by the student case studies

A raft of further research topics is suggested, particularly by the student case studies in Chapter 6. Firstly, I will explain what research is suggested by the pictograms project, secondly, the editorial illustration project, thirdly I will discuss Figures, some research already begun to follow up findings of the information design project, and finally the animation project and its potential to lead to further studies.

From the pictograms project we get the following topics for further research: colour for recognition versus colour for inclusion: The students' work demonstrated that imposing one colour across a range of pictograms made these easily identifiable as a set. However, in the case of the zoo animals pictograms, the real colour of the animals would conceivably make the pictograms more recognisable as distilled versions of real animals. The key to making these work in terms of the uniting properties of colour might be to ensure that all colours in the set are equally saturated: all highly chromatic or all equally subdued. Further research might determine at what point, and for which specific classes of things, colour is more about
inclusion to a set and less about recognition of the original things. Boundaries of inclusion versus recognition may also apply in terms of line and shape where changing line and shape to suggest grouping would compromise recognition. We have seen several methods of creating a 'system of seeing', such as grids, lighting, angle of view, axonometric and isometric projections. Further research could reveal other means of building systems of seeing.

From the editorial illustration project the following topics for further research suggest themselves: exploring identity through silhouette: The student work at Figure 102 showed it was possible to determine age and gender from silhouette. Exactly how much detail is required to make these aspects of a figure more or less specific? In addition, as the students' ambiguous positioning of the silhouette on the realism continuum showed, and given that several visual theorists have positioned the silhouette as less real than the detailed line drawing, it would be interesting to work out if the silhouette is a special case among image types. If it is special, what are its important attributes beyond those identified here?

The boundary between generality vs specificity: Several of the image theorists I have covered in the Literature Review identified that images become less specific and more general as they become less realistic. We now know why but not exactly if or where there is a 'cut-off' point along the continuum where this happens. It may be that further research might make this point apparent and whether this is also the point at which caricature becomes obsolete as a means of image making. I have said that caricature seems to parallel the more realistic half of the continuum since it helps us solve the homogeneity problem, that is the problem of specific identity within a class of objects. Further research might show where, with regard to the realism continuum, caricature loses its effect or becomes counter-productive: If one has reduced realism to such an extent that specific details are removed in order to make an object appear generic, then finding this precise point (if it is precise) may be of some use to approach Shaughnessy's 'precision tooling of messages'.

Possibilities of mis-framing a subject to break with realist representations: This seems redolent of particular film theory, specifically that of feminist cinema which seeks to break the 'male gaze' associated with realist film-making. However, it might be interesting to explore the possibilities of framing for graphic design images to suggest, among other concepts, altered psychological states.
Figures magazine, a collaboration with Nicola Kaye and Uriah Mathews at ECU, is a logical extension of the information design project from Chapter 6. We are examining through practice led, interdisciplinary research the construction of a news magazine built entirely from information graphics. There is an associated web component for the trialling of ideas, visualisations and discussion to help forge online/offline networks (see http://figuresmag.com). Combining mine and Mr Mathews' backgrounds in graphics and Ms Kaye's in visual art, we are attempting to provide a social application for visuality: A visual device to display socially orientated material. Central to this research collaboration are common ideas relating to social justice. The research comprises an exploration of the visuality of news information and information graphics. It examines if a move away from photography's dominance in news visualisation will allow for greater contextualisation of events within a broader news landscape. While we adopt Hans Rosling's call to liberate the public data held in user-unfriendly formats (http://www.gapminder.org), our approach is new in exploring the possibilities of a context centred news magazine in examining what constitutes 'liberation of data'. Studies are being carried out in an online companion of the magazine where we publish surveys and instigate online discussions. Our intention is that our website provides a communicative, interactive context where ideas, "are developed by participation ... sharing of information and experience" (Dahlgren, 2005, p.159). We believe that social data should be visualised in an accessible way. Figures aims to provide a forum to determine how 'accessibility' is visually achieved. We propose that globalised contexts demand alternative communicative spaces to mainstream media that allow diversity, plurality, intersubjectivity and differing forms of interrogation. Colloquially described by Jeffery P. Jones (2006, p. 371) as alternative media, meaning to "represent a wide variety of politically conscious, non-mainstream media forms". Our research interests lie in exploring 'alternative media' spaces of interpretation and communication away from mainstream notions of news, information and public space.

From the animation case studies can be seen some possibilities of future research. The clearest potential of animation, in terms of this thesis, is that it can draw attention to each of the communicative aspects of realism and abstraction through movement. In Daryl Cowan's Overlook we see that the gradual removal of the (white) silhouette has the potential
to, firstly, deny certain knowledge to the viewer, leading to ambiguous readings of the story (depending upon the experiences and prejudices of the individual viewer), and then to allow identification of people through the specificity of realistic, photographic footage, leading to a reading intended by the designer.

Caleb Allott's *Rise and Shine* shows us the potential of outline for identification of character, but through animation shows us the surreal possibilities of disturbing this line. Similarly, through a viewing of Rebecca Matson's *Speed of Recognition* it is conceivable to compare realism to more abstract forms within one piece. Her work suggests the possibility of some animated, comparative instructional material which might help explain to students the theory at the heart of this thesis.

Michelle Michael's and Brendon Rich's work exhibit interesting possibilities in their jump from moving image to static sequence and back again, particularly as their soundtracks imply continuity. Debes' call for integration of vision with "other sensory experiences" (1969b) to fully explore the potential of visual literacy has only been touched upon by the students in this animation project. The inclusion of sound here suggests further research in the area of instructional design, documentary design and even interaction design. My research has been largely based on a reduction in visual realism and the implications of this reduction in graphic design: What is the aural equivalent of realism and what might the potential be for moving away from realism in the audio realm? The interplay between visual realism and aural realism, for example accompanying visual abstraction with aural realism or vice versa, may provide a range of interesting communication possibilities that have not yet been explored.

**Future research: Why type is image**

According to Spiekermann and Ginger, "nobody has ever classified typefaces according to their problem-solving capabilities" (p. 57). My research provides the capacity to point design theory in that direction. Here I will discuss the ways in which, I believe, my research on image can be applied to type.

As Gregory explains in *The Intelligent Eye*, when we look at images and try to understand them we are constantly testing our object hypotheses. These hypotheses are matched, presumably, against a 'vocabulary' of existing objects in our memories. Similarly, as we learn to read, progressing past the stage of having to look at every letter, having to sound out
every word, words themselves pass into this storehouse of existing shapes and we begin to read by word shape: Words become visible objects with a clearly identifiable shape. Gestalt psychology, used to describe how we apprehend images is also completely applicable to type: Gestalt psychology is evident (though never named) in type theory in terms of word spacing versus line spacing: that the gaps between words, or the kerning between letters may never be so loose as to be larger than the gaps between lines (leading) as this confuses the reader as to the direction of reading; should it be left to right or top to bottom. According to gestalt theory, objects (in this case letters) that are close together, are thought of by the human visual system to belong together. Further, sets of words, especially common phrases that often fall together on to the page have unique and memorisable shapes. A simple self-test can be undertaken if one reads two versions of the same paragraph, one set in sentence case and another all in upper case. The upper case will take longer to read and seem more difficult. This is because there are no unique word shapes in uppercase text: each word is of uniform height, and each has become a rectangle, roughly speaking. With all-upper-case text, we are reduced to reading in the manner of our early attempts: letter by letter, word by word. Words, when printed on a page, are pictures. In this sense then lies the possibility of teaching both graphic design aspects, type and image, with the same pedagogical approach.

As we get closer to abstract forms such as text, the same attributes that hold text together as a typeface (shape and ‘line’ weight) begin to come to the fore for images. I showed the example of the Integral/NORM Köln-Bonn identity, where type and image are made from the same ‘building blocks’ as just such an example of these qualities.

While post-modern design has seen the ‘free-for-all’ use of pictures and type whenever the designer decided, cognitive psychology provides for a more dependable relationship between design and message. It tells us sharp shapes shouldn’t be used to promote a friendly message, nor should rounded shapes and bright colours be used to promote negative messages unless there is a knowing reason for doing so. Ramachandran’s work regarding synaesthesia, and that of Seitz involving visual metaphor, touched on in the Literature Review also have strong implications for future theoretical work for designers interested in the image.

In addition, both type and image may be examined as departing from a norm. The concept of caricature can be a new design structuralism: that which does not depart from a norm (the
Norm) is the exnominated: the unstated to which all other things are compared and by which all other things are recognised. In the case of type it is not inconceivable to think of Helvetica as the 'norm' for sans serif typefaces. In comparison to this norm we can easily observe that a typeface such as Eurostyle seems horizontally stretched or extended.

Mitchell (2008) has described:

the dialectic between word and image as an unsurpassable fissure or fold in the fabric of representation, but one which is always "widening" or being "overcome" in the practical use of signs or symbols at any time. So words and images have always "converged" in the phenomenology of writing as a visible, graphic notational scheme that unites eye and ear, symbolic, iconic and indexical elements. (p.28)

Choice of font has a visual aspect that can (depending upon how far away the type is from 'what we read most' as Licko would have it) draw attention to itself or not. The example Mitchell gives is religious illuminations, where the word is meant to be 'seen but not read'. A designer might describe such letterforms somewhat more prosaically, merely as a 'display face'. In both cases it is a form that is drawing attention to itself as something other than the main text. In this sense, such a form has departed from the norm of lettering. Mitchell's is a historical example, but we might classify type today by its distance from Helvetica (for sans serif fonts) or from Times (serif fonts). This is a radical departure on how to teach type but makes sense in terms of this thesis. I am not suggesting that there exists a perfect norm. In this sense this is not an Internationalist approach. People read best what they read most, no typeface is necessarily more easily classified as legible than another: Just as norms for human faces are personal and unique though people in a shared culture might experience strong correlations. For too long type has been categorised by a particular method simply because no one has asked "why classify it this way?". Why not classify it by shape? Shape is a better method since classifying by period is fraught with problems: how can we be confident about the period when it is easy for the post-modern type designer to ape a previous period? Rounded, on the other hand, at least in synaesthetic terms, is always approachable and friendly (Bang, 1991). Given that type is about communicating to an audience and the audience is unlikely to be versed in the development and history of type, why not classify type in a way that both the designer and their audience can understand? A way more akin to how a design audience reacts to things: A way more in tune with psychology and sociology; shape first, association second, history last.
Dondis argues that, unfortunately, language is "seen as a means for a higher form of thinking than the visual" (p.8). But, to be literate and to be visually literate can be the same thing, or, at the very least, steps along the same journey since words, and the letters that make them up in written and printed from, are pictures. Dondis does not engage with type as a visual medium. However, choice of font can work in the same way as the many things she has so ably described: symmetry, of contrast in Bodoni for example, versus the dynamic stress of the humanist fonts; the sharp, dangerous looking points of Koch Fraktur versus the open, approachable geometry of Futura.

In closing
The research presented in this thesis, and these suggestions for future research, may help bring image further into the fold of graphic design theory, leading towards an all-encompassing approach to dealing with the various aspects of visual communication. As traditional literacy skills are becoming outmoded, and illustration is in the ascendancy, the discipline of graphic design needs to be in the vanguard of a new visual literacy where emphasis is given to both image and typography. If both aspects can be subject to the same guidelines, design theory can provide explanation to students and clients about the holistic communicative potential of graphic design.
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Appendix A
List of visual/verbal figures

The following list was originally drawn up by Gui Bonsiepe in 1964 for a seminar at the Hochschule für Gestaltung, Ulm, based on the semiotic work of Thomas Maldonado.

Analogy: A verbal comparison is transferred to the visual sphere with equivalent semantic signs.
Metonymy: A meaning indicated verbally is related to another meaning, based on a thematic connection; e.g. cause instead of effect, instrument instead of result, producer instead of product.
Synechdoche: (pars pro toto) A part indicating the whole.
Specification: A visual sign is accompanied by a minimum of text, in order to make it clear and narrow it down semantically. Often a firm name is used to indicate the product.
Fusion: A visual sign is incorporated in a 'Supersign' by virtue of its formal qualities. The syntactic linking suggests a semantic link.
Parallel Visual and verbal signs relate to the same meaning.
Associative transfer (link) or mediation From a number of verbal signs, one is selected to illustrate the ideas it is associated with (associative context).
Metaphoric reversal The tension between primary and secondary meaning is utilized so that the visual signs show the original meaning, taking it literally, so to speak.
Typogram The meaning of typographic signs is illustrated by these signs. The text is quasi short-circuited with the typographical signs.
Understatement A verbal understatement is made visual.
Exaggeration Meaning is visualised through signs, the contents of which exceed the usual measure.
Visual-verbal negation The meaning of a sequence of words is illustrated by its visual opposite.
Visual-verbal comparison Two meanings are compared visually through verbal mediation.
Exemplification Meaning indicated verbally is illustrated visually.

(from: Gui Bonsiepe, "Interface - an approach to design", 1997).
Appendix B

Bang's ten principles of picture making

1. Smooth, flat, horizontal shapes give us a sense of stability and calm. (pp. 42-43).
2. Vertical shapes are more exciting and more active. Vertical shapes rebel against the earth's gravity. They imply energy and a reaching toward heights or the heavens. (pp. 44-46).
3. Diagonal shapes are dynamic because they imply motion or tension. (pp. 46-54).
4. The upper half of a picture is a place of freedom, happiness and triumph; objects placed in the top half often feel more "spiritual." The bottom half of a picture feels more threatened, heavier, sadder, or more constrained; objects placed in the bottom half also feel more "grounded." An object placed higher up on the page has "greater pictorial weight." (pp. 54-62).
5. The center of the page is the most effective "center of attention." It is the point of greatest attraction. The edges and corners of the picture are the edges and corners of the picture world.
6. Light backgrounds feel safer to us than dark backgrounds because we can see well during the day and only poorly at night. (pp. 68-69).
7. We feel more scared looking at pointed shapes; we feel more secure or comforted looking at rounded shapes or curves. (pp. 70-71).
8. The larger an object is in a picture, the stronger it feels. (pp. 72-76).
9. We associate the same or similar colors much more strongly than we associate the same or similar shapes. (pp. 76-80).
10. We notice contrasts; contrast enables us to see. (p. 80).

(from Bang, "Picture This", 1991).
Appendix C
Student animation projects from Chapter 6.
Appendix D
Bamford's table, "may be useful when talking about images" (2003, p.6).

Issues
- What issues are being shown in the image?
- How is the way the issue is shown in the image similar or different from how you see this issue in the world?
- What might this image mean to someone who sees it?
- What is the message of the image?

Information
- Where has the information in the image come from?
- What information has been included and what information has been left out?
- What proportion of the image could be inaccurate?
- What information presented is factual/manipulated/framed?
- What is the relationship between the image and any text?
- What impact does the size of images within the picture have?

Who
- What people are depicted in the image (even if there are no actual people in the image, whose culture or experiences are being shown?
- Who created the image and for what purpose?
- Who is the intended audience for the image?
- Whose point of view does the image take?

Persuasion
- Why has a certain media been chosen?
- Why was a particular image chosen?
- Why was the image arranged that way?
- Is the information contained in the image factual?
- What devices have been used to get the message across to the viewer?
- How has the message been affected by what is left out or is not shown?

Assumptions
- What attitudes are assumed?
- Whose voice is heard?
- Whose voice is not heard?
- What experiences or points of view are assumed?