VISUAL LANGUAGE
IN
ARCHITECTURAL DESIGN

THESIS

LYDIA KIROFF

2002
Visual Language in Architectural Design

Lydia Kiroff

A thesis submitted in partial fulfilment of the requirements for the Degree of Master of Design Management

UNITEC INSTITUTE OF TECHNOLOGY
Te Kura Puukenga o Wairaka

Auckland, New Zealand

2002
Abstract

Modern life is mediated through the visual screen. Film and television and the Internet are not just the norm, they are life itself. The new emerging globally shared visual culture becomes the underlying construct that explains and substantiates visual experience in everyday life. According to Walker & Chaplin (1997) the field of visual culture has four domains (fine arts, crafts/design, mass & electronic media and performing arts) and architecture belongs to the fine arts domain.

This thesis examines the richness of visual language in architectural design as an expression of the relationships between the domains of visual culture. It explores the extent to which the industry is aware and exploits the opportunities offered. The two research questions developed in this study explore whether all domains within the field of visual culture are sources of inspiration that can influence significantly architectural design through the use of a wide array of visual tools. A qualitative research methodology was selected for the purposes of this study with a range of data collection techniques including: grounded theory, ethnography, case studies, semi-structured interviewing, and action-research.

The research results indicate that all domains of visual culture can be regarded as sources of ideas supported by the inspiring designs of the great masters in architecture. McKim’s (1980) graphic abstraction ladder (with the two levels of the concrete and abstract graphic languages) has been used as a base to add the new level of the hybrid graphic languages, which is about storytelling based on all domains of visual culture. This concept has been discussed in the “Synthesis” chapter and further developed and exemplified through the action-research method testing it in an education environment. The “Evaluation” chapter provides opinions and comments by architectural professionals regarding this experimental stage.
Acknowledgements

I would like to thank my supervisor Pradeep Sharma, for his advice and support in the development of this thesis.

I also wish to acknowledge the assistance of all architectural practices that took part in the research interviews. Their support and willingness to share experience and ideas were remarkable.

Special thanks to my students - Kylie, Sue, Matthew, Tate, Andrew, Roger, William, Barry and Heyjin from my Studio 1 Class 2002, National Diploma in Architectural Technology, School of Construction at UNITEC Institute of Technology, who produced such creative Design Documentation projects.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>ii</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>iii</td>
</tr>
<tr>
<td>Chapter 1: Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Chapter 2: Literature Review</td>
<td>7</td>
</tr>
<tr>
<td>2.1 Theoretical aspects of Visual Culture</td>
<td>7</td>
</tr>
<tr>
<td>2.1.1 Defining Visual Culture</td>
<td>7</td>
</tr>
<tr>
<td>2.1.2 The notion of Culture – meanings, relationships and connections</td>
<td>13</td>
</tr>
<tr>
<td>2.1.3 The world of the Visual</td>
<td>18</td>
</tr>
<tr>
<td>2.1.4 The imaginary war between the two terms – “visual” and “culture”</td>
<td>26</td>
</tr>
<tr>
<td>2.1.5 Approaches to understanding visual culture</td>
<td>28</td>
</tr>
<tr>
<td>2.1.6 Visual Culture, Elite Culture and Mass Culture</td>
<td>32</td>
</tr>
<tr>
<td>2.2 Visual Thinking and Visual Communication</td>
<td>36</td>
</tr>
<tr>
<td>2.2.1 Visual Literacy, Thinking, Learning, and Communication</td>
<td>36</td>
</tr>
<tr>
<td>2.2.2 The power of visual thinking</td>
<td>41</td>
</tr>
<tr>
<td>2.2.3 Languages – definitions, diversity, classifications</td>
<td>51</td>
</tr>
<tr>
<td>2.2.4 Visual Language in Architectural Context</td>
<td>79</td>
</tr>
<tr>
<td>2.2.5 Visual Notes and Methods for Idea Visualization</td>
<td>84</td>
</tr>
<tr>
<td>2.2.6 The Analogy, the Metaphor and the Hybrids in Design</td>
<td>88</td>
</tr>
<tr>
<td>2.3 Architectural Design Process</td>
<td>94</td>
</tr>
</tbody>
</table>
2.3.1 Creativity – a balance of imagination and analysis.
Models of creative thinking 94

2.3.2 Creativity in architectural context 98

2.4 Literature Review Summary 103

Chapter 3: Research Methodology 106

3.1 Rationale 106

3.2 Nature of the Problem 106

3.2.1 The domains of visual culture and their potential as sources of ideas in architectural design 107

3.2.2 General unawareness of design professionals of the richness in visual language 108

3.2.3 Ignorance of the higher step (abstract visual languages) in the graphic abstraction ladder 110

3.2.4 The great minds in the architectural profession appear to use visual language for richer outcomes. Then why not us? 110

3.3 Research Questions 111

3.4 Research Methodology 112

3.4.1 Nature of the Research 113

3.4.2 Types of Qualitative Research employed in this study 114

3.5 Research Methods 115

3.5.1 Grounded Theory Approach 115

3.5.2 Ethnographic Research 115

3.5.3 Other Studies 116

3.5.4 Case Studies 116

3.5.5 Semi-Structured Interviewing 117
3.5.6 Action-Research

3.5 The Research Process

3.6.1 Phase 1

3.6.2 Phase 2

3.6.3 Phase 3

3.6.4 Phase 4

Chapter 4: Case Studies

4.1 Tjibaou Cultural Centre – the “building that sings”

4.2 “Tarzans in the Media Forest” – the Sendai Mediatheque

4.2.1 Japanese Architecture – an artistic exploration of the phenomenal and the ephemeral

4.2.2 The Art-World “Samurai”

4.2.3 The lyrical grace of the Mediatheque

4.3 Te Papa – Museum of New Zealand

4.3.1 Jasmax who “believe that architecture has the power to inspire the spirit”

4.3.2 The Museum of New Zealand Te Papa – “a statement of national identity”

Chapter 5: From the status quo to where we want to be

5.1 Analysis

5.1.1 From the great Minds… Piano, Gehry, Ito and Calatrava – inspirations, ideas, views and approaches

5.1.2 …to the great Buildings… Tjibaou Cultural Centre, Sendai Mediatheque and Te Papa
5.1.3 …and back to Earth
Analysis of the industry research involving
ten architectural firms in Auckland

5.1.4 Summary

5.2 Synthesis

5.2.1 Is this unusual or odd, or is it something to think about?
Architecture and da Vinci, Picasso, Dali, ballet and why not
Audrey Hepburn and Humphrey Bogart

5.2.2 The logic behind idea generation and manipulation
Dialectical Materialism and Pyramids

5.2.3 The “I feel” and “I have a Dream” Method
From concrete to abstract to…hybrid

5.2.4 From feelings and dreams to diagrams and drawings
The realisation of an idea

Chapter 6: Evaluation

Chapter 7: Conclusion and Further Research

Chapter 8: Bibliography
I HAVE A DREAM

I have a dream today.

I have a dream that one day each form of visual culture shall be exalted, architecture will be made creative and inspiring, the rough places will be made plain, and the crooked places will be made straight, and the glory of the Lord shall be revealed, and all flesh shall see it together.

This is our hope. This is the faith we all have. With this faith we will be able to hew out of the mountain of despair a stone of hope. With this faith we will be able to transform the jangling discords of our architectural heritage into a beautiful symphony of mastery, innovativeness, and creativity. With this faith we will be able to work together, to pray together, to struggle together, to be visionary together, to stand upon the shoulders of people who have come before us, knowing that we will be free and open-minded one day.

This will be the day when all of God's children will be able to sing with a new meaning, "My country, 'tis of thee, sweet land of liberty, of thee I sing. Land where my fathers died, land of the architecture pride, from every mountainside, let freedom ring."

I say to you today, my friends, that in spite of the difficulties and frustrations of the moment, I still have a dream. I have a dream that one day this nation will rise up and live out the true meaning of its creed: "Visual thinking pervades all human activity, from the abstract and theoretical to the down-to-earth and everyday. Visual thinking, then, is not the exclusive reserve of artists; it is constantly used by everybody. We are all creative."

We must forever conduct our struggle on the high plane of dignity and discipline. We must not allow our creative protest to degenerate into mediocrity. Again and again we must rise to the majestic heights of meeting intellectual force with soul force. Architectural designs based on sensibility will be fascinating and inspiring to make our lives less ordinary.

apologies to Martin Luther King
Chapter 1: Introduction

Why are some buildings more interesting than others?
New and unconventional buildings as new ideas always make people ask questions: “What is new? What caused the change? New technology? New lifestyle requiring a new functional response by the building? New way to express the spirit of the times or simply a better and more creative way of solving old problems?”

There are literally thousands of forces that shape buildings. When new ideas, resulting in a new form, appear upon the scene, the public is usually shocked. Buildings are like people - some are very physical, some are overemotional and some are deeply intellectual. Buildings that fascinate and catch the public’ imagination and that people find worthy of reflection are usually the ones that are less predictable and more dynamic.

We live in a changing world. Buildings change with time. So do the notions of beauty because society, individuals, speed, duty, morals, and culture change. What looks good to one generation doesn’t look well to another. Each historical period has its best buildings with distinguishing qualities. Such buildings surprise you and at the same time stimulate your imagination. What is the feature then that makes them so unique and quite different? It should be an idea, readable by everyone or almost everyone. Forster (1999, p.1) asserts: “Any claims we make for buildings that fascinate us and that we find worthy of reflection prove hard to substantiate when our audience has little or no knowledge of the subject or does not incline to our point of view”.

In view of this statement, the new emerging globally shared visual culture becomes the underlying construct that explains and substantiates visual experience in everyday life. Modern life is mediated through the visual screen. Film and television and the Internet are not just the norm, they are life itself.
Similarly, “architecture is so omnipresent in our lives that buildings have become our ‘second nature’ – so much so that they affect us unconsciously” (Forster, 1999, p.2). The ability “to gauge the abundance of meanings that emanate from every building” (Forster, 1999, p.2) and to decipher the message that it sends across needs a definition in a broader framework within the realm of visual culture. Barnard (2001) emphasizes the importance of studying visual culture, as one is more and more dependent on and subject to visual material. Generating “a more sophisticated, self-reflective and critical understanding of the visual world and one’s place in it” through forming opinions and responses to visual culture encapsulates Barnard’s (2001, p.4) viewpoint.

The search for an answer of the question “why are some buildings more interesting than others?” represents the author’s own interest in designs that fascinate and inspire. What is the place, if any, of “Sense and Sensibility” in design? It may be argued that an architectural design based on a sound sense will yield a reasonable but trivial result while a design based on sensibility will be fascinating and inspiring. Then why do some architects use a sound sense while for others sensibility is the guiding notion? Is it because for some this is simply an everyday professional routine and for others this is a creed and a way of life? The author’s own architectural background and diverse professional experience both in the industry and in education in three continents – Europe, Africa and New Zealand have instigated most of the questions posed in this study. Personal interests in buildings around the world that are extraordinary and subsequent questions what makes them so unique have become the driving force behind this research. The focus of the research will be on iconic buildings as they embody in a more explicit way the architects’ quest for the unconventional, the poetic and the original. The iconic buildings included in this study have been chosen in peer review as good examples of architecture. Issues regarding national identity are beyond the scope of this research as the emphasis is on the design process itself.
The benefits of this study are on two levels – in the industry, as an idea generator in the early design stages of a project and in education, as an opportunity to introduce novel ways of delivering course content. These two levels should not be considered in isolation, as there is a strong and immediate relationship between the two. Graduates who have not been taught what poetry in buildings is will operate within the realm of predictable conventions without the artistic endeavours to discover a novel path. On the other hand, without the exposure to diverse methods of idea generation, established industry professionals may find themselves confined to the world of the mediocre, ordinary and trivial.

**Thesis Objectives**

This thesis examines the richness of visual language in architectural design as an expression of the relationships between the domains of visual culture (fine arts, crafts/design, mass & electronic media and performing arts). It explores the extent to which the industry is aware and exploits the opportunities offered. This study also investigates standard practices analysing the predominant array of visual tools used by the architecture profession with all attached meanings, conveyed messages, and subtle connotations articulated through them. As a result of this research, a different approach to architectural design involving the use of alternative presentation methods based on all domains of visual culture has been introduced and tested by the author in the education field.

1. **Architecture belongs to one of the four domains of visual culture.**
   **What about the other three?**

   According to Walker & Chaplin (1997) architecture is a component of the fine arts domain of visual culture alongside paintings and sculpture. The other three domains – crafts/design, mass and electronic media and performing arts do not seem to be considered in any kind of relationship with architecture. Hence the impact of visual culture as a whole on
architectural design has been neglected and undervalued by the profession. A more flexible approach to visual culture will allow exploring the overlaps between architecture and the other constituent components of the same field of the fine arts on one hand and establish unexpected relationships between architecture and the other three domains of visual culture. In this respect the use of references relevant to a specific theme can be of diverse nature – ranging from paintings, sculpture and landscape design to photography, film and television. These new emerging connections and combinations can be sources of inspiration and ideas that can influence significantly architectural design. At present the architectural profession seems to be reluctant to explore the other three domains of visual culture restricting itself to the domain of the fine arts only. Even the relationships between architecture and the other constituent parts of the same sub field as art and sculpture have not been sufficiently analysed and capitalised upon.

2. Limited use of graphic languages by the architecture profession

Applying the model of the graphic abstraction ladder as introduced by McKim (1980) reveals that there are two main groups: abstract and concrete graphic languages. The group of the **concrete graphic languages**, or the first step of the ladder, comprises orthographic, isometric, oblique, and perspective projection. Three-dimensional modelling is considered to be at the end of the abstract-to-concrete “ladder of graphic languages” (McKim, 1980). The group of the **abstract languages**, or the second step of the ladder, comprises charts, graphs, diagrams and schematics. The architectural profession as a whole seems to limit itself mainly to the first step of the ladder – the concrete graphic languages. There is a well-manifested unawareness among design professionals that the group of the concrete graphic languages can be just one answer to a design problem. It can be argued that this fact is a result
of the combination of two reasons – the commercially driven nature of the architectural design process and the lack of an adequate exposure to such concepts in an educational setting.

3. **Comparative study of some of the work by the great masters in architecture – R. Piano, T. Ito, F. Gehry and S. Calatrava**

Case studies (Piano’s Tjibaou Cultural Centre in Noumea, New Caledonia, Ito’s Sendai Mediatheque in Japan) and secondary examples – Gehry’s Guggenheim Museum in Bilbao, Spain and Calatrava’s Liege and Lyon-Satolas Railway Stations have been used in this study to illustrate the flexibility with which the great masters of architecture use the concrete and abstract visual languages and explore unusual sources of inspiration to create these inspiring iconic buildings – traditional huts with thatched roofs, seaweeds, paintings and sculptures and the beauty of the human body. In contrast everyday commercially driven architecture remains surprisingly remote from such poetic notions.

4. **Different approaches, alternative methods and new avenues – testing the research results in education**

The findings of this study and the research results have been applied to a subject, taught by the author – Design Documentation, which is part of the curriculum of the NDAT (National Diploma in Architectural Technology) programme. The intention was to improve its content and way of delivery. This was seen as an opportunity innovatory methods, based on the research conclusions of the study to be introduced in a subject that had been taught for years in the same old-fashioned way. A new model consisting of four disparate concepts based on a variety of graphic languages was implemented and monitored in first year studio class taught by the author.
Research Methods

The research methodology adopted for the purposes of this study is the qualitative one, the reason being the verbal nature of the data collected and the difficulty of establishing reliable results over a relatively small number of respondents using quantitative methods. The sub methodologies or the methods within the qualitative research methodology employed to study the breadth of the research topic are: grounded theory, ethnography, case studies, semi-structured interviewing, and action-research. This diverse range of methods was perceived by the author as helpful to gather, collect and analyse the relevant data in order to establish prevalent perceptions and attitudes necessary to generate a comprehensive analysis and synthesis.

The two research questions developed in this study explore whether all domains within the field of visual culture are sources of inspiration that can influence significantly architectural design through the use of a wide array of visual tools.

Structure of the Thesis

This study has been presented in the following eight chapters – Introduction, Literature Review (encompassing two broad fields - visual culture and visual communication – necessary to define the general framework within which architectural design will be discussed), Research Methodology (elaborating on the specific research methods employed in this study), Case Studies (providing good examples of architecture chosen in peer review), From the status quo to where we want to be (analysis and synthesis), Evaluation (providing the opinions and comments of five architectural professionals on the Action-Research part of the thesis), Conclusion and Further Research and Bibliography. These chapters have been developed in a logical order following the evolution of the discussion. Each chapter has subheadings that further detail the topic.
Chapter 2: Literature Review

2.1 Theoretical aspects of Visual Culture

2.1.1 Defining Visual Culture – from Shakespeare to the modern “Truman Show”

“All the world is a stage and all the men merely players”.

“As you like it”

W. Shakespeare

“Modern life takes place onscreen”.

(Mirzoeff, 1999, p.1)

Sturken & Cartwright (2001) describe the globalisation of economics, technology and culture as the main trends of the modern economy.

“The media landscape of the late twentieth century and early twenty-first century has changed with the rise of a worldwide communications infrastructure and multinational corporations, the decline of the central power of the sovereign nation-state, and the resulting emergence of new forms of local and global cultures. Three central terms of these changes are globalisation, convergence, and synergy. With the wiring of the world, the rapid development of wireless communications, and the rise of multinational corporations, many critics feel there has been a collapse of geographic distance and national boundaries – hence a globalisation of economics, technology, and culture. The convergence of previously discrete media industries and technologies allows media to be integrated into the lives of people across geographic boundaries more smoothly and effortlessly” (Sturken & Cartwright, 2001, p.315).

Film and television, the Internet with its endless possibilities for synchronous (WEB and video conferencing, chat rooms) and asynchronous (email) communication are not just the norm, they are life itself. “Television, the Internet, and the World Wide Web have been extolled for erasing national boundaries and
creating cross-cultural exchange” (Sturken & Cartwright, 2001, p.317). Popular television programmes are imported and exported around the world, television news has been globalised with Cable News Network (CNN), which distributes stories throughout the world. The Internet allows for global communications and international access not only to millions of World Wide Web sites, but to radio broadcasts and print media articles. According to Sturken & Cartwright (2001) visual culture, which generally does not observe differences in language and levels of literacy is key in this climate of globalisation. Life is mediated through the visual screen (film, television and the Internet) making human experiences more visual than ever before.

“The presence and influence of mass media is often so pervasive in our lives that it has become our lives; incorporated with an unexamined, uncritical acceptance of its role…Mass media, by definition, affects large numbers of people and how they experience the world…Currently the most popular forms of mass media images appear in film and television. These images act as mediator and interpreter of ‘reality’ in our lives” (Bisplinghoff in Moore & Dwyer, 1994, p.337).

Certain elements of this reality are later re-created while others are filtered out. Thus mass media images undergo transformation through the process of selection, interpretation and representation of the world around us. “They present an illusion of ‘reality’ on many levels” (Bisplinghoff in Moore & Dwyer, 1994, p.337).

Visual culture becomes so pervasive in our lives giving rise to another trend of more recent times - the rash of unscripted TV shows using amateur performers (reality TV) like Survivor, Love Cruise, Temptation Island, and Big Brother just to name a few. These shows generate enormous interest among viewers and enjoy extreme popularity. They support Mirzoeff’s (1999) statement: “Modern life takes place on screen”. A journey back in time proves that this idea is not new comparing Mirzoeff’s statement with Shakespeare’s “All the world is a stage and all the men merely players”. A modern example of one whole life on a stage with
all the men merely players is the movie “The Truman Show”, depicting the life of Truman Burbank, (played by Jim Carrey) who has grown up, and lives, in a contrived world that is an invention of media - fake town full of actors. The town is enclosed in a giant dome decked out with high-tech simulations of sun and sky, in which the rain and wind are just special effects. Truman alone has no idea he is in a giant TV studio, as the rest of humanity watches him go from one staged situation to another in a non-stop reality programming that lets audiences enjoy a little pathos and vicarious emotion.

The new emerging globally shared visual culture becomes the object of study of various disciplines like art history, film, media studies and sociology. “The gap between the wealth of visual experience in postmodern culture and the ability to analyze that observation marks both the opportunity and the need for visual culture as a field of study” (Mirzoeff, 1999, p.3). Mirzoeff, (1999) in Visual Culture explores some of the characteristics of visual culture in an attempt to more accurately define it. He maintains, “visual culture directs our attention away from structured, formal viewing settings like the cinema and art gallery to the centrality of visual experience in everyday life” (p.7). He examines the relationship between visual events and visual technology as two sides of visual culture explaining the process of conveying information through the process of interaction not only with television and the Internet but also with more traditional forms such as oil paintings. He maintains that the proliferation of visuality has made film and television entertainment the United States’ second largest export after aerospace.

Barnard (2001, p.4) in Approaches to Understanding Visual Culture emphasized the importance of studying visual culture, as “one is more and more dependant on and subject to visual material” and he continues

“Opinions concerning, and responses to, visual culture are part of what makes people the people they are and an understanding of these opinions and responses can generate a
more sophisticated, self-reflective and critical understanding of the visual world and one’s place in it (Barnard, 2001, p.4).

The notion of visual culture because of its intangible nature is subject to a wide range of interpretations replete with varying degrees of objectivity and subjectivity. Bryson (in Mirzoeff, 1999, p.4) asserts that, visual culture is simply “the history of images” handled with a semiotic notion of representation while for Jenks (in Mirzoeff, 1999, p.4) it is a means of creating a sociology that will establish a “social theory of visuality”. These definitions imply a certain level of independence and isolation of the concept as opposed to analysing visual culture within a larger context. Mirzoeff (1999, p.4) states in the introductory part of his book *Visual Culture*: “visual culture is a tactic, not an academic discipline. It is a fluid interpretive structure, centred on understanding the response to visual media of both individuals and groups”; the underlying argument being that visual culture cannot sit comfortably in traditional academic disciplines.

Mitchell (in Barnard, 2001, p.5) asserts “visual culture is itself an interdiscipline, a site of convergence and conversation across disciplinary lines” which suggests that it should be studied by a number of disciplines.

Walker and Chaplin (1997) make a fine distinction between the discipline and the object of study of visual culture. They employ the term “Visual Culture Studies” to convey the idea of discipline and the term “Visual Culture” for the object of study with the reservation that the use of the word discipline is conditional due to the eclectic nature of “Visual Culture Studies”. A vast array of disciplines and methodologies has formed the aggregate and complex base of this new hybrid or multidisciplinary field. Walker and Chaplin (1997, p.2) in *Visual Culture: an introduction* give a detailed definition of visual culture as being the “material artefacts, buildings and images, plus time-based media and performances, produced by human labour and imagination, which serve aesthetic, symbolic, ritualistic or
According to the authors the field of visual culture, defined in terms of its constituent parts includes fine arts (painting, sculpture, drawing, avant-garde films and videos, architecture), crafts/design (urban design, industrial design, illustration, graphics, product design, computer-aided design, landscape design), mass and electronic media (photography, cinema/film, television, illustrated books, magazines, Internet, virtual reality, computer imagery) and performing arts (theatre, dance/ballet, theme parks, pop and rock concerts, planetariums, sporting events).

Analysing visual culture from the point of view of responsiveness and dynamic interaction, Mirzoeff (1999, p.5) explores its relationship with the process of visualizing “things that are not in themselves visual”. This results in the production and further proliferation of visual information that on the other hand requires a certain ability for absorption and interpretation. In the context of the Knowledge Economy this relatively new learned skill becomes increasingly important. “In other words, visual culture does not depend on pictures themselves but the modern tendency to picture or visualize existence” (Mirzoeff, 1999, p.5).
Attaching meanings to visuals and telling a story in a non-traditional and non-verbal way is part of visual culture. Mirzoeff (1999) summarises briefly some Western cultural practices that favour the verbal format of communication over the visual representation of ideas. The emergence of visual culture creates the premise for adopting a pictorial, rather than textual view of the world and even literature studies have been forced to conclude that the “world-as-a-text” has been replaced by the “world-as-a-picture”. Mirzoeff (1999, p.7) emphasises that “one of the principal tasks of visual culture is to understand how these complex pictures come together”. The complexity of the task stems from the fact that these pictures are not created from one medium or in one place, and they are not a result of structured, formal viewing settings like the cinema and art gallery. Our visual experiences in everyday life become a central part of visual culture - the pervasiveness of film and television in our domestic life or the exposure to various adverts capitalising on popular paintings.

Barnard (2001, p.1) in *Approaches to Understanding Visual Culture* defines visual culture as “becoming fluid” and distinguishes between the cultural side of the phrase (values and identities communicated by visual culture) and its visual side (referring to “the enormous variety of visible two- and three-dimensional things that human beings produce and consume as part of their cultural and social lives”). He further argues that supporters of the cultural aspect of the concept will be more interested in cultural identity issues pertaining to a specific group that are made viable through the process of producing and reproducing the group’s particular character and individuality. Such issues are concerned with the objects, institutions and practices of visual culture. The visual side of the phrase on the other hand as defined by Barnard is of a more inclusive nature since it makes possible “all kinds of fine art (painting, drawing and sculpture, for example), and all kinds of design (graphic, interior, automotive and architectural design, for example), to be included under the title of visual culture” (Barnard, 2001, p.3). Hence the notion of visual culture is broader than that of either art or design, encompassing both and creating the fundamental basis for examining
material, which does not fit precisely in any of the categories considered in isolation.

2.1.2 The notion of Culture – meanings, relationships and connections

Walker and Chaplin (1997) dedicate three separate chapters in their book Visual Culture: an introduction to the concept of “culture”, the concept of the “visual” and on visual culture as a field of study. The concepts of culture have been explored as a general term in relation to nature and civilisation.

2.1.2.1 Culture and Nature

The simultaneous analysis of culture and nature alludes to the notion of mutual exclusiveness. “Culture is thereby defined as what human beings have done to, or added to, nature by means of their inventiveness and labour” (Walker & Chaplin, 1997, p.7). Therefore the built environment, the artefacts and technologies should be regarded as cultural achievements rather than natural phenomena. As Walker & Chaplin argue although human mankind has always striven to understand and conquer nature, full control still remains in the realm of the unachievable. They support their argument with the statement that “humans remain part of nature: we are still subject to the laws of physics and evolution, to biological inheritance, urges and degeneration” (Walker & Chaplin, 1997, p.7). This statement then refutes the argument of the mutual exclusiveness proving that culture and nature coexist. This conclusion forms the base for further studies, which employ this terminology requiring examples of human culture to be studied in conjunction with their natural reasoning.
2.1.2.2 Culture and Civilization

The relationship between culture and civilisation is of a different character. The two terms are used in a synonymous way unlike the culture and nature tandem where the usage is antonymous. Walker & Chaplin (1997, p.8) argue that “civilisation is probably a broader concept than culture and it has an evaluative connotation”. They continue their argument stating that forms of culture can be found in both civilised and barbaric societies. This infers that culture, as a concept needs to be contextualised as its base is narrower than the notion of civilisation.

2.1.2.3 Culture as a multi – layered structure

An interesting point of view when analysing culture is examining it as a multi-layered structure instead of a homogenous whole. Walker & Chaplin (1997) distinguish different levels of culture: high, middlebrow and low. High culture is considered characteristic of civilised societies in the long- established forms of painting, ballet and opera while low culture or kitsch appeals to “passive, undiscriminating masses” (Walker & Chaplin, 1997, p.9). The middle layer of culture encompasses genres like popular music, detective novels, costume drama movies and television series that appeal to large audiences of middle-income people. This hierarchical construct of culture resembles the class structure of advanced nations. “Although this model is still broadly accurate, it is very crude. It does not do justice to the complexity of contemporary society” (Walker & Chaplin, 1997, p.10). The deficiencies of the model as pointed out by the authors are in the static nature of the model instead of a dynamic one reflecting the struggle of each class for dominance or hegemony and it is also atemporal as “it does not take account of historical evolution and changes in the size and power of different classes” (Walker & Chaplin, 1997, p.10).
Barnard (1998) in *Art, Design and Visual Culture* argues that in attempt to define the cultural in visual culture a pre-existing concept cannot be simply taken and adapted to the visual culture context. He suggests two definitions of the cultural starting with the broadest one: “the everyday objects and practices of a group of people, or of an entire way of life, or anything that is meaningful to more than one person” (Barnard, 1998, p.19). The narrowest one that he suggests: “that which a dominant social group finds meaningful or the serious music and the fine art of a social elite” (p.19). Barnard supports these definitions through the review of three books that consider different types of culture: the unilinear elite culture in Sir Kenneth Clark’s *Civilisation*, published in 1969, the dominant masculine mass culture in Deyan Sudji’s *Cult Objects*, published in 1985 and the multilinear popular (sub)culture in Ted Polhemus’s *Streetstyle*, published in 1994.

Barnard (1998) summarizes that the term “civilization” used extensively throughout Clark’s *Civilisation* carries explicit connotations that refer to the culture of “a specific class group operating at a particular time and place” (Barnard, 1998, p.19). This specific class group is in fact the dominant and elite class group and the culture in question is the “high culture” of that group which is being presented as the only civilising factor in the whole western world. Other potential civilising factors instigated by the other social or ethnic groups have not been considered by Clark as culture and thus not civilisation. The “high culture” as described by Clark deals with a limited number of means encompassing exclusively painting, sculpture and architecture. Other means like etching and engraving techniques have almost been ignored. Clark’s own definition of civilization is pretty obscure: “It is a state of mind where it is desirable for a naval hospital to look like the Royal Hospital at Greenwich and for the inmates to dine in a splendidly decorated hall” (Barnard, 1998, p.20). The above famous building is the work of Sir Christopher Wren and Nicholas Hawksmoor, with its interiors decorated by Sir James Thornhill. Therefore this definition again alludes to the
culture of the dominant social classes that is presented by Clark as civilisation. Barnard (1998, p.21) qualifies this type of culture as unilinear since “it presupposes that there is only one proper line of cultural development. It conceives of culture as the development, the maturing and the progressive improvement of the European mind”. This statement implies that all other cultures (non-European) may be compared and judged against this standard. Thus, they may fall in the category of immature or deviant cultures simply because they do not comply with this only proper line of cultural development. Barnard (1998, p.22) generalizes: “Clark’s version of culture is also elitist and highly selective”, the reason being that it demands a very high level of a particular kind of education in order to understand it. Barnard (1998) admits that although such type of culture should be considered when defining the cultural in visual culture, this does not preclude the inclusion of a more democratic and multilinear notion of culture.

The second type of culture, the dominant masculine mass culture as described by Deyan Sudjic in his book Cult Objects is considered by Barnard (1998) as a much more “democratic” version of culture. As the subtitle of the book (The Complete Guide to Having it All) suggests, it is a guide to possession and consumption, to having and owning things. The underlying assumption is that one defines oneself through what one purchases and owns. Sudjic has selected a range of designed objects rather than art objects – Porsche 911, an empty Lucky Strike packet and Richard Sapper’s anglepoise lamp. All these products are mass-produced and therefore considered as part of mass culture. While a specialised education is probably required to truly understand and appreciate some of these mass products, this type of education is not associated with an elite social group as in the case with the images and the sculptures in the Clark’s Civilization. Therefore this version of culture is much more “democratic”. Stujnic (in Barnard, 1998) says that there are high- and low-status cults, as not everyone buys the Porsche 911 or the Le Corbusier chaise-longue that are clearly high-status cult objects. As Barnard (1998) further elaborates on this, “the objects
collected in *Cult Objects* are not chosen at random or neutrally. They represent the ways in which various social groups constitute themselves as social groups” (Barnard, 1998, p.24). This definition suggests that the objects play a representative role (expressing the interests of a certain social group) and a differentiating role (positioning one group in a unique position in relation to the others). Barnard generalizes that these objects or mass-produced items are simply a means to creating cultural groups. A careful analysis of the nature of these objects suggests that they are all traditionally “masculine” – cars, guns, aluminium briefcases and so forth and the contexts they are discussed in predominantly business. As with the first version of culture, the unilinear elite one, that Barnard (1998) considers when defining the cultural in visual culture, the masculine mass culture also has its place in this definition. Generating a definition based solely on the Clark’s version of culture and on the Stujnic’s one is not seen by Barnard (1998, p.26) “as sufficient for the analysis of visual culture”.

In this regard he introduces the third type of culture – the multilinear popular (sub)culture as defined by Ted Polhemus in his book *Streetstyle*. The main characteristic of this culture is its all inclusiveness incorporating all subcultures that have been ranked below the high cultures of the social elites. The multilinear perspective of culture presented in this book differs significantly from Clark’s unilinear approach to culture. The existence of many different cultures with their unique contributions has been acknowledged and validated as equally interesting lines of development. For example black cultures, working-class cultures and the place of women in culture have all been well documented in Polhemus’s book and totally disregarded in Clark’s *Civilization*. Sudjic’s book depicts mainly “masculine” objects that are consumed by consumers who belong to the white, male middle class. Barnard (1998, p.27) then generalizes: “Polhemus’s conception of culture is thus able to include or incorporate what have been called different ways of life. It conceives of cultures as different ways of life”. Clothing and fashion in this presented multilinear popular culture are
disparate with the paintings, sculptures and architecture that are the only means of the elite culture according to Clark’s *Civilization*.

Barnard (1998) concludes his exploration of the cultural by summarising:

> “Clark’s conception of culture was criticised for being elitist and unilinear. Sudjic’s conception was criticised for being masculinist and dominant. And Polhemus’s might be criticised if it ruled out cultures that did not originate from ‘the street’ (p.29).

He then insists that all the definitions should be given an equal weighting in an attempt to define the cultural in visual culture. The differences among them should be used as an advantage to more accurately explain visual culture rather than regard them as drawbacks that could hinder the process.

### 2.1.3 The world of the visual

#### 2.1.3.1 The art of seeing and perceiving.

Studying visual culture requires basic knowledge about the physiology of the eyes and the psychology of visual perception. Walker and Chaplin (1997) in *Visual Culture* introduce the mechanics of vision before the concept of the visual. Rays of light reflected from objects are focused by the lenses of the eyes on retinas with rod and cone receptors sensitive to those rays. Nikos Metallinos (in Moore & Dwyer, 1994, p.60) considers visual stimuli as “electromagnetic energy exerted by objects in the environment that strike the retina of the eyes”. The retinas convert light rays into electrochemical signals, which are then transmitted, via the optic nerves, to the primary visual cortex at the back of the brain. One-third of the brain is devoted to processing these signals. Different pathways in the cortex are concerned with colour, motion, depth and shape or form, but the brain integrates them into a single perception. Once signals have passed the retinas it no longer makes sense to speak of “the visual” in isolation. The fact
that we perceive one world rather than five (corresponding to each of the five senses) suggests that inside the brain visual information from the eyes merges with information arriving from the other senses, and with existing memories and knowledge, so that a synthesis occurs. This process is called by psychologists “apperception”. Walker and Chaplin (1997) continue by exploring the nature of mental images that can occur with the eyes closed: memory enables us to recall familiar people and places, while imagination enables us to conjure up fictional beings, places and events.

Nikos Metallinos (in Moore & Dwyer, 1994, p.61) concludes,

>“various visual stimuli are in reality various pieces of an object received individually and sequentially by the visual receptors which, in turn, assemble them into more complete structural units and process them to the higher centres of the visual system of the brain. However, only effective visual stimuli reach the brain where they are stored in either the short or the long-term memory”.

Folk sayings abound in our everyday life often contradicting each other. “Seeing is believing”, “appearances are deceptive” and “looking without seeing” although contradictory in nature allude to the notion of perception and knowledge and the complexity of their relationship. Knowledge appears to be more comprehensive than the single act of perception or in other words multiple experiences based on many acts of perception form our knowledge of reality. They are then subject to comparison and logical analysis.

Walker and Chaplin (1997) do not limit their study of visual culture only to vision and its relationship with visual culture. The interaction among the five senses plays an important role in the process of learning and exploring the world around us. A vast array of technological inventions and devices further augment our senses adding a new and exciting dimension to the human-world exploratory relationship. Based on a background research the authors summarise the different points of view relating to vision, which has been labelled “the noblest sense” and occupies the top position in the hierarchy of the senses according to
a group of critics and argued by others. Walker and Chaplin (1997, p.20) overtly express their opinion on vision as being “the most important sense because of the sheer quantity of information about the external world it conveys to the brain (seventy per cent more than all the other senses combined)”. When the factor of the media-saturated environment, in which we live, is added to this argument, then it becomes more grounded. The importance of language as a medium of communication is undeniable and at the same time “vision is arguably more vital” (Walker & Chaplin, 1997, p.20). On a more popular level our everyday experiences abound with discrepancies between what we see in people in terms of body language and face expressions and the information they convey on one hand and the viewpoints and opinions expressed through language in conversations on the other hand.

Stern & Robinson (1994) in Moore & Dwyer’s Visual Literacy explore the nature of perception as fundamental to the processes of learning and communication. They provide the following definition of perception: “Perception is the gathering of information through our senses and the organising of that information in order to create meaning. Perception, then, is a complex process by which we make sense out of our experiences” (Moore & Dwyer, 1994, p.32). Data provided by our senses is then organised, interpreted and explained depending on person’s own experiences, thoughts and value system to give it the element of subjectivity. Interestingly, “what our senses collect is affected by values we bring to that moment” (Gibson in Moore & Dwyer, 1994, p.33). This circular cycle is known as hermeneutic or interpretive.

Stern & Robinson (1994, p.33) elaborate on the differences in perception “Perception, however, is not an absolute, objective or guaranteed process” – a statement, which provides for variation in perception. The authors argue that human forms of communication are “analogic”, which implies limited, with a high degree of subjectivity and interpretation. Depending on the language used (oral or visual) in terms of precision and concreteness the output results can vary
significantly ranging from misunderstanding and misinterpretation to comprehensiveness and shared meaning. Another reason for differences in perception stems from the differences in people’s personal experiences, backgrounds and feelings and the agenda they bring to a particular situation. People select stimuli from the surrounding environment that seem important to them and ignore the ones that look irrelevant.

The process of perception has three distinct stages identified by Stern & Robinson (1994) in Moore & Dwyer’s Visual Literacy – selection, organisation, and interpretation of stimuli. The frame of reference according to the authors is a factor present in all the stages. “In the simplest terms, frame of reference is one’s unique perspective, the way that one sees the world” (Moore & Dwyer, 1994, p.35). Every individual’s frame of reference is a unique combination of factors of a diverse nature –conscious and unconscious - that contributes to introducing an element of subjectivity into the perception process.

Fig.2: The cyclic nature of perception. (Moore & Dwyer, 1994, p.45)
The manifestation of the frame of reference in the selection stage is through physiological factors (encompassing the five senses), psychological factors (relating to personal needs and preferences), past experience (in the form of previous training in a particular field) and present feelings (expressing the current emotional status of a person). The second stage – organising the data is governed by a variety of principles – simplicity and patterns (categorising the information by finding a common characteristic introducing order as opposed to chaos in our lives), proximity (the tendency to group together those things that are located close to one another), similarity (the tendency to group elements because they seem to be alike in shape, colour, size, sound), figure and background (filtering out the important events as opposed to the insignificant details), and perceptual constancy (the tendency to persist in perceiving something in a certain way even though that person or event has changed). The third stage of the perception process is interpreting the data or giving it meaning. A group of factors affect interpretation – beliefs, values and attitudes (beliefs as concepts which we assume to be true, values as what one believes to be important, good or valuable and attitudes that are derived from beliefs and values), recency-primacy (events happened recently have a significant impact on perception or are given disproportionate weight, regardless of when the event took place) and present feelings and expectations (interpretations are affected by past experiences and current feelings).
2.1.3.2 Vision and Visuality

The parallel between vision and visuality has become an object of discussions due to the ostensible similarity between the two terms on a superficial level and the implied disparity on a deeper one. Theorists have argued that vision “refers to a physical/physiological process in which light impacts upon eyes, while visuality refers to a social process: visuality is vision socialised” (Walker & Chaplin, 1997, p.22). Norman Bryson (in Walker & Chaplin, 1997, p.22) elaborates further: “When I look, what I see is not simply light but intelligible form: the rays of light are caught in a network of meanings”. Hence the physical and the social process cannot be separated and studied in isolation as they compliment each other and work in a tandem. A person acquires knowledge of the world and of previous imagery through multiple acts of seeing (or the physical process). The knowledge that builds up “informs and modulates this seeing; it makes recognition and meaning possible” (Walker & Chaplin, 1997, p.22).

Foster (1988, p.ix) in Vision and Visuality expresses similar views when discussing the two terms. “Although vision suggests sight as a physical operation, and visuality sight as a social fact, the two are not opposed as nature to culture: vision is social and historical too, and visuality involves the body and the psyche”. This definition does not imply identity of the two terms it only suggests certain overlaps and emphasizes the complexity of the concept of the visual. Analysing the diverse nature of the visual involving the mechanism of sight, the way we perceive the world around us, the social determinants and a person’s background that come into play, and the selective nature of seeing is made possible through these superimpositions that occur.

Walker & Chaplin (1997) differentiate between the two types of vision – “unmediated” and “mediated” vision. The way people see still and moving images is reflected by the terminology of “unmediated vision”, which is seeing the world, and “mediated vision” – seeing images. “Visual representations differ from
perceptions of nature by being intentional, encoded communications, and by being representations of something” (Walker & Chaplin, 1997, p.23). The authors maintain that most buildings and designed goods are not depictions of anything but simply new inventions, additions to nature.

Within this context Walker and Chaplin (1997) define architecture as: “a visual art form” (p.23) and continue by including it into the group of art forms that address more than the eyes as we all “live, work and participate in ritual activities inside buildings” (p.24). According to the authors aesthetic appearances of buildings should not be the only criterion when judging a building. The utilitarian characteristics of a building (whether it fulfils the purpose for which it was designed) together with the aesthetic ones (various shapes and styles) paint a more comprehensive and realistic picture. “This means that although visual culture theorists may emphasise the visual, they cannot sensibly exclude the haptic (the sensations of touch, texture and contour) and the kinaesthetic (the sensation of movement or strain in muscles, tendons, joints) altogether” (Walker & Chaplin, 1997, p.24).

2.1.3.3 A study on “visual” definitions

Barnard (1998) in *Art, Design and Visual Culture* goes through the process of defining the visual starting with the broadest definition of the visual as “everything that can be seen” (p.11). He maintains, “the more inclusive a definition one works with, the better the account of visual culture” (p.11). He then discusses the drawbacks of such a definition, as it does not include the role and interpretation of nature. Naturally occurring phenomena such as landscapes and all forms of flora and fauna must be included showing how they are made meaningful through intention and representation.

The second definition that derives from these thoughts is: “everything produced or created by humans that can be seen” (Barnard, 1998, p.12). Barnard qualifies
this definition as more restrictive. Another version of it presented by Marcia Pointon (in Barnard, 1998) restricts visual culture to “man-made” structures and artefacts. She says, “every ‘man-made’ structure and artefact, from furniture and ceramics to buildings and paintings, from photography and book illustration to textiles and teapots, comes within the province of the art historian” (Barnard, 1998, p.12). As Barnard elaborates all the three definitions provided have a common problem and “these problems surround the place of nature and the natural” (p.13).

He further explores his ideas by stating that “the visual in visual culture is that which can be seen and which possesses some functional or communicative intent” (Barnard, 1998, p.15) or in other words things, which are designed. Barnard supports this definition by giving an example with graphic design and product design that are both visual and possess communicative or functional intent. As in the case with the other three definitions, the last one has its drawbacks as well. Barnard argues that “there are many things that should be accounted for and explained as visual culture that are not primarily produced or created with the intention of being functional or communicative” (Barnard, 1998, p.15). He refers to things that usually go under the term “art” or “fine art”. Many examples of these categories can be argued as having only a decorative purpose that takes precedence over their functionality. A contrary opinion “form follows function” has been provided by the American architect Louis Sullivan at the end of the nineteenth century. Function in this statement is the primary objective and the major determinant in the design of an object or a building and the form or the aesthetic appearance is subordinate to the function.

These thoughts lead to the next logical definition of the visual according to Barnard (1998) who includes the aesthetic in relation to the visual “visual culture is anything that has been created or produced with the intention of having some aesthetic effect” (p.16). The word “aesthetic” in the modern English language carries connotations of something being beautiful. Then the paraphrased
definition of visual culture would be “anything that was produced or created with the intention of being beautiful” (Barnard, 1998, p.16). Although a much less broad definition of the visual and hence of visual culture, this definition also has problems on its own. They are mainly structured around many things that go under the term “industrial design” that should be explained as visual culture but have not been primarily created with the intention of being perceived as beautiful. Function in these cases has taken precedence over appearance. On the contrary other design items like fashion, textiles and ceramics are often produced with the sole purpose of being attractive and beautiful. Barnard (1998) concludes “this definition cannot be considered as the only definition of the visual, then, in that it rules out much of design culture which really ought to be explained and analysed as visual culture” (p.17). The last definition where the visual is everything that can be seen which also has aesthetic intention infers that the two words visual and art are almost synonymous. This statement entails a whole new range of problems as to what sorts of art are to be included and whose definition of art would be the prevalent one depending on the different social and cultural groups involved. Barnard concludes this exhaustive study on definitions of the visual by summarising: “the visual in visual culture is anything visual produced, interpreted or created by humans which has, or is given, functional, communicative and/or aesthetic intent” (Barnard, 1998, p.18).

2.1.4 The imaginary war between the two terms “visual” and “culture”

“For many critics the problem with visual culture lies not in its emphasis on the importance of visuality but in its use of a cultural framework to explain the history of the visual” (Mirzoeff, 1999, p.22). The prominent art historian Thomas Crow sees visual culture as being to art history what New Age mysticism is to philosophy. Such criticism is mostly based on the desperate search for a traditional formal structure where visual culture can fit. Opposing art to culture is
groundless as “art is culture both in the sense of high culture and in the anthropological sense of human artefact” (Mirzoeff, 1999, p.23).

The combination of the two words “visual” and “culture” is unavoidable and at the same time raises questions and causes further debates over the terminology. In 1869, the English scholar Matthew Arnold in his book *Culture and Anarchy* poses the two terms as opposites and defines “culture as the product of elites: the best that has been thought and known” (Mirzoeff, 1999, p.23). This connotation of the term culture is still prevalent among the general consumers of literature and the arts. In an attempt to explain culture in the context of visual culture, Stuart Hall (in Mirzoeff, 1999) develops the definition of culture as a cultural practice that “becomes a realm where one engages with and elaborates a politics” (Mirzoeff, 1999, p.24). In this definition culture has been defined as a realm of a dynamic nature where people define their identity at a certain point in their lives and later as the individual needs and endeavours change, the culture to which they belong changes accordingly. Walker and Chaplin (1997) provide their own explanation, which is at the same time a justification for the presence of the adjective “visual” in the expression “visual culture”. They emphasize the importance of the visual characteristics when referring to visual arts and mass media giving a concrete example with three distinct kinds of communication like novels, paintings and feature films. Unlike novels, paintings and films possess visual characteristics – shapes, forms, tones, colours, lighting, two- and three-dimensional composition, framing, montage, and so forth. Observing and analysing these visual elements is crucial as they are a representation of the essence of the particular medium. This argument becomes a central point in the analysis of the term “visual culture” and it distinguished Visual Culture Studies from Media and Cultural Studies. This definition alludes to some limitations regarding the object of study, that is to say, arts based on other senses different from seeing are excluded.

Art historians Baxandall and Alpers (in Walker and Chaplin, 1997, p.2) give a different interpretation of the term “visual culture” and regard it as an attribute of
a whole society or a social strata. Baxandall contends that those ruling groups in Renaissance Italy who funded and enjoyed the art of painting developed particular visual and cognitive skills that facilitated their appreciation of pictures while Alpers writes “in Holland the visual culture was central to the life of society. One might say that the eye was a central means of self-representation and visual experience a central mode of self-consciousness”. Walker and Chaplin warn that there is a strong reciprocal relationship between the creators of such culture and its consumers or in other words a society, which has a highly developed visual culture, creates all the premises for the flourishing and the self actualisation of visual artists. Examining visual culture from such a socio-historical viewpoint has been considered by Walker and Chaplin as a synopsis of the history of visual cultures and is regarded as a deviation from the scope of Visual Culture Studies.

In the context of a changing world the notion of visual culture gradually establishes itself. Researching disciplines in isolation becomes an obsolete practice that gives way to a more modern approach considering the overlap between subjects. As Walker and Chaplin (1997) argue the research of advertisements, computer graphics, designed goods, fashion, films, graffiti, photography, rock/pop performances, television and virtual reality will go hand in hand with the discussion of the traditional arts of architecture, painting and sculpture. A complex environment of such nature necessitates the introduction of a discipline with a broader base. “Today’s culture is increasingly hybrid; interactions and fusions between the various arts and media mean that boundary lines are becoming harder to discern” (Walker & Chaplin, 1997, p.5).

2.1.5 Approaches to understanding visual culture

Barnard’s book (2001, p.2) *Approaches to Understanding Visual Culture* “concentrates on the different approaches to understanding a wide variety of images and artefacts, it is less interested in visual culture as performing a set of cultural and social functions”. He strongly affirms that there is a variety of
different approaches to understanding visual culture and he strongly favours the notion “that understanding cannot be one single activity (p.18). Trying to identify the parties that would be likely to express interest in understanding visual culture, Barnard gives examples from a wide range of disciplines like art, film, graphic-, architectural-, fashion-, interior-, automotive-, textile- and furniture- design. He further states that:

“Over the last twenty years or so, it has increasingly become the case in the Humanities and Social Science departments of many colleges and universities that students of sociology, anthropology, the media, cultural studies and communications are also prompted to take an interest in the visual” (Barnard, 2001, p.3).

Barnard’s book *Approaches to Understanding Visual Culture* is dedicated to exploring the methods of this process suggesting that all of them stem from two traditions – the “structural tradition” and the “hermeneutic” one. The structural one, as the name suggests, argues that understanding and interpretation work in terms of structures. Conceptual structures, class structures and gender or narrative structures form the basis for this tradition. As Barnard elaborates further, “the word ‘hermeneutics’ is related to the Greek god Hermes, who was the messenger of the gods, relaying messages between the gods and also between the gods and humans” (Barnard, 2001, p.6). The hermeneutic tradition argues that understanding and meaning are the business of individuals. Understanding and interpretation for this tradition are based on the individual characteristics of a person – his own interests, positions, beliefs and values.

### 2.1.5.1 Hermeneutic Traditions

Hermeneutics has its origins in the explaining or clarifying of obscure or contradictory religious texts. Bauman (in Barnard, 2001, p.30) maintains, “The true meaning of the Bible, or the Gospels, the authoritative version of the text, needed to be ascertained and hermeneutics was simply the tool by means of which the true meaning, the authoritative version was arrived at”. This
application as a neutral tool on a simple level ceased by the end of the
eighteenth century and hermeneutics “began to generate problems of its own”
(Barnard, 2001, p.30), the main reason for that being developments in the world
of art and design. Till the end of the eighteenth century artists’ personal views
and opinions had little bearing on the historical understanding of art. The
philosophy of Kant emerged at that time, “with its emphasis on the active and
constitutive role of the subject in perception and understanding” (Barnard, 2001,
p.31). Bauman (in Barnard, 2001) suggests that it had a profound impact on the
way art was perceived with the individual and his value systems embodied in
every work of art. “This lead to W. H. Wackenroder’s idea, crucial to the
development of hermeneutics, that, in order to find the meaning of a piece of art,
‘one has to contemplate the artist rather than his products’” (Barnard, 2001,
p.30). This brief historical synopsis studies the evolution of the hermeneutic
concept from performing the modest role of a mere tool to clarify obscure and
anonymous work to an aid in ascertaining the meaning of such work and then
after Kant becoming the instigator setting the observer on a discovery and
exploratory path to decipher the individual artist’s intentions in his work.

2.1.5.2 Structural Traditions

F. Jameson (in Barnard, 2001) describes structuralism as the study of the
“unconscious value system or system of representations which orders social life
at any of its levels, and against which the individual conscious acts and events
take place and become comprehensible” (p.33). Unlike the hermeneutic
tradition, which considers the individual as a source of understanding, the
structural tradition regards him as a product of that understanding. “For
structuralism, the individual consciousness is itself a product of structures"
(Barnard, 2001, p.34). Proponents of the structural tradition adopted a similar
approach to understanding as the one supported by the hermeneutic tradition,
which has at its base the notion of science. The natural sciences in the structural
tradition formed a model for proper understanding employed by the human. Jameson (in Barnard, 2001) elaborates further on structuralism defining it as the

“explicit search for the permanent structures of the mind itself, the organisational categories and forms through which the mind is able to experience the world or to organise a meaning in what is essentially in itself meaningless” (Barnard, 2001, p.36).

A comparative analysis of meaning in the structural and in the hermeneutic tradition reveals that meaning is something, which must be “organised and is the result or product of a place in a structure” (Barnard, 2001, p.36) according to the former and “a product of individual intention” (Barnard, 2001, 36) according to the latter. Barnard (2001) generalizes that in order to understand the culture one must firstly understand the structures set up by that culture. He further argues that the mind operates in terms of categories that form structures, which become a tool in the process of understanding the external world in general and the culture in particular. Individuals do not have control over these categories and consequently structures, as they are a product of mind or consciousness but they are not the products of individual minds or consciousness.

After examining the two traditions separately, Barnard (2001) draws general conclusions based around the similarities and the disparities between the two. The similarities include regarding the natural sciences as a starting point in understanding and explaining the world. The disparities start with the different sources of understanding. The hermeneutic tradition believes that intention is the starting point, while the structural tradition positions structure as the source of understanding. Barnard (2001) elaborates on this further by proving that such disparities should be considered more as advantages rather than as drawbacks.

“It may be that this distinction between structure and intention leads to, and to that extent justifies, the interest in structural and hermeneutic approaches respectively. Meaning is more appropriately understood and explained in terms of structures. Intention is more
appropriately explained and understood in terms of phenomenology” (Barnard, 2001, p.39).

Based on these thoughts, Barnard generalizes that both traditions are appropriate to the study of visual culture and hence they should not be considered as separate categories since they compliment each other.

2.1.6 Visual Culture, Elite Culture and Mass Culture

Our postmodern society abounds with images of all kinds, nature, and connotations conveying literal and symbolic meanings. The global popularity of film and television in tandem with the Internet and the world of virtual reality are our everyday life. The question of prioritisation in this specific context and applying it to the “world-as-a-text” versus the “world-as-a-picture” (Mirzoeff, 1999) scenario imposes new challenges simply because they need to contest old beliefs and assumptions about the second-rate place of visual culture in Western thought. Mirzoeff (1999) in Visual Culture examines the very roots of this hostility to visual culture that he states originated in the philosophy of Plato and still exists in Western culture to the present day. “Plato believed that the objects encountered in everyday life, including people, are simply bad copies of the perfect ideal of those objects” (Mirzoeff, 1999, p.9). Inevitably such images or reproductions are distorted from the original's appearance. Being surrounded only with copies in the real world would mean that all attempts for representations of these copies would result in making copies of copies and increasing the chances of distortion. Obviously to reduce these undesired effects Plato suggested the involvement of “tough, disciplined individuals”. Such approach encourages a critical analysis on a deeper level. What is the general purpose of the arts? Is it a pedantic and lifeless reproduction of what the artist sees or is it an artistic expression of what he sees and how he perceives it depending on the subjectivity of the interpretation. Are Van Gough’s or Salvador Dali’s pictures accurate representations of our world full of “copies”? They can
be probably qualified as the complete antithesis of Plato’s theory and yet they appeal to our emotions and desires.

In more recent times the suspicion of the quality of the visual experience that film and television provide is still wide spread. David Morley (in Mirzoeff, 1999) describes television as “radio with pictures” implying the second-rate position of the visuals performing predominantly a decorative and embellishing role. Fredric Jameson (in Mirzoeff, 1999, p.11) explores his hostility at greater length claiming that “those who have the temerity to enjoy visual pleasure, rather that the discipline of reading, are pornographers at best, most likely animals”. The underlying assumption in such a statement is the antagonism between reading considered as an intellectual experience as opposed to viewing visual images, which is, by contrast, very often a collective experience. Such an experience because of its group nature alludes to the notion of mass culture with its associated negative overtones. In retrospect in the eighteenth century such hostility was directed at theatre whose position in our postmodern era has been taken by film, television and the Internet. The group participation and enjoyment rather than the medium itself become the target for such extreme criticism. The division of culture into popular and elite becomes the basis of Pierre Bourdieu’s sociological study, undertaken in 1963 – 1968 (Mirzoeff, 1999). He based his findings on an extensive survey distinguishing between the culture of the intellectual elite and the masses. According to Bourdieu social class determines how an individual might respond to cultural production; taste is regarded as a by – product of education and access rather than taste being a highly individual attribute. The simplistic approach of considering art as the testing ground for establishing the division between the two cultures has its weak points as museum-going proved to be an upper class activity while the working class was depicted as completely uneducated as far as art was concerned. Mirzoeff (1999) attributes this to the fact that the majority of the survey questions were prejudiced and therefore the information elicited through such questions was of a questionable nature. Secondly the museum culture of the 1960s when the
survey was carried out differs significantly from the interactive and approachable museum culture of the 1990’s. The overlap of traditional art gallery and museum experiences with other forms of art like computer-generated media, photography, quilting and carnival leads to a significant museum audiences diversification. Then the boundaries between the two cultures as described by Bourdieu become blurred as the elite, privileged culture becomes a popular culture.

Unlike Bourdieu with his particularly negative attitude toward mass culture, Walker and Chaplin (1997) define mass culture in comparison with folk culture, the former being associated with rural, peasant societies of the past, which contributed to a common culture via folklore, costume, and festive rituals and the latter being associated with modernity, industrialisation and mass communication systems such as television. Mass culture as such “is produced by professional artists and designers on behalf of the urban and rural masses” (Walker & Chaplin, 1997, p.10). The authors expand the subject matter of visual culture by adding more mass culture material. Their argument is based on several factors: the new scholarly approach to mass culture acknowledging its visual aspects, the recognition of aesthetic qualities in all forms of visual culture with traditional art losing its privileged position and the blurred boundaries and interrelationships between the fine arts and mass media.

Mirzoeff (1999) examines the central role that visuality plays in modern life instead of further elaborating on the two types of culture (the elite and the mass culture) that seem to be in opposition to one another. He goes further and explores the emergence of contemporary visuality through a retrospective review of the history of modern visual media comprising film, television, art and video. The element of aggregation in the term modern visual media further implies that the medium does not play a determinant role in the interaction between viewer and viewed or the visual event.
Living in the postmodern world imposes additional challenges due to the process of globalisation and the ubiquitous dissemination of knowledge expressed in the transcultural approaches to culture. As the cultural boundaries between countries become more and more blurred such a concept as a “hermetically sealed cultural entity” (Mirzoeff, 1999, p.25) does not exist any more. The process of “transcultural permeability of cultures and the instability of identity” (Mirzoeff, 1999, p.26) is characteristic of our postmodern world. Mirzoeff (1999) gives his definition of transculture, which according to him is the experience of two or more heritages combining to form a new third form. Trying to be more specific when defining the realm of visual culture, Mirzoeff (1999) introduces a new term “everyday life” concluding that “the transcultural experience of the visual in everyday life is, then, the territory of visual culture”. His exploration of the term is based on the analysis of Henry Lefebvre’s book *Introduction to Everyday Life* where he points out that everyday life is “a key site of the interaction between the everyday and the modern; two connected, correlated phenomena that are neither absolutes nor entities: everyday life and modernity, the one crowning and concealing the other, revealing it and veiling it” (Mirzoeff, 1999, p.26). The intersection of the everyday and the modern is then considered as a premise for the emergence of the visual experience. Consumers are constantly bombarded with incredible numbers of film and television programmes, desperately trying to increase their ratings, with more and more pixelated images turning traditional photography into an obsolete art. The screen as a material expression of the contemporary trends in our postmodern society becomes the invader and the conqueror of our private space. This ubiquitous pervasiveness raises the question: “Is culture our everyday life”? or “Can our life be labelled cultural”? 
2.2 Visual Thinking and Visual Communication

2.2.1 Visual Literacy, Thinking, Learning, and Communication

Several researchers have defined visual literacy from various theoretical viewpoints. Pettersson (1993, p.136) quotes some of the early definitions of visual literacy. Debes’ (in Pettersson, 1993) original definition from 1969 reads: “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”. Dondis (1973) (in Pettersson, 1993) presents another early definition of visual literacy in her book A Primer of Visual Literacy: “Visual literacy implies understanding, the means for seeing and sharing meaning with some level of predictable universality”. The “universality” in this definition is actually insight and having an insight is a skill that can be taught. Therefore being visually literate is not the equivalent to being artistic and highly skilled in drawing, painting and so forth.

Barbara Seels, the author of the chapter Visual Literacy: The definition Problem in Visual Literacy by Moore & Dwyer (1994, p.103) presents a brief synopsis of visual literacy definitions. She starts with Joan Platt who in 1975 reviewed research and theory about visual literacy for the National Education Association. The definition that she used was: “the ability both to understand – and to express themselves in terms of visual material, to enable them to relate visual images to meanings beyond the images themselves”. This is similar to the definition presented by Braden & Walker (1980) at the 12th Annual Conference on Visual Literacy – “to be visually literate is to be able to gain meaning from what we see and to be able to communicate meaning to others through the images we create” (Moore & Dwyer, 1994, p.103). Wileman (1980) gives a similar definition: “the ability to read and understand that which is seen and the ability to generate materials that have to be seen to be understood” (Moore & Dwyer, 1994, p.103). In 1982 Heinich, Molenda and Russell describe the concept as: “visual literacy is
the learned ability to interpret visual messages accurately and to create such messages. Thus interpretation and creation in visual literacy can be said to parallel reading and writing in print literacy” (Moore & Dwyer, 1994, p.103). In the same year Braden & Hortin define visual literacy as “the ability to understand and use images, including the ability to think, learn, and express oneself in terms of images” (Moore & Dwyer, 1994, p.103). Barbara Seels elaborates on the difficulties with defining visual literacy “the problem with constructing an operational definition of visual literacy is that the term refers to a product not a process, to a condition not a cause, to a state not an action”. She uses the constructs – visual learning, thinking and communication within the concept of visual literacy as suggested by Bikkar Randhawa (1978) in order to provide a better organisation of the specific terminology. “If we accept visual literacy as a theoretical super construct then visual thinking, learning, and communication become ‘sub-concepts’ that yield operational constructs” (Moore & Dwyer, 1994, p.104).

![Fig.3: The Visual Cube (Moore & Dwyer, 1994. p.105)](image)

![Fig.4: The Visual Literacy Continuum (Moore & Dwyer, 1994. p.105)](image)
Crowe & Laseau (1984, p.7) argue,

“visual literacy includes two skills: visual acuity and visual expression. Visual acuity is an intense ability to see information or multiple messages in one’s environment with clarity and accuracy…Visual expression is the ability to initiate visual messages…While visual acuity is concerned with the visual messages we receive, visual expression is concerned with the visual messages we send”.

Visual Thinking

Visual thinking has been defined as “the internal reaction stage. It involves more manipulation of mental imagery and more sensory and emotional association than other stages” (Moore & Dwyer, 1994, p.104). Arnheim (1969) (in Moore & Dwyer, 1994, p.105) describes visual thinking as preconscious, metaphorical thought, the unity of perception and conception which calls for the ability to see visual shapes as images (pictures, signs, and symbols). Wileman (1980) (in Moore & Dwyer, 1994, p.105) defines visual thinking “as organising mental images around shapes, lines, colour, textures, and compositions” and Robert McKim (1980) (in Moore & Dwyer, 1994, p.106) defines visual thinking as the interaction of seeing, imagining and drawing. Visual thinking refers to visualization through images. Ruch & Zimbardo (1971) (in Moore & Dwyer, 1994, p.106) define images as mental pictures of sensory experiences, perceptions or conceptions. “Visual thinking in its simplest form is manipulating symbols representing elements of the internal or external environment by using imagery” (Moore & Dwyer, 1994, p.106).

Visual Learning

Barbara Seels (in Moore & Dwyer, 1994, p.107) argues that “visual learning is the most complex of the theoretical constructs because it refers to both learning from visuals and research on designing visuals for instruction”. She continues by making the statement that “today, visual learning refers to the acquisition and
construction of knowledge as a result of interaction with visual phenomenon” (p.107). She supports her statement with the work of the geographer D. W. Meining (1992). His description of a high level of visual learning is associated with a great deal of meaning derived from visual information and visual information is used in conjunction with other information. Meining (1992) studies symbolic landscapes as representations of American values. According to him they provide clues about cultural character and historical changes that can be understood and interpreted.

Visual Communication

Wileman (1980) defines visual communication as “the attempt by human beings to use pictorial and graphic symbols to express ideas and to teach people in and out of the school setting” (Moore & Dwyer, 1994, p.108). Communication has been mostly defined as an interactive process having the following characteristics: sender, message, channel and receiver (Ball & Brynes, 1960) (in Moore & Dwyer, 1994, p.108). B. Seels (in Moore & Dwyer, 1994) contends that the presence of these characteristics is not sufficient to infer that visual communication is taking place. “For visual communication to occur there also has to be an exchange of meaning” (Moore & Dwyer, 1994, p.108). McFee (1969) (in Moore & Dwyer, 1994, p.108) believes that for learning to occur both the content and form of the message must be understood. “We must learn to read symbols for both content and form, i.e., for concrete and metaphoric meaning. Visual communication, therefore, is using visual symbols to express ideas and convey meaning”. M. Miller (in Moore & Dwyer, 1994, p.108) maintains, “that images speak, that images say certain kinds of things and that there are values and priorities and meaning embedded in images”.

What is Visualization – a mental process, an end product or a new language?

Colin Ware (2000, p.1) in *Information Visualization* clarifies the obscurity around the terminology. He argues that until recently the definition from the Shorter Oxford English Dictionary described visualization as

> “constructing a visual image in the mind. But now it has come to mean something more like a graphical representation of data or concepts. Thus, from being an internal construct of the mind, a visualization has become an external artefact supporting decision making” (Ware, 2000, p.1).

Ware (2000, p.3) identifies four basic stages in the process of data visualization.

> “They consist of:
  - The collection and storage of data itself.
  - The preprocessing designed to transform the data into something we can understand.
  - The display hardware and the graphics algorithms that produce an image on the screen.
  - The human perceptual and cognitive system (the perceiver).”

Both the physical environment and the social environment play a significant role in the data gathering process. “The physical environment is a source of data, while the social environment determines in subtle and complex ways what is collected and how it is interpreted” (Ware, 2000, p.4).

Wileman (1993, p.7) expresses his view in *Visual Communicating* that visualization “is considered primarily as a process and secondarily as a product” the reason being that a message needs to be fully understood first before arriving at a visual solution. The author draws a fine line between conceptualisation and rendering as the two can be often mixed up. “Conceptualizing and rendering are two different and difficult tasks”. “Conceptualization is the intellectual process
you use to visualize messages” while “rendering, the task of producing the final visual, is the domain of a graphic artist” (Wileman, 1993, p.7). Wileman argues that it is the conceptualisation not the rendering of the materials that makes effective visual presentations. Since visualization is more than just rendering, Wileman (1993, p.6) maintains, “visualization, like verbalization, generates a language from its elements, structure, and uses”. The purpose of this language as a medium of communication is to convey information successfully.

2.2.2 The power of visual thinking

“True creativity often starts where language ends”.

Arthur Koestler

Visual thinking pervades all aspects of our everyday life. It is not for the exclusive use of artistic people only like artists, architects and designers, on the contrary, it is widely practised by many other professions. Wileman (1993, p.37) defines visual thinking as “the ability to transform thoughts, ideas, and information of all types into pictures, graphics, or forms that help communicate information”. R. Arnheim (in McKim, 1980, p.8) observes: “Visual thinking is constantly used by everybody. It directs figures on a chess-board and designs global politics on the geographic map”. McKim (1980) argues that visual thinking is carried on by three kinds of visual imagery: the kind that we see, the kind that we imagine and the kind that we draw and he emphasizes the interactive character of this relationship. “…visual thinking is experienced to the fullest when seeing, imagining and drawing merge into active interplay” (McKim, 1980, p.9).
This active interplay can be applied to any problem-solving situation by moving in a dynamic way from one activity to another. A specific problem can be seen from several angles, alternative solutions can be imagined and a few quick sketches to document the idea drawn. “Cycling between perceptual, inner, and graphic images continues until the problem is solved” (McKim, 1980, p.9). McKim makes a fine distinction between graphic-ideation and graphic communication. “Graphic ideation precedes graphic communication; graphic ideation helps to develop visual ideas worth communicating” (McKim, 1980, p.12). There is a difference between the two in terms of graphic output as well. The quick, freehand and impressionistic sketches produced as a result of the graphic-ideation stage differ significantly from the more formal and ruled drawings targeting a wider audience produced as a result of the graphic communication stage.

Maslow (in McKim, 1980) contends that visual thinking is closely linked to creativeness in its two forms – primary and secondary. In his paper “Emotional Blocks to Creativity” he describes two kinds of creative people. The first category is the ones who “make their contributions by working along with a lot of other people, by standing upon the shoulders of people who have come before them, by being cautious and careful” (McKim, 1980, p.23). Such people according to Maslow are capable only of secondary creativity. The approach to the outer world in this case is logical, objective, rational, pragmatic at the expense of “senses, feelings, and inner fantasy life” (McKim, 1980, p.24). On the contrary
primary creativeness according to Maslow “comes out of the unconscious. It is the result of ability to fantasy, to let loose, to be crazy, privately” (McKim, 1980, p.24). He further argues that primary creativeness is “lost by most people as they grow up” (p.24). In his definition a truly creative person would integrate both the primary and the secondary creativeness necessary for developing visual thinking. Maslow (in McKim, 1980) makes a comparative analysis between verbal and visual thinking concluding that verbal thinking gravitates to secondary creativity while visual thinking integrates this secondary creativity with primary processes.

“Verbal thinkers … skilfully manipulate symbols but rarely make full contact with their own primary resources. Visual thinking is a marvellous antidote for this sterile, one-sided kind of thinking. Or more correctly, visual thinking, with its symbolically left-handed, primary-process origins, is a vital compliment to symbolically right-handed, secondary-process thinking-by-words-and-numbers” (McKim, 1980, p.25).

McKim (1980) expresses the opinion that visual and language thinking are complementary. Arthur Koestler (in McKim, 1980, p.26) asserts, “Language can become a screen which stands between the thinker and reality”. If a person can abandon language with its vast array of preconceived ideas, controlled perceptions and predictable patterns of thinking, he will enter into other modes of thought like ambidextrous thinking utilising the right and the left brain.

2.2.2.1 Seeing

McKim (1980) presents a brief synopsis of the three components of visual thinking – seeing, imagining and drawing, that are according to him in a state of active interplay. He explores the relationship between thinking and seeing debunking some of the myths surrounding the two processes. Traditionally, they have been considered as separate activities in sequential order: seeing as “sensory information gathering … and thinking as verbal information processing” (McKim, 1980, p.46). Seeing and thinking in this scenario are asynchronous
activities: seeing happens first followed by thinking. McKim offers another viewpoint – seeing and thinking that can function together. The concept that he introduces is of externalised thinking: a sculptor who thinks in clay or a chemist who thinks by manipulating three-dimensional molecular models.

Regardless of the context “each is thinking by seeing, touching, and moving materials, by externalising his mental processes in a physical object” (McKim, 1980, p.46). There is a fine distinction between a model being manipulated while exploring a concept and a model being presented as a final product communicating a fully formed idea. “Externalised thinking involves actively manipulating an actual structure much as one would manipulate that structure mentally” (McKim, 1980, p.46). The advantages of this type of thinking are obvious: the presence of direct sensory involvement with materials, the opportunity to practise serendipity or the unexpected discovery, the existence of a physical object, which encourages further contemplation and sharing of ideas and also providing an alternative option to verbal thinking.

Another concept offered by McKim (1980) is creative thinking or seeing the world differently. Two people examining the same concrete situation would respond differently depending on their knowledge because seeing is more than the physiological process of sensing. “Seeing requires matching an incoming sensation with a visual memory” (McKim, 1980, p.49). More knowledgeable observers see more due to the richer visual memory with which to match incoming visual sensations. At the same time knowledge is not a guarantee for creativity. McKim maintains that the aptitude of some individuals to create new knowledge stems from their ability to recenter their perceptions and to observe the familiar from different viewpoints. McKim (1980) provides the following definition of creative seeing: “Creative seeing involves using imagination to recenter viewpoint; it is the ability to change from one imaginative filter to another” (McKim, 1980, p.50). Cycling from one perceptual mode to another unleashes creativity. McKim (1980) argues that since all perception involves
some degree of imagination, we all see imaginatively, which does not infer creatively. He believes that flexibility is the answer to why imagination is not the equivalent to creativity. “People who can flexibly use their imaginations to recenter their viewpoints see creatively” (McKim, 1980, p.50). By contrast, people who cannot see alternative viewpoints remain locked in the confined space of the stereotyped vision of reality; they merely help to make this world a practical but uninspiring place to live.

McKim (1980) emphasizes the importance of developing drawing skills that will enhance seeing “seeing by drawing” (p.56). “Drawing, most of all, stimulates seeing. It is an inducement to stop labelling and to look” (McKim, 1980, p.56). Kimon Nicolaides (in McKim, 1980) believes in the strong relationship between the act of drawing and the act of correct observation. Aesthetics and artifice should not be considered as compulsory attributes of drawing. These are just widespread misconceptions. Seeing by drawing can also be considered as a process that encourages “the short-term memory that holds a perceptual image in mind while it is being reproduced on paper” (McKim, 1980, p.57).

Consequently the active involvement of the short-term memory spurs the recentering of vision away from stereotypes, toward flexibility and openness. On the contrary drawing an image from long-term memory will instigate stereotyping. True exploration of an object will only occur when active observation and simultaneous reproduction are involved.

The act of seeing has two steps according to McKim (1980, p.60), “the first step is to perceive an undetailed, overall pattern; the second step, which proceeds according to personal needs and interests, is to analyse the overall pattern for details”. The same two-step process is present in the act of drawing - seeking overall relationships first and elaborating on details perceived as characteristic and important second. Pattern-seeking is closely related to the Gestalt psychology. This is a theory, especially productive in the field of visual perception, researched and formulated by a group of Austrian and German
psychologists toward the end of the 19th century. The essence of the Gestalt theory is that “perception inherently acts as an active force, comparable to a magnetic field, that draws sensory imagery together into holistic patterns, or ‘gestalten’” (McKim, 1980, p.60). Main principle of this theory is that in every perceptual image the whole is more than the sum of its parts whose organisation is subordinate to a “gestalt” that holds them together. This theory, as McKim (1980) argues can be exemplified with fingerpainting, an art process, which discourages unnecessary attention to detail and fosters creativity through engagement in rapid image formation leading to a “gestalt” or experiencing the “melody” of visual imagery.


“That we seek to organize what we see into meaningful wholes is a remarkable but essential feature of the living brain, and one which still distinguishes it from the electronic computer…We group certain features together and ignore others. We close gaps in order to create simple or satisfying shapes” (Morgan & Welton, 1992, p.68).

According to the authors creating meaningful connections is applicable to any kind of human communication. Messages, verbal or visual, do not always have to be spelled out; openings can be deliberately left allowing for novel and unexpected combinations.

McKim (1980, p.68) argues that pattern seeking or “seeing only the gestalten of visual imagery, without also seeing the diverse detail embedded in these large patterns” would mean missing all the nuances. Therefore the “gestalt” should be complemented by analytical thinking exploring the richness of detail in the surrounding environment. By nature, visual sense is prone to generalisations. The involvement of the other nonvisual senses helps the process of engagement in a more detailed analysis of particular features. McKim argues that pattern seeking should precede analytical seeing implying that visual analysis should be
followed by a reformulation of the overall pattern. “Pattern-seeking and analytical seeing are the basic two phases of seeing (and of visual thinking generally)” (McKim, 1980, p.70). Cycling back and forth between pattern seeking, analysis and re-patterning again enables catching the unusual, the unfamiliar and the unexpected.

2.2.2.2 Imagining

“By his imagination man makes new universes which are nearer to the heart's desire”.

Frank Barron

According to McKim (1980) imagination is central to every perception and act and it is all that a person has ever learned or experienced. This implies associating imagination even with trivial at a first glance activities like planning for tomorrow or the sense of history in terms of awareness of space and time. Taking the analysis of human imagination to the next level would be relating it to cause and effect relationships and the concept of self-awareness. Therefore imagination is an attribute of human behaviour manifesting itself in interpersonal relationships. Following these arguments imagination cannot be linked only to the power to be creative, it has a more ubiquitous manifestation. While seeing can be regarded as a process with an outward direction, imagining on the contrary, has an inward one. Similarly mental images associated with imagination differ from perceptual ones characteristic of seeing; they can occur without sensory stimulation. The ability to evoke mental imagery according to McKim (1980) is a skill that can be taught. “It is my contention that almost everyone can learn to experience and use some form of mind’s-eye imagery” (McKim, 1980, p.90). If perceiving can be regarded as the first step in the process of exploring an object then imagining should be considered as the next one contributing to removing all outer layers to visualize internal structure. “Ability to comprehend structure is essential to visual thinking” (McKim, 1980,
Thinking limiting itself only to the phase of perceiving can easily be labelled superficial as it fails to decipher what lies beneath the visible surface. Imagining structure and abstractions enriches visual thinking by taking it to a deeper analytical level.

Thinking by visual images requires the combination of both abstract and concrete imagery. Cycling back and forth between the two gives the flexibility to experience "gestalt"-like images or establish patterns and then immerse in the intricacy of detail followed by re-patterning. McKim (1980, p.112) defines abstraction as "imagery that embodies the essence of structure without its sensuous qualities of detail". According to Rudolf Arnheim (in McKim, 1980, p.112) an abstract inner image is "often faint to the extent of being barely observable – indeed so faint that it may not be readily noticed by persons unaccustomed to the awkward business of self-observation". McKim maintains that there is a relationship between abstract inner imagery and the gestalt of an image or the overall pattern, which takes precedence over the details. He also draws an interesting parallel between abstract inner images and schematic drawings. Idea-sketching is an important stage as an expression of inner imagery, a material representation of the logical process of seeing and imagining.

Hanks & Belliston (1990) in *Rapid Viz* emphasize the importance of using visual metaphors for the creation of ideas in the imagining phase. They provide the following definition of metaphors: "A metaphor is the comparison of the meaning and attributes of one thing to the meaning and attributes of something else" (Hanks & Belliston, 1990, p.123). The purpose of using visual metaphors is in the need to find an understandable framework as a reference for new ideas and experiences, providing the link between new and existing or past knowledge. The authors support their argument about the use of visual metaphors with architectural examples.
“An architect, for example, must rely on visual metaphors to create new buildings…visual metaphors are used by the architect to give life and interest to a building. Frank Lloyd Wright, considered by many to be the greatest architect of this century, used metaphors to create his unsurpassed buildings. Shapes of buildings were patterned after shapes in nature. Room configurations were arranged so as to create certain feelings for the inhabitants of Wright’s buildings” (Hanks & Belliston, 1990, p.124).

2.2.2.3 Drawing (graphic ideation)

“Ideas are internal constructs of perception, imagination, and thinking. Idea-sketching is a way to express visual ideas, to literally press them out into tangible form (McKim, 1980, p.122). Graphic ideation has two basic modes, according to McKim – exploratory during which ideas are captured and documented in a sketch form, and developmental when a promising concept although initially crude undergoes evolution to a more mature form. In terms of techniques the exploratory mode produces quick sketches with “general features only, not details” while “developmental sketching is less schematic, more concerned with concrete details” (McKim, 1980, p.122). Graphic ideation is an important phase in the process of generating ideas and it can be regarded as an expression of ideas by means of drawing.

McKim (1980) is quite explicit when making the distinction between graphic ideation and graphic communication. “The former is a formative process concerned with conceiving and nurturing ideas; the latter is an explanatory process concerned with presenting fully formed ideas to others” (McKim, 1980, p.123). In terms of sequential order, graphic ideation precedes graphic communication; only some ideas explored and developed during the first phase are worth communicating in the second one.
Fig. 6: Henry Moore idea-sketches are concerned with the gestalt of a sculptural idea.
(McKim, 1980, p.155)

"Graphic ideation utilizes seeing, imagining and drawing in a cyclic feedback process that is fundamentally iterative" (McKim, 1980, p.124).

Fig. 7: The feedback loop (McKim, 1980, p.124)
The first stage in graphic ideation is the expression of ideas that are then carefully evaluated and tested leading to some conclusions being drawn that become the basis for a new cycle of idea expression. This new cycle is on a higher analytical level than the previous one as information gained during the testing phase is used later in the next cycle. New strategies to tackle problems are also developed and adopted as a result of the first cycle. “Cycling, the third step is more than a return to another round of idea-expression; it is a return with an idea-generating strategy in mind” (McKim, 1980, p.128).

2.2.3 Languages – definitions, diversity, classifications

Skinner (in Pettersson, 1993, p.121) in Visual Information provides the following definition of language: “Language is a behaviour which is learned by habit. Children imitate adults until they learn the language spoken by them”. Chomsky (in Pettersson, 1993, p.121) argues that language is not “a set of habits. Instead, the development of language is a continuous and creative process working in concert with the surrounding”. Twyman (1982) (in Pettersson, 1993, p.121) points out: “while linguistic scientists distinguish between spoken and written language, graphic designers distinguish between verbal and pictorial language”.

According to Pettersson (1993, p.122) if the form of the messages: words, sounds, images, and other forms are considered as a starting point, then the language categories that can be identified are:

- **verbal language**, including spoken (aural), written (visual), and tactile categories:
  - **audial language** comprising sound effects, music, and paralinguistic sounds (all aural);
  - **visual language** based on symbols, pictures, and paralinguistic visual expressions (all visual); and
- **other language** that is based on smell, taste, touch, etc.
2.2.3.1 Verbal Languages

The group of the verbal languages comprises the spoken, written and tactile categories. Gunnemark & Kenrick in Pettersson (1993, p.125) “claim that there are probably 5,200 living languages, certainly no less than 4,500 and possibly as many as 6,000…Over the millennia, language ultimately evolved into Man’s most important means of expression”. The authors provide a definition for “spoken language”.

“The term ‘spoken language’ is almost always taken to mean direct, informal verbal language. A sender and a receiver share a highly interactive communications situation. This situation offers immediate feedback and opportunities for explanations and corrections” (Pettersson, 1993, p.126).

The basic components of the written language are: the letters, words, spelling, grammar, and syntax. “Just a few basic elements and a set of principles is actually enough to create an almost infinite number of expressions” (Pettersson, 1993, p.127). Pettersson offers two categories of written languages – pictographic (based on simple pictures and subsequently on symbolic characters each one representing one or more words, like the Chinese one) and alphabetic
languages (where characters represent sounds). Most alphabetic written languages evolved from the Phoenician language, which appeared around 1200 B.C. The Greeks further developed the Phoenician alphabet in 800-900 B.C. that was later used by many other languages, including the Latin of the Romans.

“Latin, in turn, has given rise to the alphabets employed in most modern written languages in Western countries. They use only a few dozen characters to represent thousands of words and concepts”. English is often said to contain no less than 750,000 words (Pettersson, 1993, p.127).

2.2.3.2 Visual Languages – a means toward flexible thinking (a form of visual communication)

“Visual language is what the ‘heart reads’ after the mind has become quiet”.

“All communication takes place through language; not all languages use words…”

“Visual language has the power to open the heart”.

“Visual language is the ‘look and feel’ of an item of design – created by such elements as colour, proportion, letterform, shape, texture…It communicates on a level independent of the descriptive elements – literal or symbolic – of the imagery. It conveys emotional messages to its audiences and they ‘feel’ something about the client, service or product”.

Bonnici, 1999, p.24

Visual language is just one of the non-verbal languages together with body language, the language of sound (music) and the language of spaces (Bonnici, 1999). Our personal judgements, spontaneous reactions, genuine feelings and powerful emotions are based on the implicit messages that these languages send out. Therefore non-verbal languages can be considered “to communicate messages through the medium of feelings” (Bonnici, 1999, p.100). The expressive combinations of the elements of the visual language – colour, shape, letterform, proportion, texture and imagery produce different emotional effects that are more instinctive rather than based on any reason or justification. Arthur
Berger (1989, p.41) in *Seeing is Believing* argues: “One thing is certain – images do have powerful emotional effects on people”.

Bonnici (1999, p.76) draws a general conclusion:

“Visual language isn’t about a simple one-to-one relationship between visual element and message. In combination, the various elements can either magnify their individual qualities or conflict (creating a nagging feeling of unease). And…this is before we take into account the literal and symbolic meanings in imagery”.

Imagery is of a more complex nature unlike the other elements of the visual language, as images can be considered as “expressions that use the visual language, but their primary function is to convey information” (Bonnici, 1999, p.70). Images can be analysed on a literal or on a symbolic level, the difference being, that the simple recognition and the literal description, characteristic of the first instance are further elaborated through the transformation of the image into a powerful symbol that evokes a variety of emotions and is associated with a range of feelings.

Arthur Berger (1989, p.38) in *Seeing is Believing* defines an image as “a collection of signs and symbols – what we find when we look at a photograph, a film still, a shot of a television screen, a print advertisement, or just about anything”. The author argues that images are mostly visual and they convey specific messages relating to “information, values, beliefs, attitudes, and ideas people have…An image is a collection of signs, and each of these signs has meaning; in any image there are many different levels of meaning and interactions between meanings”.

John Berger (1972, p.9) in *Ways of Seeing* provides another definition of images based on the assertion that all images are man-made.
“An image is a sight which has been recreated or reproduced. It is an appearance, or a set of appearances, which has been detached from the place and time in which it first made its appearance and preserved – for a few moments or a few centuries”.

Morgan & Welton (1992) in See What I Mean analyse the nature of images from another viewpoint. They argue that there is a significant difference between a picture on a page and the picture in the brain due to the selective nature of our perceptual system, which treats optical stimuli differently. “An image has been defined as the result of endowing optical sensations with meaning” (Morgan & Welton, 1992, p.102).

A brief historical synopsis of the evolution of visual languages gives ample evidence that

“since the beginning of mankind we have been using body languages and different kinds of signs for communication…Prehistoric Man made murals and rock inscriptions with mythological meaning…For 20,000 years we have had murals. For about 2,500 years we have had rock inscriptions. (Pettersson, 1993, p.135).

These pictures were a means of communication in the early stages of human evolution compensating for the lack of written languages.

Robert Braden, the author of the chapter Visual Verbal Relationships in Visual Literacy by Moore & Dwyer (1994, p.194) quotes Jack Debes’s definition of visual language. “At the extreme, a visual language would imply a stand-alone grammar and a vocabulary of images, symbols and icons that are independent of the spoken and written language in general use”. Debes gives an example of a visual language with the American sign language qualifying it as a highly developed one but at the same time only a different way to “write” (with gestures) the English Language. Cartoons on the other hand are seen by Debes as an example of the use of visual language. Braden provides Pettersson’s (1989) opinion of visual language as well. “Symbols and pictures could be referred to as
visual languages. Paintings, drawings and other objects of art often stand alone” (Moore & Dwyer, 1994, p.194). R. Braden concludes that Pettersson deals with visual language only as a theoretical concept and develops three kinds of language – verbal, audial, and visual and combinations among the three.

2.2.3.3 Visualization versus Verbalization (or images versus words)

Colin Ware (2000, p.319) in *Information Visualization* compares the qualities of “images and words”. “As a general comment, images are better for spatial structures, location, and detail, whereas words are better for representing procedural information, logical conditions, and abstract verbal concepts”.

- He elaborates on this comment further by adding that images are the best medium to illustrate structural relationships, “such as links between entities and groups of entities”.
- Visual information has a distinct advantage to be remembered better than verbal information. According to the author this general comment does not apply to new concepts presented in an abstract way especially out of context. Conversely, “text is better than graphics for conveying abstract concepts, such as freedom or efficiency” (Najjar, 1998 in Ware, 2000). Another instance when text becomes the preferred medium of communication is when providing procedural information especially involving nonspatial instructions. Ware bases his comments on the studies carried out by Chandler & Sweller, 1991.
- Images are best for providing detail and appearance. Ware (2000) supports his statement by giving an example with a number of studies (Price & Humphreys, 1989; Venturino & Gagnon, 1992) arguing that “first we comprehend the shape and overall structure of an object, then we comprehend the details”.

57
Ware (2000, p.332) draws interesting parallels between natural and visual languages.

“Natural language is the most elaborate, developed, and universal symbol system that we share. We are all experts at it, having been trained intensively from an early age. We are not similarly experts at visual communication…Given the dominance of words as a medium of communication; visualizations will necessarily be hybrids, claiming ground only where a clear advantage can be obtained. The evidence that we should use both images and words is stronger. Concepts presented using both kinds of coding are understood and remembered better” (Ware, 2000, p.332).

Ralph Wileman (1993, p.5) in Visual Communicating provides a similar point of view.

“…we feel more comfortable using verbal rather than visual communication. The reason for this may be that we are trained in the use of verbalization from our earliest days…However, verbalization is not the only way we can learn or communicate…Despite the fact that we see our world more than we speak or read of it, we are rarely trained in the use of visual techniques to communicate messages. In fact, we are taught to express our visual experiences verbally or to transfer them into written words. As a result, our use of visuals to communicate has been limited”.

Unlike Ware (2000) who compares diverse applications of “images and words” in parallel, Wileman (1993) discusses the advantages of visual images over verbal communication exclusively. He summarises them in a clear fashion:

- Visual images “present more information in a given amount of space”. The well-known saying “A picture paints a thousand words” can be one appropriate reference in this regard.
- Complex concepts can be more easily explained through the use of visual images. Simplification based on a visual medium of communication can be one desired approach when dealing especially with abstract issues of a complicated nature.
• Information can be easily organised through the use of visuals. This will remove the need of compiling long lists of uniform impersonal data.
• According to Wileman (1993) research suggests that visual images increase learning retention. They can be by all means more memorable than verbal concepts.

Based on these distinct advantages of visual images over verbal communication, Wileman (1993) provides three major reasons for using visualization to communicate information.

• Dynamic visual displays gain more attention than monotonous verbal presentations.
• Visual displays can be extremely efficient to get the point across thus facilitating the comprehension of the message.
• A visual message can be effective. A special emphasis can be placed on particular aspects of a comprehensive message so that the visual display can be designed with that specific focus in mind.

Hanks & Belliston (1990) in Rapid Viz explore the two disparate ways of learning – the traditional one based on the 3 r’s of reading, writing, and arithmetic and the “I feel” method. The former involves the process of reading something, then memorizing it and later recalling the information and reproducing it. The latter is based on intuition rather than logic. “Drawing is more the feeling or intuitive kind of learning and knowing than it is the sequential, rote memorization kind of learning. Drawing leans very much toward the holistic or intuitive side of the brain” (Hanks & Belliston, 1990, p.5). The essence of the method developed by the authors called, “rapid visualization”, is intuitive learning. They argue that the results achieved through this method far exceed the ones expected normally from the conventional method – e.g. perspective drawing can be taught applying the usual elaborate perspective method but it can also be taught by intuition or using the “rapid viz” method. The explanation lies in the physiology of the brain
responsible for the two separate points of view or the existence of two different languages and ways of thinking – the first one: sequential, verbal and logical and the second one: visual, intuitive and holistic.

“*The brain actually has two distinct and separate halves. The left half controls the right side of your body, and vice versa. Each half of your brain also controls different skills and abilities. The left hemisphere is probably your analytical half. It is concerned with order, logic, and reason. It controls your verbal and written skills. The right hemisphere is primarily responsible for your visual thinking. It enables you to recognize faces and objects. Intuition, fantasy, creativity are controlled by this half of the brain. A typical education develops primarily the analytical skills – reading, writing, and arithmetic – the left half. The visual thinking hemisphere assumes a subordinate role and is seldom if ever developed to its full potential...The visual language is under utilized, neglected, and eventually lost*” (Hanks & Belliston, 1990, p.9).
Hanks & Belliston (1990, p.100) define the visualization process as “the process of evolving a thought, idea, concept, or image into a finished drawing”. It can be divided according to the authors into three stages – thumbnails, transparencies and final drawing. Thumbnails are:

“quick, small idea sketches. Thumbnails show very little detail. Their primary purpose is to set the stage for the final drawing by solving conceptual problems on a small scale. The thumbnail stage is a quick, rough sketch, done to scale but small – about the size of your thumb. You can solve many of the problems at thumbnail scale before going on to the next step” Hanks & Belliston (1990, p.100).

The second stage, the transparencies, is about producing the first full-size sketch.

“Then, by tracing the drawing again and again, you evolve and correct the drawing. This transparent stage is where you work out the basic relationship between the parts” Hanks & Belliston (1990, p.100).
The purpose of the third stage, the final drawing stage, is

“to complete the drawing you make one last tracing. This time your emphasis is to give the drawing freshness. Here you also strive for viewer involvement – the drawing must communicate your intent to the viewer” Hanks & Belliston (1990, p.100).

The “rapid viz” method developed by Hanks & Belliston (1990) has been qualified by them as a means to an end but not an end in itself as visuals are drawn to communicate a message or concept, to get a spontaneous reaction and not to be displayed on walls as the end product because it is so perfect. The authors maintain that beautiful drawings may even detract from the initial purpose of the presentation hence the drawing itself is not important. It is the act of communication, the expression of ideas and getting the message across that take precedence over showing off artistic skills. “Rapid visualization expands visual potential...creativity is enhanced by visual thinking and visual expression such as afforded by learning rapid visualization” (Hanks & Belliston, 1990, p.122).

2.2.3.4 Classification of Visuals

Visuals can be classified according to various criteria. One viewpoint is the relationship between visual and verbal material that is of a different nature depending on the type and purpose of the publication. The concurrent display of visual and verbal elements in any ratio in one medium is present in posters, printed ads, computer graphics and TV commercials. Ralph Wileman (1993) has created a typology of verbal and visual image relationships. For him all kinds of representations of an object are symbols. He argues that there are three major ways to represent objects – as pictorial symbols, as graphic symbols, and as verbal symbols – ranging from concrete to abstract representations. Wileman developed seven image types called “slides”. At one end of his spectrum, he puts the reader slides, purely verbal. At the other extreme are pictorial or graphic symbol slides, purely visual. Pictorial symbols include photographs, illustrations.
and drawings representing the object in a realistic way. Graphic symbols fall into three major categories suggested by the English artist Rudolf Modley – image-related graphics (silhouettes or profiles of the object), concept-related graphics (a stylised version of the real thing having less detail than image-related graphics) and arbitrary graphics (abstract symbols for an object, for example geometric shapes). Verbal symbols are single words or whole sentences. These three major symbol groups help classify graphics ranging from the concrete to abstract. Pictorial symbols are usually highly realistic and hence easy to read unlike graphic symbols. Verbal symbols use the written and spoken language as a medium of communication.

The theoretical model created by Wileman proves useful according to R. Braden (in Moore & Dwyer, 1994) as he identifies the extremes on the opposite ends of the spectrum and then explores the middle or the visual/verbal balanced frame.

“All of the points in between represent ‘graphics’ in one form or another. Hartley categorized graphics as either iconic or digital. The more iconic, the more that the
graphic resembles the subject; the more digital, the more the graphic is symbolically abstract” (Moore & Dwyer, 1994, p.200).

Instead of iconic and digital, Wileman uses the terms pictorial and verbal symbols that he plots along a continuum. “This verbal/visual continuum we call the degrees of visualization” (Wileman, 1993, p.18).
Fig. 13: The verbal/visual continuum (Wileman, 1993, p.19)
Paul Messaris (1997, p.vii) in *Visual Persuasion* explores the role of images in advertising. He makes the comment:

“Although the study of persuasive communication has a history of more than two millennia, the focus of this scholarly tradition has tended overwhelmingly to be on verbal strategies. With a few notable exceptions, the systematic investigation of visual persuasion is still in its infancy”.

In the context of visual persuasion Messaris (1997, p.viii) favours the triadic classification of images proposed by the American philosopher Charles Sanders Pierce. The three categories that he describes are the icon (having some form of similarity with the object, for example, a scale model of a building), the index (involving physical causation, for example, a bullet hole, which signifies that a shot was fired), and the symbol (an arbitrary convention like words). Messaris believes that:

“Any mode of communication can be described in terms of either semantic or syntactic properties. A semantically oriented description focuses on how the elements of a particular mode (images, words, musical tones, or whatever) are related to their meanings. A syntactically oriented description is concerned with the interrelationships among the elements themselves as they combine to form larger meaningful units. Each
As visual images are the medium of communication examined by the author, he attempts to fit them into the proposed system of classification. Representational pictures according to Messaris (1997) that resemble some aspect of reality can be considered as iconic signs. Aside from being iconic such pictures can be regarded as indexical as well. It can be argued that they fit Pierce’s notion of a “sign produced as a physical trace of its object” (Messaris, 1997, p.x). Messaris (1997, p.x) generalizes that “as far as semantic features are concerned, it is the indexical and iconic properties of visual images that most clearly set them apart from language and other modes of communication”.

When analysing the syntactic aspects of images and their possible spatial or temporal relationships, Messaris (1997, p.x) concludes:

“visual communication is characterized by a lack of explicit means for identifying other ways in which images might be related to each other. In particular, what visual communication lacks most crucially is a so-called prepositional syntax”.

The author elaborates on the term “prepositional syntax” by giving an example with an ad selling a product that might be compared with another product and proclaimed the better of the two. Messaris argues that this is a proposition about the type of connection between two entities, in this instance; product A is better than product B. In the context of verbal language, propositional syntax “contains words and sentence structures that allow the user to be explicit about what kind of connection is being proposed in such statements” (Messaris, 1997, p.xi). Drawing the parallel between verbal language and visual images, the author argues that visual communication lacks this type of syntax.
“Whereas spatial or temporal connections can be presented quite explicitly through images, visual communication does not have an explicit syntax for expressing analogies, contrasts, causal claims, and other kinds of propositions” (Messaris, 1997, p.xi).

Therefore visual syntax can be regarded as more fluid and subject to various interpretations unlike verbal language whose syntax “possesses an elaborate set of explicit indicators of analogy, causality, and other kinds of connections between two or more concepts” (Messaris, 1997, p.xiii). Visual persuasion as perceived by Messaris is determined and profoundly influenced by this relative indeterminacy of visual syntax and by iconicity and indexicality of images.

Pettersson (1993, p.143) argues, “visuals are perceived much more rapidly and readily than text. Visuals explain things and illustrate appearance. In many instances, pictures provide a much better overview and understanding of a subject than words”. Visual languages based on visuals employ a vast array of codes that are culture and sub-culture dependant. “Visual languages have their own ‘grammars’, syntaxes, etc., just like spoken and written languages” (Pettersson, 1993, p.146). At the same time they differ significantly from spoken and written languages.

“In contrast to spoken and written languages, pictures have no general, distinguishing elements which are not bearers of information. Visual languages have analogue coding. Visuals are iconic. They normally resemble the thing they represent” (Pettersson, 1993, p.146).

According to Pettersson (1993) the basic components in a picture are dots, lines, and areas that can be arranged in a different way resulting in a great number of combinations conveying numerous but varying levels of meaning.

“So basic picture components are not equivalent to the phonemes in spoken and written languages. If there were some kind of ‘visual phonemes’, it would be possible for people to learn to draw and paint in about the same way they learn to read a text. In a picture, the basic image components – dots, lines, and areas – form shapes, which form visual
syntagms or sub-meanings. These components interact to form complete meanings in stills, picture series, or moving pictures (Pettersson, 1993, p.147).

![Diagram of shapes forming eyes](image1)

Fig.15: Dots, lines, and shapes are arrayed into shapes, which form syntagms or sub-meanings (here an eye) (Pettersson, 1993, p.147).

Pettersson (1993, p.202) offers the following classification of visuals: *symbols and pictures*. His “picture circle” is an attempt to exemplify one model of classification. Symbols (signposts, traffic signs, labels, etc.) are “unambiguous by convention. We agree and decide on their meaning” (Pettersson, 1993, p.202).

![Various symbols](image2)

Fig.16: Some basic symbols (Pettersson, 1993, p.206)
Pictures are representations of reality and in this subject to “different interpretations by different people at different times” (Pettersson, 1993, p.202). Pictures as a category has three sub-categories: schematic pictures such as maps, charts, graphs, architectural and engineering drawings, etc. that “may lack any resemblance with reality” (Pettersson, 1993, p.203), realistic pictures such as photographs, X-rays, ultrasonograms that “simulate reality in ways unique to each documentation process” (Pettersson, 1993, p.203) and suggestive pictures that are ambiguous by nature and “express moods and emotions” (Pettersson, 1993, p.204) such as artistic pictures, advertising and propaganda pictures.

Fig.17: Schematic pictures (Pettersson, 1993, p.210)
Unlike Pettersson (1993) who classifies visuals as symbols and pictures McKim (1980) argues that all graphic languages fall into two main groups: abstract and concrete. The abstract ones embody abstract ideas and convey messages on a different level unlike the concrete ones that aim at more accurate graphic representation of an idea. The “graphic abstraction ladder” presented by McKim shows the two main categories of visual languages along the dimension of abstract-to-concrete. “By distinguishing abstract from concrete graphic languages, I hope particularly to dramatize the abstract dimension of graphic-language thinking” (McKim, 1980, p.134).
The group of the **abstract languages** comprises charts, graphs, diagrams and schematics. McKim provides the following definition of a graphic language: “A language consists of a set of rules by which symbols can be related to represent larger meanings” (McKim, 1980, p.135). One example of an abstract graphic language is the Venn diagram showing entities and relationships of a different kind among them. Applying the above definition to this concrete example would result in a set of rules: overlap means relationship, shading denotes kinds of relationship and so forth.
Fig. 20: Examples of abstract graphic languages – Venn diagram, organisational chart, bar chart, graph (based on McKim, 1980).

The group of the **concrete graphic languages** comprises orthographic, isometric, oblique, and perspective projection. Three-dimensional modelling is considered to be at the end of the abstract-to-concrete "ladder" of graphic languages.

McKim (1980) in *Thinking Visually* argues that the variety of graphic languages (from ancient to modern and from abstract to concrete) creates a premise for recentering a person’s thinking by moving from one graphic language to another. “Through their ability to change languages, visual thinkers can largely avoid the ‘language rut’ that holds thinking to a fixed viewpoint and a limited set of mental operations” (McKim, 1980, p.130).

Vygodski in McKim (1980) suggests that there is a relationship between thought and speech and analogically between visual thinking and graphic language. The latter interact in the phase of graphic ideation.
McKim draws two important conclusions based on the above diagram.

“First, not all visual thinking is language thinking: visual thinking can utilise operations (such as the act of synthesis), can be represented by imagery (such as perceptual and mental imagery), and can occur at levels of consciousness (such as dreaming) outside the realm of language thinking. Second, not all use of graphic language involves thinking: a major use of graphic language is to communicate the result of thinking to other people” (McKim, 1980, p.130).

McKim suggests that the above diagram is just a mental concept of the reality and supports his statements with a concrete example of a building, which is much more than the perspective sketch of the same building. “Graphic symbols, whether abstract or concrete, are always less than they represent” (McKim, 1980, p.131). Furthermore, McKim presents the argument that “every graphic expression embodies a viewpoint, a single way of looking at reality; by encoding ideas in a variety of graphic languages, visual thinkers represent each idea more completely” (McKm, 1980, p.132). Analysing the potential of creating new graphic languages, McKim emphasizes the importance of flexibility. A brief synopsis of the history of visual languages shows that

“perspective was invented to free Renaissance artists from the limitations of medieval language forms, and Cubism was invented to release contemporary artists from the limitations of perspective. Today, many designers dislike the limitations on spatial
thinking imposed by languages based on Cartesian coordinates. When a non-Cartesian language is developed that successfully unhinges thinking from T-square and triangle, design thinking (and the quality of our designed environment) will be substantially influenced” (McKim, 1980, p.133).

Graphic language flexibility then can be interpreted as an ability to move from one language to another or from the realm of the abstract to the domain of the concrete. The concept of abstract-to-concrete is represented in each one of the phases of visual imagery: seeing (seeking overall visual patterns or the gestalt of an image and then identifying and analysing the detail), imagining (through abstract inner imagery and more concrete visualisation of ideas) and drawing (through the journey from abstract sketches to perspective drawings). “The dimension of abstract-to-concrete pervades all cognitive activity; as Ulric Neisser puts it, all cognition consists of a two-stage act of construction: “the first is fast, crude, holistic, and parallel, while the second is deliberate, attentive, detailed, and sequential” (McKim, 1980, p.133).

Ann Saunders, the author of the chapter “Graphics and how they communicate” in Visual Literacy by Moore & Dwyer (1994, p.184) categorizes graphics as a form of visual communication and includes the following as forms of graphics: symbols (pictographic or abstract), maps, graphs, diagrams, illustrations or rendered pictures (realistic to abstract), photos (still or moving), three dimensional models and composite graphics. She summarises the six reasons why we need to know how communication is realized through graphics.

1. Graphics as visual units of communication are pervasive and relatively easy to deliver to large audiences. Graphics reflect our cultural symbols and social habits. They embody forms of sign, ritual, and token. Graphics are in some ways universal forms of communications because they are based upon those things that are seen.

2. Graphics as visual forms of communication can appeal to our emotions as well as to our intellect. Graphics designed for political campaigns
frequently appeal directly to our emotions, as do graphics used to sell a product or service.

3. Graphics communicate. Whether or not we correctly interpret a graphic, whether or not we pay a great deal of attention to it, if we see it we receive a message.

4. Graphics comprise a language and grammar of which most of us are ignorant and for which we are only just beginning to receive formal education.

5. For the most part, graphics as presented through the mass media (TV, books, magazines, advertising, etc.) are intentional one-way communications. They are designed to be immediately perceived, comprehensible and emotionally moving in order to achieve the response the client desires, like purchasing of a product. Most graphic forms are not designed to encourage feedback from the audience, of any nature, beyond that sought by the client.

6. Without a knowledge of how graphics function (visual literacy) in the visual communication process or indeed an ability to communicate through graphic means ourselves, we are left out of an important, powerful level of discourse. We become subject to a one-way communication process in which we receive messages but have no parity in response.

Richard Couch & Edward Caropreso in their chapter *Making meaning from Visuals: Creative Thinking and Interpretation of Visual Information* in *Visual Literacy* by Moore & Dwyer (1994, p.277) argue, “no longer is our information exclusively transmitted visually via text or verbally via radio. Those media have become entertainment media”. Hence the need for decoding the meaning conveyed by visual messages increases. “Making meaning out of visual images can often determine how our lives are conducted, even how fulfilling our experiences will be. By its very nature, making meaning is a creative, constructive process” (Moore & Dwyer, 1994, p.278). The authors argue that creativity is inherent to all realms dealing with visual messages – their creation,
their interpretation and their criticism. The emphasis in their article is on the interpretation of visual messages. Visual learning according to Couch & Caropreso has two distinct stages – differentiation and interpretation.

“Differentiation is the critical or analytical component of decoding during which relevant information is identified or recognized and classified into categories. This decoded information becomes the basis for the ‘intended message’ or the literal message…In essence, differentiation, the analytical component of decoding, extracts relevant information from visual messages…The second stage of visual learning is interpretation of the visual message…Interpretation involves synthesizing the analysed factual or realistic information, connecting the new or unfamiliar information with existing knowledge, and then making inferences and judgements about the new and newly integrated information” (Moore & Dwyer, 1994, p.279).

Creative thinking skills can be attributed to the second stage of visual learning – the interpretation, according to Couch & Caropreso (in Moore & Dwyer, 1994). Therefore this stage can be qualified not only as creative but also as subjective, since the limitations of the viewer’s ability to think creatively will determine the variations in the interpretation. The authors supply the following definition of creative thinking as it applies to visual learning. “Creative thinking is an individual’s ability to interpret a visual product in a novel, unique, and useful way which allows that individual to avoid conventional interpretation of visual information” (Couch & Caropreso in Moore & Dwyer, 1994, p.287). And later they generalise,

“Creative thinking used to interpret visual information is a skill needed in today’s information culture…The total integration of creative thinking skills into people’s lives should be a long-term goal. Creative thinking skills can enhance every aspect of a person’s life. Differentiation and interpretation of visual information are only a small part of the world in which we live. But because our world is becoming increasingly more controlled by visual information and those who manipulate it, we need a population of creative thinkers and creative visual consumers” (Moore & Dwyer, 1994, p.287).
As visual displays produced with computers become more prolific, Nancy Knupfer in her chapter *Computers and Visual Learning* in *Visual Literacy* by Moore & Dwyer (1994, 209) maintains,

“electronically-produced media require different design considerations than print-based media. Further, it approaches information display from three perspectives: the structure of the image, the meaning of the image, and the power of the image”.

The structure of the image refers to good screen design that will enhance the learner’s ability to interpret the intended message and create meaning for the given context. Images have emotional power that they add to text-based messages.

Edward Tufte (1983, p.9) in *The Visual Display of Quantitative Information* poses the question: “What makes for such graphical elegance”? referring to the graphic “Napoleon’s march to Moskow”. He elaborates further on the qualities of a good design.

“Good design has two key elements:
*Graphical elegance is often found in simplicity of design and complexity of data.*
Visually attractive graphics also gather their power from content and interpretations beyond the immediate display of some numbers. The best graphics are about the useful and important, about life and death, about the universe. Beautiful graphics do not traffic with the trivial.
*On rare occasions a graphical architecture combines with the data content to yield a uniquely spectacular graphic. Such performances can be described and admired but there are no compositional principles on how to create that one wonderful graphic in a million*” (Tufte, 1983, p.9).
2.2.4 Visual Language in Architectural Context

**Pattern language** invented by architects Alexander, Ishikawa, and Silverstein to aid in the design of buildings, is another type of abstract graphic language. Abstract visual symbols placed in circles represent relationships or attributes. The specific arrangement of these symbols or patterns in clusters is governed by the rules of that particular language: hierarchical positioning of patterns reflects areas of influence, patterns of equal importance are in close proximity in horizontal direction and relationships between patterns are denoted by arrows. Christopher Alexander in Do & Gross (2001, p.139) characterizes design as matching program requirements with a corresponding diagram. He calls a diagram “any pattern which, by being abstracted from a real situation, conveys the physical influence of certain demands or forces”. The diagram is “the starting point of synthesis”; the end product is “a tree of diagrams” (Do & Gross, 2001, p.139).

![Fig.22: A typical symbol of pattern language and a "language cascade"](image)

Edward Tufte (1997, p.79) in *Visual Explanations* elaborates on the term “visual parallelism”. He argues: “paired images enforce a direct visual parallelism”. According to him parallelism can be “in space” and “in time”. The former can be
illustrated with two images located in close proximity to each other – two views of one and the same object, and the latter with before/after presentations of architectural redesigns.

“Parallel images can also be distributed temporally, with one like image following another, parallel in time. For time-bound sequences, comparisons must be made by contrasting a remembered image with a currently viewed image, a sometimes difficult task” (Tufte, 1997, p.80).

Tufte (1997, p.81) supports his argument that “before/after flaps” find some application in architectural design with the work of the British architect Humphry Repton who “used before/after flaps in some 100 presentations during the early 1800s”. Tufte then argues, “his designs could easily be presented without flaps – though without magic - by means of spatial parallelism, by paired images (above, left and right)” (Tufte, 1997, p.81). Analysing the two types of parallelism, in space and in time, Tufte draws the conclusion that “despite the enchantment of flaps, comparisons are usually more effective when the information is adjacent in space rather than stacked in time” (Tufte, 1997, p.81).

Ellen Do & Mark Gross (2001) in their paper Thinking with Diagrams in Architectural Design (in Blackwell, 2001) discuss the extensive use of diagrams in various contexts – design studies, pedagogical books and so forth. They define diagrams as:

“essential representations for thinking, problem solving, and communication in the design disciplines, in particular those concerned with making physical form: mechanical and civil engineering, graphic design, and architecture and physical planning. In architecture, drawings are the primary form of representation; they carry a design from conception to construction” (Blackwell, 2001, p.135).

Architectural diagrams explore spatial relationships, site circulation and environmental factors having an impact on the particular design. They are usually used in the early phases of designing as a graphic communication
medium preceding the production of preliminary design drawings. Architectural diagrams deal with an array of symbols: arrows, lines, and bubbles representing connections and flows, conveying concrete meaning. In essence

“they use topology, shape, size, position, and direction; whereas diagrams in other domains typically employ only one or two of these characteristics...What most distinguishes architectural design diagrams from diagrams in other domains is that the elements and spatial relations correspond to physical elements and spatial relations in the architectural problem” (Blackwell, 2001, p.136).

Architectural diagrams are conceptual by nature and abstract in format. A diagram uses symbols as graphical representations whereas freehand sketches gravitate more to the group of the concrete graphic languages. The authors provide a more concrete description of an architectural diagram as

“a drawing that uses geometric elements to abstractly represent phenomena such as sound, light, heat, wind, and rain; building components such as walls, windows, doors and furniture; and characteristics of human perception and behaviour such as sight lines, privacy and movement, as well as territorial boundaries of space or rooms” (Blackwell, 2001, p.136).

A bubble diagram of a floor plan is one example of architectural diagrams. Each bubble in such a diagram represents a specific space without any scale considerations. The layout of the bubbles represents spatial relationships and
the connecting arrows - the spatial flow. Do & Gross (2001) elaborate on the
definition of a freehand sketch:

"A sketch, in contrast, is about spatial form. It is executed with a finer resolution that
indicates attributes of shape. A sketch often comprises repetitive overtraced lines made
to explore precise shape, rather than the intentionally abstract shapes of a diagram, and
it uses graphic modifiers such as tone and hatching to convey additional information”

Sketches can be two-dimensional (a floor plan, an elevation) or three-
dimensional (a perspective) providing a different type of information pertaining to
the same building. This information compared to the one provided by the
diagram is much more detailed. According to Do & Gross

“architectural diagramming is necessary for design thinking and the act of making; the
shapes drawn influence how architects see and think about design problems. These
design diagrams facilitate the designer’s reflection, dialogue and self critique and
therefore serve the purpose of representing and testing an architect’s intent” (Blackwell,
2001, p.140).

Placing visual language in an architectural context explores its use as a medium
to communicate a specific environment. Kasprisin and Pettinari (1995, p.xiii) in
Visual Thinking for Architects and Designers argue that “drawing is a way of
speaking, a versatile language for spatial thinking that enables the
designer/planner to not only represent an idea or policy but to structure and
organize the idea through the shaping process”. Designers explore the
possibilities and limitations of the built form through drawings. Often spatial
metaphors are incorporated in the design reflecting underlying cultures,
economies and politics. They become entangled with the physical context and
the specific site requirements and start acting as major determinants of the
design.
Kasprisin & Pettinari (1995, p.32) define diagrams as “a graphic that explains the outline of parts and their workings and relationship”. The authors stress the importance of diagramming as a visual tool. “Diagrams can represent the essence of a design…Diagramming is a method that assists in distinguishing things from form; and, helps describe the patterning, differentiation, and evolution of that form (p.35). Kasprisin & Pettinari (1995) distinguish three types of diagrams - real, semi-abstract, or abstract and provide a brief description for each one of them. A drawing replete with detail and closely resembling the actual image falls in the category of the real graphics. The other two types of diagrams selectively emphasize certain qualities over others lacking the detail of the real ones.

“A significant difference between semi-abstract and abstract is in the degree of connection they have to the realistic frame of reference. Semi-abstract images retain enough identifiable real-frame reference and orientation to make them understandable by the lay audience” (Kasprisin & Pettinari, 1995, p.35).

All diagrams according to the authors take three major forms: two dimensional plan type formats; three-dimensional perspective sketch formats, and three-dimensional paraline sketch formats. Some of the examples that they give pertaining to the urban design field illustrate various types of diagrams – basic structural relationship diagrams representing circulation and land use in broad semi-abstract format, footprint base plan diagrams that provide more information about relative size and area proportions by adding building footprints, site study plan diagrams translating programme needs, site conditions and area context into structural concepts and three-dimensional diagrams based on perspective and paraline view constructions providing a better opportunity to integrate information into a meaningful context than two-dimensional diagrams.
2.2.5 Visual Notes and Methods for Idea Visualization

Crowe & Laseau (1984, p.1) in *Visual Notes for Architects and Designers* define visual notes as the "graphic equivalent of written notes". They seem to be more appropriate when attempting to record information primarily of a visual nature when text information would not be very effective. The authors make an interesting parallel between photography and visual note-taking insisting that the availability of cameras has contributed to the overall decline in visual literacy. "A camera cannot record concepts, underlying structure, schematic organization, or anything else that the eye cannot see all at once" (Crowe & Laseau, 1984, p.1). They support their argument with Le Corbusier’s statement that “cameras get in the way of seeing”. Visual notation records facts that cannot be seen directly by the eye or by a camera. There is a difference between an accurate and artistic depiction of a building and architect’s drawings that dissect, take apart and analyse parts of the same building demonstrating the overall organization of that building, circulation schemes, and relationship diagrams. Another important aspect of visual notation according to the authors is the ability to overcome the
deficiencies of the purely oral expression of ideas and thoughts. “It is in the act of ‘getting it all down’ that new associations and understanding emerge as a result of giving order to what would otherwise be merely random thoughts and inert, factual circumstances” (Crowe & Laseau, 1984, p.2).

Crowe & Laseau (1984) provide Dondis’s classification of visual messages in his book *A Primer of Visual Literacy*: representation, abstraction, and symbolism. Representation is concerned with the accurate recording of what we see or experience. Hence the apparent similarities between representative sketches and photographs, which at the same time does not exclude the presence of some significant differences. “While a photograph is a reproduction of what is visible, the sketch is a record of how one sees that which is visible”.

Abstraction on the other hand “can be seen as a simplification toward a more intense and distilled meaning” (Crowe & Laseau, 1984, p.8). As the visual information that we receive is rich and replete with intricate detail, one tends to classify it in terms of importance and filter out what is perceived as insignificant. The end result is an abstract sketch placing emphasis on certain parts of a representative sketch and leaving the rest in a more schematic format.

The third level of visual messages as identified by D. A. Dondis is symbolism, which he also defines as “a form of simplification of visual messages but it employs a surrogate or substitute image for what can actually be seen” (Crowe & Laseau, 1984, p.8). Symbols of any kind can be used in place of representational drawings. The speed and the easiness in producing such symbols is a definite advantage. Furthermore various arrangements of these symbols in an abstract environment through grouping and repositioning can convey additional information. Crowe & Laseau (1984) maintain that using combinations of representational, abstract, and symbolic messages is the best approach in the process of visual note taking.
It can be applied to a variety of contexts—recording information, analysis, and design. The quality of the design depends on the variety and richness of our experience of environment and life. Witnessing an event or observing something results in personal experiences that are profoundly disparate. Crowe & Lasau (1984, p.19) maintain, “architects and designers have turned to daily note-taking as a means of recording experiences and, equally important, of developing visual acuity which will improve the intensity of their experiences”. Visual note taking, according to the authors, is equally applicable to the other two contexts—the analysis of information previously gathered and the design. Examining what has been recorded, deliberately manipulating and modifying the visual notes in order to establish deeper relationships and underlying patterns are some of the practices characteristic of these two stages. They subsequently facilitate and encourage flexible learning and the pursuit of new opportunities.

“Note-taking can be an aid to flexible thinking by providing visual clues or triggers that shift perception and open new avenues of investigation…The designer looks for opportunities while working with problems; he seeks not only the application of known solutions but the invention of new solutions which extend human experience and delight” (Crowe & Laseau, 1984, p.32).
The basic functions of visual note taking: recording, analysis, and design have an enormous impact on visualization, visual literacy, and creative thinking. “We believe that visualization is conducive to effective thinking; visual literacy is conducive to effective communication; and the practice of keeping visual notes is instrumental in developing both visualization and visual literacy” (Crowe & Laseau, 1984, p.101). The authors believe that the key to developing visual thinking and visual perception lies in the exploration of the world around us as a whole and of its parts. Turning this experience into a regular practice will yield representative drawings depicting the reality as accurate as possible and thus imposing further demands for careful scrutiny. The next level, the analysis of what has been recorded, is more concerned with abstractions and generalizations so that encoded meanings, predominant patterns, and obscure structures are revealed. In the design stage the ability to make analogies is associated with inventiveness. “In design, invention has been defined as the skill of seeing analogies between different problems or needs and analogies between solutions to problems” (Crowe & Laseau, 1984, p.101). The authors support their assertion with the structure of the Sears Tower in Chicago that can be seen as analogous to the cellular structure of a tree.

Fig.26: Tree cells and the Sears Tower (adapted from Crowe & Laseau, 1984, p.101)
2.2.6 The Analogy, the Metaphor and the Hybrids in Design

Hanks & Belliston (1990, p.123) define a metaphor as “the comparison of the meaning and attributes of one thing to the meaning and attributes of something else”. Verbal metaphors are widely used in literature (“Shall I compare thee to a summer’s day?” – Shakespeare) to describe the emotions by comparing them with the physical world. The use of metaphors is most appropriate according to the authors to generate new meaning from old or familiar concepts.

“Human beings need order in their lives. We seek an understandable framework on which to fasten new ideas and experiences. We understand the new by linking it with our knowledge of the past… Metaphors can seem absurd at first, until the relationship is clear” (Hanks & Belliston, 1990, p.123).

Hanks & Belliston (1990) give an example with Lord Rutherford who uses the solar system as a metaphor to explain the structure of the atom. Later a new metaphor of shells was introduced to understand the atom’s structure. Interestingly enough, the same example with Lord Rutherford and his atom theory was used by Koutamanis, Timmermans & Vermeulen (1995, p.57) in Visual Databases in Architecture to explain another term, analogy. According to them

“analogy denotes likeness or resemblance of relations, as in A:B::C:D, or A relates to B as C relates to D…The classic example used to illustrate this definition is Rutherford’s analogy between the atom and the solar system: in the atom, electrons revolve around the atom’s nucleus as planets revolve around the sun in the solar system”.

The authors also emphasize the importance of analogy in the context of design although the term “analogy” is used “very loosely, as we use it in everyday life, where it often denotes similarity or resemblance in a general sense” (Koutamanis, Timmermans & Vermeulen, 1995, p.59). They give an example with Le Corbusier’s Unite d’Habitation in Marseilles and the images of a ship, a
wine bottle-rack, a savage hut and a Greek temple used analogically in the design. The authors maintain that only the ship and the wine bottle-rack were used analogically. Le Corbusier had been studying boats for over two decades before he was commissioned to design the Unite d'Habitation in Marseilles. The architect could see the relationship between his ideas on housing as a “machine a habiter” and the intricate organization of cabins, corridors, decks and utility lines in an ocean liner. Koutamanis, Timmermans & Vermeulen (1995) comment that the analogy to the bottlerack is obvious: dwellings would fit into the structural frame just as wine bottles fit into a bottlerack.

“In this analogy the relations are structural; no metaphor is involved, and we may assume that a representation of the bottlerack indeed served as a visual display, regardless of whether it originally consisted of an external or internal representation. As for the savage hut and the Greek temple, these are pure metaphors that should be distinguished from analogies” (Koutamanis, Timmermans & Vermeulen, 1995, p.61).

Fig.27: Le Corbusier’s Unite d’Habitation in Marseilles

Metaphors according to the authors “depend on semantic mapping only, and not in the least on structural relations” (Koutamanis, Timmermans & Vermeulen 1995, p.60). Despite the cited difference they are perceived as equally “powerful in shaping our ideas and directing our actions” (Koutamanis, Timmermans & Vermeulen 1995, p.60).
Messaris (1997, p.10) defines visual metaphor “as the representation of an abstract concept through a concrete visual image that bears some analogy to that concept”. The author exemplifies the definition with the picture of an eagle embodying the concept of freedom, using an analogy between defying gravity and casting off social restrictions.

Hanks & Belliston (1990, p.124) are of the opinion that

“visual metaphors are essential to many professions for the creation of ideas. An architect, for example, must rely on visual metaphors to create new buildings…visual metaphors are used by the architect to give life and interest to a building”.

The authors support this argument with Frank Lloyd Wright’s remarkable designs inspired by metaphors – “shapes for buildings were patterned after shapes in nature, room configurations were arranged so as to create certain feelings for the inhabitants of Wright’s buildings” (Hanks & Belliston, 1990, p.124). The authors illustrate the process of using metaphors to generate new ideas with the following diagram.

![Fig.28: The Process of using Metaphors to form new Ideas (Hanks & Belliston, 1990, p.124)](image-url)
Uddin (1999, p.1) in Hybrid Drawing provides a more general definition of the term hybrid. “Hybrids are the offspring of cross-fertilization between, more or less, distantly related parents. As a general rule, hybrids are intermediates between parental types in their morphological and physiological characteristics”. Hybrids are present in all media including visual ones. “In terms of drawings and image manipulation, the combination of elements that are heterogeneous in origin or composition will result in hybrids” (Uddin, 1999, p.1). Uddin points out that “the method of multimedia presentation itself is hybrid in its nature” (p.1) – a combination of images and sound. A recent trend that Uddin observes in the field of design evolves around the concept of combination of heterogeneous elements.

“Architects and designers have begun to experiment recently with multimedia presentation techniques for architectural drawings that reach beyond the purpose of mere presentation. As experimentation progressed, drawings evolved into the hybrid expression of several drawings combined into one, creating interest within the general population, as well as in the design community itself. In many instances, these new architectural drawings – composite drawings – have become valuable artefacts beyond their informational merit” (Uddin, 1999, p.1).

Uddin (1999) presents a historical synopsis of the evolution of architectural drawing techniques comparing it with other forms of art like photography.

“Compared to the invention of still photography and its evolution into the motion picture, architectural drawing formats and conventions have lagged behind. Before the advent of electronic technology, we did not see any new drawing types since the invention of perspective theory in the 15th century. The theory of axonometric drawing or parallel projection, another convention of three-dimensional drawing, also dates back to the time of the Italian Renaissance. If a new approach could be achieved that would bring together all known conventions (plan, elevation-section and three-dimensional views), architectural drawing would move into a new arena, in which the comprehensive overview of the design could be as important as its technological base” (Uddin, 1999, p.2).
Instead of presenting a set of architectural drawings for a building illustrating parts of that building in some form of sequence, another alternative as suggested by Uddin (1999, p.2) would be the fusion of all drawings into one resulting in a composite design. “When a composite drawing, illustrating sequential and integrated arrangement of individual drawings, is produced, the result is a dynamic and effective presentation of the total design”. Uddin (1999, p.3) further defines the term “hybrid” in architectural design. “Hybrids are the fusion and superimposition of diverse drawing types intended to be seen as one drawing”.

Fig. 29: Hybrid Designs (Uddin, 1999)
2.3 Architectural Design Process

2.3.1 Creativity – a balance of imagination and analysis. Models of creative thinking.

Creativity is a complex, abstract and fuzzy concept. The scientific investigation of creativity is a relatively recent and scanty development compared to other, more established disciplines like mathematics or philosophy with their well-defined territories. Some would assert that creativity is a mysterious phenomenon, one, which defies systematic analysis because it typically involves unexpected patterns and solutions, with little if any conscious awareness of how they arise. Such assertions stem from the fact that there is no acceptable, widely utilised definition of this concept and studying something that is not clearly defined is almost impossible. Such line of thinking suggests that creativity is a mystical concept, which is elusive, challenging, and explicit. Individuals advocating creativity on the contrary must make the assumption that creativity is an important human phenomenon, which is multi faceted or complex and universal as it exists within art and science as well as business and education.

Paul Plsek (1996) in his paper Models for the Creative Process presents a brief synopsis of the various models for creative thinking that have been suggested in the literature over the past 80 years. Common themes from these various models have been extracted and presented as a composite model that integrates these themes.

According to Plsek (1996) one set of models relies heavily on the theory of subconscious mental processes and uncontrollable events. Campbell’s (1960), Simonton’s (1988) and Barron’s (1988) models support the popular view of creativity as a mysterious process involving subconscious thoughts beyond the control of the creator.
While some models make it appear that creativity is a somewhat magical process, the predominant models lean more toward the theory that novel ideas emerge from the conscious effort to balance analysis and imagination. In contrast to the prominent role that some models give to subconscious processes, Perkins (1981) argues that subconscious mental processes are behind all thinking and, therefore, play no extraordinary role in creative thinking. Just because we cannot fully describe our thought processes does not mean that we are not in control of them. For example, we cannot begin to describe all of the subconscious mental processes that are engaged in the simple act of picking up a coffee mug. But we are certainly in control of the overall act. Further, Perkins argues, just because random events play a part in some acts of creation, this should not be taken to imply that random events are the source of all acts of creation. Weisberg’s (1993) review of the lives of great creators and so-called "moments of invention" supports Perkins’ points by demonstrating the years of conscious work and preparation on the part of the creator.

Perkins (1981) asserts that to some extent “creativity comes naturally, because over and over again, historical figures have emerged from backgrounds that do not seem very advantageous, yet with dedicated effort have achieved fundamental discovery and invention”. He supports his statement with Thomas Edison and Vincent van Gogh but insists, “it is an art and a craft that can certainly be cultivated”. The same is true according to Perkins (1981) for traditional problem-solving that, too, “is an art and craft that can be cultivated even though some of it comes naturally. So it is neither one nor the other. It is sort of like running: anyone can do it, but you can learn to do it better”. Perkins’ (The Mind’s Best Work, 1981) thesis is that, far from being divine in origin, or inborn, creativity is made up of the same processes we use in everyday thinking, and can be fostered, given the right conditions, like any other skill.

In reality there is a number of impediments that hinder us from developing our creative abilities to their fullest, and the worst is the belief that our creative
behaviour is somehow caused, and therefore limited, by a fixed, inborn quantity of a mental attribute called "creativity."

Analysing the various models of the creative process, Plsek (1996) establishes some common themes that span them all.

- The creative process involves purposeful analysis, imaginative idea generation, and critical evaluation -- the total creative process is a balance of imagination and analysis.
- Older models tend to imply that creative ideas result from subconscious processes, largely outside the control of the thinker. Modern models tend to imply purposeful generation of new ideas, under the direct control of the thinker.
- The total creative process requires a drive to action and the implementation of ideas. We must do more than simply imagine new things, we must work to make them concrete realities.

Plsek’s (1996) conclusions are that these insights from the review of the many models of creative thinking should be encouraging to us. Serious business people often have strong skills in practical, scientific, concrete, and analytical thinking. Contrary to popular belief, the modern theory of creativity does not require that we discard these skills. What we do need to do, however, is to acquire some new thinking skills to support the generation of novel insights and ideas. Importantly, we also need to acquire the mental scripts to balance and direct these new thinking skills in concert with our traditional ones.

Plsek (1996) proposes the following “Synthesis Model of the Creative Process” called “The Directed Creativity Cycle” that combines the concepts behind the various models proposed over the last 80 years.
Plsek (1996) explains it with the 9:00 position on the circle as a starting point of the walk through. We live everyday in the same world as everyone else, but creative thinking begins with careful observation of that world coupled with thoughtful analysis of how things work and fail. These mental processes create a store of concepts in our memories. Using this store, we generate novel ideas to meet specific needs by actively searching for associations among concepts. There are many specific techniques that we can use to make these associations; for example, analogies, branching out from a given concept, using a random word, classic brainstorming, and so on. The choice of technique is not so important; making the effort to actively search for associations is what is key.

Seeking the balance between satisfying and premature judgment, we harvest and further enhance our ideas before we subject them to a final, practical evaluation. But, it is not enough just to have creative thoughts; ideas have no value until we put in the work to implement them. Every new idea that is put into practice changes the world we live in, which re-starts the cycle of observation and analysis.
According to Plsek (1996) directed creativity simply means that we make purposeful mental movements to avoid the pitfalls associated with our cognitive mechanisms at each step of this process of searching for novel and useful ideas. For purposes of explanation, he further divides this model into four phases - **Preparation, Imagination, Development, and Action.** Plsek’s model continues in the tradition of others in asserting that creativity is a balance of imagination and analysis. The model also purposefully avoids taking a stand on the controversy of whether imagination is a conscious or subconscious mental ability. While Plsek (1996) believes that imagination is a conscious, non-magical mental action, the activity of "generation" in the model welcomes creative ideas regardless of their source. Finally, this model clearly supports the notion that innovation is a step beyond the simple generation of creative ideas. The Action phase of the model makes it clear that creative ideas have value only when they are implemented in the real world.

### 2.3.2 Creativity in architectural context

With respect to creativity in architecture, Cuff (1991) describes the design process as a perpetual discovery, potentially endless for reasons such as the negotiability of all issues, the relatedness of problems, the difficulties of coordination, and the disproportionate time taken by relatively insignificant tasks. Even when the construction is complete, the design project is not finished.

Blau (1984) comments that architects’ view of their profession largely relates to the mystique of artistic creativity and asserts that 98% of the interviewed architects mentioned creativity as the distinctive feature of architecture when compared to other professions.

In a local context, the architectural market in New Zealand, The NZIA Agreement for Architects’ Services (AAS2) 2nd Edition 1996 is the legal document between the Client and the Architect. It can be argued that creativity resides in all stages
of the design process, similarly to Cuff's (1991) views, but is of a different nature. The challenge is whether we acquire some new thinking skills along the way to support the generation of novel insights and ideas, similarly to Plsek's (1996) views, and more importantly, whether we acquire the mental scripts to balance and direct these new thinking skills in concert with our traditional ones.
Fig. 31: Appendix B of the document defines the design stages of a project as follows:

<table>
<thead>
<tr>
<th>B1 Pre-Design</th>
<th>B2 Site Analysis</th>
<th>B3 Preliminary Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1.01 Prepare Brief</td>
<td>B2.01 Consult with territorial authorities</td>
<td>B3.01 Consult with authorities</td>
</tr>
<tr>
<td>B1.02 Prepare space schematics/flow diagrams</td>
<td>B2.02 Assist Client in site selection</td>
<td>B3.02 Prepare a site master plan</td>
</tr>
<tr>
<td>B1.03 Consult with authorities</td>
<td>B2.03 Carry out site surveys</td>
<td>B3.03 Prepare a preliminary design including consideration of consultants’ services</td>
</tr>
<tr>
<td>B1.04 Prepare marketing studies</td>
<td>B2.04 Carry out existing building surveys</td>
<td>B3.04 Obtain quantity surveyor’s services</td>
</tr>
<tr>
<td>B1.05 Carry out a feasibility study</td>
<td>B2.06 Prepare detailed off-site services studies</td>
<td>B3.05 Give an opinion of probable cost and program</td>
</tr>
<tr>
<td>B1.06 Select the form of building contract</td>
<td>B2.07 Prepare environmental studies/conservation reports</td>
<td>B3.06 Prepare an economic feasibility study</td>
</tr>
<tr>
<td>B1.07 Select and engage consultants</td>
<td>B2.08 Prepare Resource Consent Applications</td>
<td>B3.07 Make presentations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B3.08 Make Resource Consent applications</td>
</tr>
</tbody>
</table>

How can you make them effective?

Concrete & abstract languages?

Can you use abstract graphic languages?

Thinking visually, abstract graphic languages?

How can you present it visually?

Where do you look for ideas?
B4 Developed Design

B4.01 Consult with authorities
B4.02 Prepare architectural design developed and expanded from the preliminary design to a stage from which working drawings, specifications and contract documents can be prepared
B4.03 Integrate consultants’ services
B4.04 Prepare structural design
B4.05 Prepare mechanical design
B4.06 Prepare hydraulic design
B4.07 Prepare electrical design
B4.08 Prepare fire design
B4.09 Prepare transportation design/lift design
B4.10 Prepare civil engineering design
B4.11 Prepare landscape design
B4.12 Obtain quantity surveyor’s services
B4.13 Give an opinion of probable cost and program
B4.14 Prepare reports and make presentations
B4.15 Make Resource Consent applications

B5 Contract Documentation

B5.01 Consult with authorities
B5.02 Prepare architectural documentation, based upon the design approved by the Client, to a stage sufficient to obtain a Building Consent
B5.03 Prepare documentation as for 5.02 and sufficient detail for construction and tendering purposes including all significant details of the design
B5.04 Co-ordinate consultants’ services
B5.05 Prepare structural documentation
B5.06 Prepare mechanical documentation
B5.07 Prepare hydraulic documentation
B5.08 Prepare electrical documentation
B5.09 Prepare fire services documentation
B5.10 Prepare transportation documentation
B5.11 Prepare civil engineering documentation
Another document referring to the same design stages of a project is the **Good Architectural Practice (GAP)** model introduced by the NZIA (1999).

“We are proud to present you with GAP, a state of the art management system designed to help your practice. The NZIA working group, NZACS and Qualita International have jointly streamlined previous models based on member feedback to substantially reduce the amount of paper involved. This GAP model provides the basis for effective risk management for practices of any size” (NZIA, 1999).

This document provides a list of activities pertinent to each one of the design stages as previously defined by the “Agreement for Architects' Services” (AAS2, 1996). The comprehensive list in each stage introduces new types of activities - project control activities, Project specific requirements and Process completion activities together with the list of activities specific for each stage. The following categories have been introduced by the GAP model: Predesign Guideline, Preliminary Design Guideline, Developed Design Guideline and Contract Documentation Guideline.
2.4 Literature Review Summary

The Literature Review chapter of this study encompasses two broad fields - visual culture and visual communication – necessary to define the general framework within which architectural design will be discussed. The first part of the chapter – visual culture - paints the global picture of the media landscape of the late twentieth century and early twenty-first century with new emerging forms of local and global cultures. The globalisation of economics, technology, and culture due to the global wiring of the world and the collapse of geographic distance and national boundaries is a fact of life. According to Sturken & Cartwright (2001) visual culture, which generally does not observe differences in language and levels of literacy is key in this climate of globalisation. Life is mediated through the visual screen (film, television and the Internet) making human experiences more visual than ever before. The new emerging globally shared visual culture becomes the object of study of various disciplines like art history, film, media studies and sociology. According to Walker & Chaplin (1997) the field of visual culture has four domains – fine arts, crafts/design, mass & electronic media and performing arts. Architecture according to the authors belongs to the fine arts domain together with paintings and sculpture. This provides the background information to the first research question, which explores whether all domains within the field of visual culture are sources of inspiration that can influence significantly architectural design. This point has been further expanded on in the first part of the Synthesis chapter - “Is this unusual or odd, or is it something to think about? Architecture and da Vinci, Picasso, Dali, ballet and why not Audrey Hepburn and Humphrey Bogart”.

The second part of the Literature Review section examines visual thinking and visual communication. McKim (1980) defines visual thinking as the interaction of seeing, imagining and drawing and Wileman (1983) describes it as the ability to transform thoughts, ideas, and information of all types into pictures, graphics, or forms that help communicate information. Wileman (1980) defines visual
communication as the attempt by human beings to use pictorial and graphic symbols to express ideas. Expressing ideas and conveying meaning in architectural context utilising seeing, imagining and drawing in a cyclic feedback loop that is fundamentally iterative is further analysed in the second part of the Synthesis chapter – “The logic behind idea generation and manipulation. Dialectical materialism and Pyramids”. Hanks & Belliston (1990) introduce the concept of the bilingual mind responsible for the two separate points of view or the existence of two different languages and ways of thinking – the first one: sequential, verbal and logical and the second one: visual, intuitive and holistic. Within the realm of the visual languages McKim (1980) argues that all graphic languages fall into two main groups: abstract (charts, graphs, diagrams and schematics) and concrete (orthographic, isometric, oblique, and perspective projection). The abstract ones embody abstract ideas and convey messages on a different level unlike the concrete ones that aim at more accurate graphic representation of an idea. The “graphic abstraction ladder” presented by McKim (1980) shows the two main categories of visual languages along the dimension of abstract-to-concrete. This background information has been expanded on in the third part of the Synthesis chapter - “The ‘I feel’ and ‘I have a dream’ method. From concrete to abstract to…hybrid”.

The visual communication section of the Literature Review chapter provides the background information to the second research question, which explores the use of a wide array of visual tools to represent the relationships between the domains of visual culture.

The Literature Review chapter concludes with a section on architectural design process, which discusses some models of creative thinking and also creativity in architectural context. Local documents – Agreement for Architects Services (AAS2, 1996) and the Good Architectural Practice (GAP) model (1999) have been included with the purpose of identifying areas where creativity resides. It can be argued that creativity is present in all stages of the design process,
similarly to Cuff’s (1991) views, but is of a different nature. The challenge then is whether the four domains of visual culture can be considered as sources of inspiration in architectural design and also what visual tools can best communicate ideas and convey meanings.

The secondary data from the Literature Review thus provides the background information to the two research questions. Three case studies of buildings chosen in peer review as good examples of architecture (Tjibaou Cultural Centre, Sendai Mediatheque and Te Papa) have been considered as exemplifying the use of the other domains of visual culture as sources of ideas in architectural design. They become an important point of reference (together with two secondary examples – F. Gehry and S. Calatrava) in the Analysis chapter when analysed in conjunction with the results of the primary research, which will further support the background research. The primary research will address the two research questions whether all domains within the field of visual culture are sources of inspiration that can influence significantly architectural design through the use of a wide array of visual tools.

The Synthesis chapter following the Analysis suggests some new ways of thinking to support the generation of novel insights and ideas. The challenge is how we acquire the mental scripts to balance and direct these new thinking skills in concert with our traditional ones.

The Action-Research part of the Synthesis chapter tests some of the concepts developed in this study through the redesign of a student assignment (for a design subject) in a visual format. The Evaluation chapter provides the opinions and comments of five architectural professionals on the Action-Research part of the thesis.
Chapter 3: Research Methodology

3.1 Rationale

This chapter describes the research methodology used to explore, examine and explain the field of visual culture as a source of inspiration in the context of architectural design. The following sequence was perceived by the author as logical in introducing the problem and identifying the research questions, which try to establish whether all domains of visual culture (with architecture belonging to just one of them) can be explored and used boldly and imaginatively in architectural design deviating from well established norms and conventions. The design of iconic buildings has been used to illustrate and substantiate the research questions.

- Clarifying the nature of the research problem
- Identifying the research questions
- Describing the inquiry process through ethnographic methodology
- The method of data collection and analysis
- The presentation of results and analysis

3.2 Nature of the Problem

The main focus of this study is on visual culture, in the broader sense of the concept, and its impact on architectural design. Unfortunately its potential has been neglected and undervalued by the profession.
3.2.1 The domains of visual culture and their potential as sources of ideas in architectural design

As discussed earlier in the Literature Review chapter, Walker and Chaplin (1997, p.2) in *Visual Culture: an introduction* give a detailed definition of visual culture as being the

“material artefacts, buildings and images, plus time-based media and performances, produced by human labour and imagination, which serve aesthetic, symbolic, ritualistic or ideological-political ends, and/or practical functions, and which address the sense of sight to a significant extent”.

Barnard (2001, p.4) in *Approaches to Understanding Visual Culture* emphasizes the importance of studying visual culture, as “one is more and more dependant on and subject to visual material” and he continues:

“Opinions concerning, and responses to, visual culture are part of what makes people the people they are and an understanding of these opinions and responses can generate a more sophisticated, self-reflective and critical understanding of the visual world and one’s place in it (Barnard, 2001, p.4).

According to Mirzoeff (1999, p.5) in *Visual Culture* “visual culture does not depend on pictures themselves but the modern tendency to picture or visualize existence”. Attaching meanings to visuals and telling a story in a non-traditional and non-verbal way is part of visual culture. Mirzoeff (1999) summarises briefly some Western cultural practices that favour the verbal format of communication over the visual representation of ideas. The emergence of visual culture creates the premise for adopting a pictorial, rather than textual view of the world and even literature studies have been forced to conclude that the world-as-a-text has been replaced by the world-as-a-picture. Mirzoeff (1999, p.7) emphasises that “one of the principal tasks of visual culture is to understand how these complex pictures come together”.

107
According to Walker & Chaplin (1997) the field of visual culture, defined in terms of its constituent parts includes fine arts (painting, sculpture, drawing, avant-garde films and videos, architecture), crafts/design (urban design, industrial design, illustration, graphics, product design, computer-aided design, landscape design), mass and electronic media (photography, cinema/film, television, illustrated books, magazines, Internet, virtual reality, computer imagery) and performing arts (theatre, dance/ballet, theme parks, pop and rock concerts, planetariums, sporting events). The advantage of such a large and diverse field is that the application of different approaches and points of view can lead to different interpretations. Using architectural design within the field of visual culture as a starting point and exploring the overlaps with the other constituent components of the field is one approach that will be followed through in this research. In this respect the use of references relevant to a specific theme can be of a diverse nature – ranging from paintings, sculpture, and landscape design to photography, film and television. The research question that has been derived from these arguments asks whether all domains within the field of visual culture are sources of inspiration that can influence significantly architectural design. At present the architectural profession seems to be reluctant to explore the other three domains of visual culture restricting itself to the domain of the fine arts only. Even the relationships between architecture and the other constituent parts of the same sub field as art and sculpture have not been sufficiently analysed and capitalised upon.

3.2.2 General unawareness of design professionals of the richness in visual language

McKim (1980) in *Thinking Visually* introduces his model of the “graphic abstraction ladder” as discussed in the Literature Review section. He argues that all graphic languages fall into two main groups: abstract and concrete. The abstract ones embody abstract ideas and convey messages on a different level unlike the concrete ones that aim at more accurate graphic representation of an
idea. The “graphic abstraction ladder” presented by McKim shows the two main categories of visual languages along the dimension of abstract-to-concrete. “By distinguishing abstract from concrete graphic languages, I hope particularly to dramatize the abstract dimension of graphic-language thinking” (McKim, 1980, p.134). The group of the concrete graphic languages, or the first step of the ladder, comprises orthographic, isometric, oblique, and perspective projection. Three-dimensional modelling is considered to be at the end of the abstract-to-concrete “ladder” of graphic languages. The group of the abstract languages, or the second step of the ladder, comprises charts, graphs, diagrams and schematics. McKim (1980) argues that the variety of graphic languages (from ancient to modern and from abstract to concrete) creates a premise for recentering a person’s thinking by moving from one graphic language to another. “Through their ability to change languages, visual thinkers can largely avoid the ‘language rut’ that holds thinking to a fixed viewpoint and a limited set of mental operations” (McKim, 1980, p.130).

The architectural profession as a whole seems to limit itself mainly to the first step of the ladder – the concrete graphic languages. There is a well-manifested unawareness among design professionals that the group of the concrete graphic languages can be just one answer to a design problem. It can be argued that this fact is a result of the combination of two reasons – the commercially driven nature of the architectural design process and the lack of an adequate exposure to such concepts in an educational setting.
3.2.3 Ignorance of the higher step (abstract visual languages) in the graphic abstraction ladder

The extensive and predominant use in the industry of the concrete graphic languages, that is, orthographic drawings and perspectives is a fact. The educational environment operates in the same fashion. The author’s own architectural experience both in the industry and in education contribute to the formation of this argument. The level of the abstract graphic languages in educational context is poorly represented, the emphasis is placed exclusively on the use of the concrete graphic languages with some application of three-dimensional modelling, which according to McKim (1980) can be considered as being at the end of the abstract-to-concrete ladder of graphic languages. The abstract level remains a “terra incognita”, a field undervalued and unused. Architectural diagramming, mind mapping and visual parallelism in space and in time can contribute to richer outcomes.

3.2.4 The great minds in the architectural profession appear to use visual language for richer outcomes. Then why not us?

Architecture inspired by nature, tradition, and the beauty of the human body that searches for poetry and lyricism in buildings is what unites the work of Piano, Gehry, Ito and Calatrava. Piano’s Tjibaou Cultural Centre in Noumea, New Caledonia, Gehry’s Guggenheim Museum in Bilbao, Spain, Ito’s Mediatheque in Sendai, Japan and Calatrava’s Liege and Lyon-Satolas Railway Stations illustrate the flexibility with which the great masters of architecture use the concrete and abstract visual languages and explore unusual sources of inspiration to create these inspiring iconic buildings – traditional huts with thatched roofs, seaweeds, paintings and sculptures and the beauty of the human body. Everyday commercially driven architecture remains surprisingly remote from such poetic notions.
3.3 Research Questions

The aim of this research is to explore visual culture with its four domains as a source of inspiration with ubiquitous application rather than an exclusive use. It also attempts to reveal the richness of visual languages in architectural design to express the unusual and unexpected ideas triggered by the overlaps between the domains of visual culture. The purpose of the research is to apply this new gained knowledge and use it as an idea generator and a novel communication tool.

A key strategy that could be applied in both industry and educational contexts would be firstly the exploration of the field of visual culture in the broader sense with all possibilities it has to offer, and secondly the development of a more flexible approach to architectural design making use of the diversity of visual languages as a means of graphic representation of the relationships between the sub-fields of visual culture.

The research questions that emerge logically as a result of this line of thinking operate on two levels – the field of visual culture and the realm of visual languages. The intended collection and treatment of the research data will be determined to a great extent by the nature of the research questions. The interpretation of the results will not claim to make general conclusions but draw some useful outcomes focusing on iconic building designs within the context of this study.
Research Question 1

Can all domains of visual culture be sources of ideas in architectural design?

Research Question 2

If so, what visual tools can be employed to represent them?

3.4 Research Methodology

Leedy (1993, p.145) in Practical Research poses the question: “Why Research Methodology?” The argument that he presents supporting this statement is:

“It informs your reader exactly how you intend to proceed and how you handled the data. It helps to explain what the nature of the data were, and what method you used to process them to arrive at your conclusions”.

Leedy (1993, p.137) differentiates between method and methodology. A method is, very simply, a way of accomplishing an end result. It is how one operates, a way to get the job done”. Methodology on the other hand according to Leedy "is merely the study of a particular method, or methods, for reaching a desired end. Research methodology is a continuing process. It is a continuum that is ever changing, ever developing” (Leedy, 1993, p.137). Leedy introduces another term – tools of research that are according to him five - the library and its resources, techniques of measurement, statistics, the computer and its software and facility with language. He expands on the difference between tools of research and research methodology.

“We should be careful not to equate the tools of research with the genre or methodology of research. The tool is ancillary; the methodology is indigenous. The tool is what the researcher employs to amass data or manipulate them to extract meaning from them.
Leedy (1993) discusses the two broad generic types of methodology – the qualitative and the quantitative one. Within each of these are sub methodologies or methods: the descriptive method, the survey method, the historical method, the case study method and so forth. Each of these has its own protocol – its paradigm – governing data collection and procedural agenda.

Leedy (1993, p.139) asserts: “The nature of the data dictates the methodology. If the data is verbal, the methodology is qualitative, if it is numerical, the methodology is quantitative”.

3.4.1 Nature of the Research

The research methodology adopted for the purposes of this study testing the research questions is the qualitative one, the reason being the verbal nature of the data collected and the difficulty of establishing reliable results over a relatively small number of respondents using quantitative methods. Burns (1994, p.11) defines qualitative research in comparison with the quantitative one. “Qualitative research places stress on the validity of multiple meaning structures and holistic analysis, as opposed to the criteria of reliability and statistical compartmentalisation of quantitative research”.

Lincoln and Denzin (in Anderson and Arsenault, 1998, p.119) provide another definition of qualitative research as a:

“…multi-method in focus, involving an interpretative, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret phenomena in terms of the meanings people bring to them”.

113
Burns (1994, p.12) maintains, “The task of the qualitative methodologist is to capture what people say and do as a product of how they interpret the complexity of their world, to understand events from the viewpoints of the participants”. Applying Burns’ terminology to this study, the participants are the ten architectural firms that have been interviewed and investigated. The size of the selected research group has been kept small following Patton’s assertion that there are no rules for sample size in qualitative enquiry. “Sample size depends on what you want to know, the purpose of the enquiry, what’s at stake, what will be useful, what will have credibility and what can be done with the available time and resources” (Patton in Anderson and Arsenault, 1998, p.123). In order to make a comprehensive, qualitative cross-sectional analysis examining a wide range of emerging patterns, another perspective, that one of the great masters in architecture has also been included.

3.4.2 Types of qualitative research employed in this study

According to Leedy (1993) there is a number of sub methodologies or methods within the qualitative research methodology. The ones employed for the purposes of this research are: grounded theory, ethnography, case studies, semi-structured interviewing, and action-research. This diverse range of methods was perceived by the author as helpful to gather, collect and analyse the relevant data in order to establish prevalent perceptions and attitudes necessary to generate a comprehensive analysis and synthesis. “The task of the qualitative researcher is one of analysis and synthesis. Synthesis is indispensable to research; you must fit the pieces together to form a meaningful matrix” (Leedy, 1993, p.141). In view of this assertion the analysis chapter of this study was considered by the author as a preamble to the synthesis section, which built on existing concepts developing them further.
3.5 Research Methods

3.5.1 Grounded Theory Approach

“The grounded theory approach uses a systemic set of procedures to develop an inductively derived-grounded theory about a phenomenon” (Strauss, 1990, p.45). The research findings according to Strauss constitute a theoretical formulation of the reality under investigation. The purpose of the grounded theory method is to build theory that is faithful to and illuminates the area under study. A grounded theory approach can provide the investigator with procedures for analysing data that will lead to the development of theory useful to that discipline.

3.5.2 Ethnographic Research

“Ethnography essentially involves descriptive data collection as the basis for interpretation; it represents a dynamic ‘picture’ of the way of life of some interacting social group. As a process, it is the science of cultural description” (Burns, 1994, p.246). Burns elaborates further on the purpose of ethnographic research or “writing about people”.

According to him the purpose of ethnographic study is to uncover social and cultural patterns and practices within a setting. This involves producing an analytical description in terms of social setting, organisation, behaviour, and activities. The fieldwork generally incorporates participant observation, interviewing and qualitative analysis in order to arrive at an understanding of the observed patterns of behaviour engaged in by those being studied.

Ethnographic research is about attempting to capture the social reality of a setting, whereas grounded theory is more about developing a theory. Therefore the ethnographic research is of a situational nature while the second approach is
of theoretical character. “There are no formulae, flow charts or standardised procedures for the ethnographer to follow. Much of the ethnographic work is inductive because of its situational character” (Burns, 1994, p.247).

In this particular study the researcher’s primary interest is having an understanding of the observed patterns of thinking, intrinsic motivation and behaviour of the selected participants secondary to the development of a theory.

3.5.3 Other Studies

The literature review and the secondary examples (F.Gehry and S.Calatrava) in this study providing the background information to the two research questions operate within the ethnographic paradigm because of their descriptive nature. They belong to the initial phase of the ethnographic research process, which according to Burns (1994) is concerned with the collection of data with a view to trying out a wide range of possible ideas and lines of inquiry. This first stage of the research is instigated by broadly defined research interests. In the context of this study the author’s own architectural experience has contributed to a great extent to the formation of the initial concepts and constructs.

3.5.4 Case Studies

Case studies are an investigation into real life situations. Burns (1994, p.313) maintains that the case study is a preferred strategy “when ‘how’, ‘why’ or ‘what’ questions are being asked, or when the investigator has little control over events, or when the focus is on a contemporary phenomenon within a real life context”. Additional requirement for the case study is to focus on a bounded subject/unit (an entity in itself) that is either very representative or extremely atypical. The main techniques according to Burns (1994) used in case studies are observation (both participant and non-participant), interviewing and document analysis. In this study the techniques that have been used are - document analysis (articles about the Tjibaou Cultural Centre, the Sendai Mediatheque and Te Papa) and
non-participant observation (the author’s own site visits). These case studies were included in the research because they were perceived by the author as providing some answers to the research questions and highlighting phenomena and processes that deserved more intensive investigation. All three case studies are representative as they describe iconic buildings with a unique approach to design. These buildings have been chosen in peer review as good examples of architecture. Their inclusion in this study was based on the premise that these case studies would provide valuable insights into design of iconic buildings. As the main focus in this study is on the design process, issues regarding national identity are beyond the scope of this research.

3.5.5 Semi-structured Interviewing

Burns (1994, p.278) gives the following definition of interview. “An interview is a verbal interchange, often face to face, in which an interviewer tries to elicit information, beliefs or opinions from another person”. There are three types of interviews: structured, semi-structured and unstructured. The second type was selected by the author as best for the current study as it “permits greater flexibility than the close-ended type and permits a more valid response from the informant’s perception of reality” (Burns, 1994, p.279). Although an interview guide in the form of a questionnaire was designed to give a direction to the interviews, an informal conversation was actively encouraged. This resulted in the introduction of professional jargon quite familiar to the author. The feeling of equal status contributed to increasing the rapport and hence the value of the information obtained.

3.5.6 Action Research

Burns (1994, p.293) defines action-research as “the application of fact finding to practical problem solving in a social situation with a view to improving the quality of action within it”. Kemmis and Gundy (1981) (in Burns, 1994, p.293) define
action-research in education as “a family of activities in curriculum development, professional development, school improvement programmes, and systems planning and policy development”. According to Burns theories in action-research are validated through practice, as this type of research is a total process in which “a problem situation is diagnosed, remedial action planned and implemented, and its effects monitored” (Burns, 1994, p.294). The focus in action-research is on a specific problem in a defined context and it has four basic characteristics: it is situational, collaborative, participatory and self evaluative. Lewin (in Burns, 1994) who coined the term action-research offers the following model, which has two major stages: diagnostic, in which problems are analysed and hypotheses developed and therapeutic, in which hypotheses are tested by a consciously directed change experiment in a real social life situation.

Action-research in combination with the other methods within the qualitative research methodology was perceived by the author as relevant for this study for the following reasons: firstly, as a means of remedying problems diagnosed in a specific situation and secondly as a means of introducing innovatory approaches to teaching and learning into an ongoing system. This action-research was applied to a subject – Design Documentation, which is part of the curriculum of the National Diploma in Architectural Technology, and taught by the author with the intention to improve its content and way of delivery. “The action researchers are interested in the improvement of the educational practices in which they are engaging – how to do their jobs better” (Burns, 1994, p.301). In terms of teacher professional development, Burns asserts that action-research enhances the capacity of teachers as generators of professional knowledge and that this type of research implies a “bottom-up” rather than a “top-down” view.
3.6 The Research Process

The author started initially with the diagrams in fig.34 (a combination of a mind map and a flow chart), that were later refined to the flow chart in fig.35, which presents the whole research process in a pictorial format. A linear format was finally adopted as a more accurate time-based expression of the logical evolution of the research topic.

3.6.1 Phase 1

Once the research problem has been clearly defined, and the research questions posed, review of the related literature is fundamental to the research according to Leedy (1993). The function of this section of the research “is to ‘look again’ (re+view) at the literature (the reports of what others have done) in a related area: an area not necessarily identical with, but collateral to your own area of study” (Leedy, 1993, p.87). Leedy maintains that the principal reason for investigating the literature is to “help you resolve your problem. When you know what others have done, you are better prepared to attack the problem you have chosen to investigate with deeper insight and more complete knowledge” (Leedy, 1993, p.87). In this study the review of the literature was perceived as being the first phase of the research process, as it would set the theoretical framework of the research question.

In view of gaining knowledge and understanding of a specific problem through a literature review, Leedy (1993, p.109) asserts that there are two ways of discovering knowledge – deductive logic and inductive reasoning or the scientific method. Deductive logic is a methodology identified with Aristotle that relies upon logical reasoning and begins with a major premise – a statement, similar to an axiom that seems to be a self-evident and universally accepted truth. In contrast, the scientific method based on “inductive reasoning begins not with a
preconceived conclusion – a major premise – but with an observation” (Leedy, 1993, p.110). This type of scientific research based on an inductively derived grounded theory was applied throughout this study. “The true researcher looks at the facts only, and, as a result of observing them alone, draws conclusions as to what they apparently say” (Leedy, 1993, p.110).

Since the literature review and the secondary examples (Gehry and Calatrava) operate within the ethnographic paradigm because of their descriptive nature as outlined above in the “Research Methods” section, Burns’s model of ethnographic research has been applied. Burns (1994, p.252) suggests: “Ethnography does not fit a linear model of research. Instead, the major tasks follow a kind of cyclical pattern, repeated over and over again”. Burns offers the following diagram illustrating in a graphical format the research cycle in ethnography.

![Fig.32: The research cycle in ethnography (Burns, 1994, p.253)](image-url)
Stage 1

Selecting an Ethnographic Project

The cycle begins with the selection of a research project.

Stage 2

Asking Ethnographic Questions and Collecting Ethnographic Data

Collecting data using a variety of techniques – participant observation, interviewing, collecting and analysing documentary material

Stage 3

Making an Ethnographic Record

Using a wide range of means to record observations – taking fieldnotes, taking photographs, making maps

Stage 4

Analysing Ethnographic data

“The next step in the cycle cannot wait until a large amount of data is collected. Instead of coming into the field with specific questions, the ethnographer analyses the field data compiled from participant observation to discover questions. There is a need to analyse fieldnotes after each period of fieldwork in order to know what to look for during the next period of participant observation.

Stage 5

Asking Ethnographic Questions

The data analysis initiates a new cycle as new questions lead to more observations.

Stage 6

Writing an Ethnographic Report

Writing becomes part of the research cycle. Although it occurs toward the end of a research project, it forces the investigator into a new and more intensive kind of analysis leading to new questions and more observations.

Fig.33: The Ethnographic Methodology as described by Burns (1994)
The literature search resulted in two main chapters – Visual Culture and Visual Communication, the first one perceived as more general and as an introduction to the problem defining the overall framework and the second one as more specific, illuminating certain aspects of the research problem. The third part of the Literature Review – Architectural Design Process – provides some contextual information within the broad theoretical framework. Secondary examples, Frank Gehry’s and Santiago Calatrava’s approach to design, were researched and used to clarify and help resolving the research problem.

3.6.2 Phase 2

The “Case Study” method as described by Burns (1994) was applied as an alternative avenue of gaining information. Document analysis (articles about the Tjibaou Cultural Centre, the Sendai Mediatheque and Te Papa) and non-participant observation (the author’s own site visits) are the “Case Study” techniques that have been used in this research. These case studies (two international and one local) were introduced in the second phase of the research process since the broad theoretical framework of the study had already been set through the literature review section and they were viewed as operating within the relevant scope of the research questions. These case studies were perceived not only as providing additional information to the research problem but also exemplifying some of the main concepts in the study. All three case studies are representative of iconic buildings – the focus of this research.

3.6.3 Phase 3

The industry research with the purpose to explore how everyday architectural business is done follows logically after the first two phases having established the theoretical aspects of the research problem supported by relevant examples of iconic buildings. The “Ethnographic Research” method was applied also to this industry research involving ten architectural firms. Three techniques of data
collection were employed – **participant observation**, enhanced by the author’s own experience in the field, **interviewing** and collecting and analysing **document material**. In order to make a comprehensive, qualitative cross-sectional analysis examining all layers of design culture in a company context, three categories of companies (large, medium and small) have been analysed. Ten interviews in total have been conducted – five with large firms, three with medium ones and two with small firms. The respondents and their projects have been guaranteed anonymity. The aim of the primary research was to identify existing practices and establish prevalent patterns. Burns (1994, p.248) identifies three broad phases in the development of ethnographic projects:

1. The initial phase. Guided by broad research interests the investigator collects data with a view to exploring a range of possible ideas.
2. The second phase. Reformulation of initial guiding propositions due to the isolation of events and persons.
3. The third phase. The collection of data relevant to the reformulation occurs.

Burns’s research cycle in ethnography has been applied.

**FIRST CYCLE**

**3.6.3.1 Ethnographic questions**

As a result of broad research interests in a specific area within the scope of the research problem, four main areas of interest were identified as suitable for observation: background/context, the vision, preliminary design and presentation drawings.
1.0 **Background/Context**

The main focus is on what motivates a company to stay in the architecture business, identify the principles of the project team formation and the extent to which the NZIA document “Agreement for Architects Services” (AAS2, 1996) is applied.

2.0 **The Vision**

The development of the vision in a concrete context for a particular project, identifying sources of inspiration and effective communication of these ideas to the client are some of the key points examined in this section.

3.0 **Preliminary Design**

Techniques used for a visual presentation of ideas and their further development are explored in-depth.

4.0 **Presentation Drawings**

As outlined by the NZIA document “Agreement for Architects Services” (AAS2, 1996) the presentation drawings stage follows the preliminary design. Identifying the media for presentation and the teams executing this type of design work is the focus of this section.

3.6.3.2 Collecting ethnographic data

In the initial phase of this ethnographic project three areas were identified as sources of information that would inform the ethnographic questions posed:
- the overview of the literature and the case studies previously discussed,
- the author's own architectural background, industry and teaching experience,
- and the organisational background research, which was perceived as necessary and undertaken by the author preceding the design of the questionnaire. Three areas were identified where this type of preliminary research was envisaged as essential and useful – developing an appropriate questionnaire, ascertaining the best ways to administer the survey (individual interviews, e-mail, posted questionnaires) and aiding the interpretation of the interview data. A variety of sources for obtaining such data were identified:

  - Company advertising brochures featuring the company's profile
  - Company WEB site
  - Albums featuring the company's best architectural examples
  - Publications in magazines, mainly “Architecture New Zealand”, “Prodesign”, and “Urbis”
  - Exhibitions with the firm’s work displayed – NZIA Resene Awards for Architecture, Best Design Awards and so forth.

3.6.3.3 Making the ethnographic record

According to Burns (1994, p.253) this includes taking fieldnotes, photographs, making maps and so forth. The ethnographic record builds a bridge between observation and analysis. As for this study the ethnographic data comes from three sources simultaneously, as discussed above.

Miles and Huberman (1994) state that data collected is usually difficult to analyse because they are often dispersed over many pages, is poorly ordered, very bulky and monotonously overloading. It is sequential rather than simultaneous which makes it difficult to look at two or three variables at once. They suggest that the
data be displayed in a manner that is focussed enough to permit the viewing of
the full data set in the same location, and to be arranged systematically to
answer the research question. They hint that good displays permit the
researcher to absorb large amounts of information quickly.

In view of these arguments, the qualitative data obtained from all sources was
organised around four broad headings – background/context, the vision,
preliminary design and presentation drawings. Subsequently the analysis of the
industry research in the Analysis chapter was presented as a narrative structured
around the same general topics.

3.6.3.4 Analysing the ethnographic data

At the completion of the first cycle an analysis of the data was undertaken. “In
ethnographic enquiry, analysis is a process of question-discovery” (Burns, 1994,
p.253). Instead of working with a set of preliminary defined questions, the
ethnographer, according to Burns, analyses the field data compiled from
participant observation to discover questions. These more concrete questions
are later used during the next period of participant observation.
The data gathered as a result of the previous stage was analysed and the further
steps of the research planned accordingly. There were two clear outcomes as a
result of the first cycle: the specific questionnaire design and the “Semi-
Structured Interviewing” method that was chosen.

SECOND CYCLE

3.6.3.5 Asking further ethnographic questions

This stage relates to the second phase of an ethnographic project as defined by
Burns (1994). This is when classes of events and persons begin to emerge.
Initial research problems have undergone reformulation and ideas start to come
into focus. Research questions and propositions are formulated with reference to specific aspects of the field of study. These aspects are focused around creativity, innovation, vision, sources of inspiration, and design management within a company.

3.6.3.6 Collecting ethnographic data

The process of collecting data at this stage was done through a questionnaire, semi-structured interviews and document material.

Questionnaire Design

Oppenheim’s (1992) opinion was consulted for the questionnaire design. “We should think of the questionnaire as an important instrument of research, a tool for data collection. The questionnaire has a job to do: its function is measurement” (Oppenheim, 1992, p.100). For the purposes of this study a genuine attempt has been made all variables that need to be measured (background/context, vision, preliminary design and presentation drawings) to be represented by a sufficient number of questions. The structure of the questionnaire has been determined to a great extent by the different variables that need examining. It consists of five series of question modules or sequences; each concerned with a different variable (background/context, the vision, preliminary design, presentation drawings, general/open-ended questions). The questionnaire starts with an easier module on company background and the design stages as set out by the NZIA gradually moving to the vision and sources of inspiration and types of presentations.

A balance of question types has been sought. The more time consuming open-ended questions alternate with the closed or the pre-coded ones rather than isolating the two types in separate groups. “A closed question is one in which the respondents are offered a choice of alternative replies…Open or free-response
questions are not followed by any kind of choice, and the answers have to be recorded in full” (Oppenheim, 1992, p.112). Providing a balance of the two types ensures that advantage of all good attributes has been taken. The freedom that the open questions give is expressed in the opportunity spontaneous ideas to be obtained from the respondents. Hence they appear to be more difficult to answer and analyse later. Although the general perception about closed questions is that they lack spontaneity and expressiveness, this has been partly overcome where required by using another technique called “probing”. “This often takes the form of asking the respondent to explain further or to give reasons for something stated earlier” (Oppenheim, 1992, p.113).

With regard to the order of questions within each module, the funnel approach has been used. “The funnel approach is so named because it starts off the module with a very broad question and then progressively narrows down the scope of the questions until in the end it comes to some very specific points” (Oppenheim, 1992, p.110). For example the questionnaire starts with the question “What makes you stay in the architecture business?”, which is broad enough to serve as an introduction. The more specific questions are in the middle part of the questionnaire finishing off with some more general and open-ended questions in the last module.

Semi-Structured Interviews

Using interviews proved to be a preferred method for gathering information due to the specific nature of the questionnaire, which abounds with many open-ended questions that needed verbatim recording. “Generally, it can be said that the longer, the more difficult and the more open-ended the question schedule is, the more we should prefer to use interviews” (Oppenheim, 1992, p.82). The interviews that were conducted were individual, semi-structured ones. They were the preferred type due to several reasons – more commitment and responsiveness on the side of the interviewees in individual interviews, semi-
structured as opposed to formal ones as they allow for more flexibility and change of direction aided by the author’s familiarity with the design process over a period of 19 years. The largely unstructured nature of the semi-structured interviews will also aid in the maintenance of an unbiased approach to assist in the identification of the important concepts. In order to make a comprehensive, qualitative cross-sectional analysis examining all layers of design culture in a company context, three categories of companies (large, medium and small) have been analysed. Ten interviews in total have been conducted – five with large firms, three with medium ones and two with small firms.

**Document Material**

All ten interviews were conducted with past and current company projects being presented and discussed. That was an invaluable piece of information that substantiated the main statements being made by the interviewees.

This is the questionnaire that has been designed around the four headings discussed above and used in the interviews.
Visualization and Architectural Design

Questionnaire

Background/Context

1. What makes you stay in the architecture business?

2. How are the creative teams formed?

   Possible structure of a project team:
   Director – Project Architect – Design Architects (assistants) – CAD operators

3. Do you usually follow all design stages as set out by the NZIA document “Agreement for Architect Services”?

   Pre-Design – Site Analysis – Preliminary Design – Developed Design – Contract Documentation

The Vision

4. When working on a project how is the vision developed?
   - Is it a team effort?
   - Does the client have his own input?

5. Where do you look for inspiration in your design or can you identify sources of inspiration?

6. Do you employ any specific techniques for idea generation?

7. How do you communicate your ideas to the client?
Preliminary Design

8. How do you develop your concepts further?

9. What techniques do you normally use in this phase to express your ideas visually?

10. How are the concepts presented to the client and internally?

11. In an office situation who is in charge of the design?

Presentation Drawings

12. Who produces the presentation drawings?

- Internally
- They are sub contracted out. If so, how are the ideas and feelings about the project communicated?

13. What media do you use for presentation?

- Concrete graphic languages (orthographic projections, isometrics, perspectives, including CAD presentations and model making)
- Abstract graphic languages (diagrams, charts, mindmaps, graphs)
- A combination of the two

General/Open ended Questions

14. What is your understanding of the term “visual language” in architectural design?

15. In your opinion how does a visual language affect the design?

16. What other techniques would you employ for creative thinking and communication?

17. In your opinion can data visualization become part of the traditional client – architect relationship?
3.6.3.7 Making an ethnographic record

Many ethnographic research projects, according to Burns (1992, p.285), generate many pages of fieldnotes, which need to be analysed. They cannot be coded into numerical data and usually are transcribed, category coded and filed with the purpose of sorting and organising the obtained information into patterns and themes. This fieldnote data usually includes not only records of conversations but also the researcher’s impressions/observations and details of the setting. The author’s personal preference was to keep the descriptive content separate from the reflective parts. In this respect three separate files were used. The transcript file contains the records of the ten interviews. The personal file holds the author’s personal reflections and a description of the setting. Spontaneous thoughts and impressions are recorded in this file clarifying and supplementing the transcript file. The third file is the analytic file, which identifies and discusses the conceptual issues and emergent themes. It is organised around the five topic areas in the questionnaire and was created with the purpose of facilitating the analysis of the data.

3.6.3.8 Analysis of ethnographic data

The analysis of the data gathered during the interview process takes a narrative format. It is a result of the three techniques for data collection characteristic of the ethnographic method – participant observation (in this case “the observer-as-participant” stance, “where the researcher’s identity is known to the hosts, but he or she remains a relative stranger”) (Burns, 1994, p.258), interviewing and document material.

The principle of categorising has been applied through grouping items together. This process of coding is in fact “classifying material into themes, issues, topics, concepts, propositions” (Burns, 1994, p.288). The emerging coding categories follow the sequence of the question modules under the five
main headings in the questionnaire. As the questions (respectively the modules) start from the more general to the more concrete, the coding categories of themes, issues and concepts follow the same format. Several other categories came from the participants themselves and had been included in the narrative. They stemmed mostly from the document material that was presented at the interviews and shed light on some of the issues being discussed. Burns (1994, p.290) argues, “The coding of a qualitative research is important, as it operates as a labelling, retrieval and organising device”.

**Content analysis** or examining for meaning was the next step of the analysis. “Content analysis is used to identify themes, concepts and meaning. It is a form of classifying content” (Burns, 1994, p.288). Each one of the ten interviews was analysed for themes and topics. The analysis of all data gathered as a result of the primary research has been presented as a summarised aggregate view in relation to the analysis of the literature review, the case studies and the author’s own experience in an attempt to examine the nature of design culture and its physical manifestations in various types, formats and presentation techniques.

Through this extensive analysis a theory emerged from the data. Strauss and Glaser (1990) term this as **grounded theory**. Burns (1994, p.288) elaborates on this further: “Thus observers enter the research situation with no prior theoretical preconceptions and create, revise and refine theory in the light of the data collected”.

**THIRD CYCLE**

As defined by Burns (1994) in the third phase of the ethnographic project, the collection of data relevant to the reformulation occurs and the writing of the ethnographic report takes place. According to Burns there is an interplay between personal observations and theory, which leads to decisions about what
might be useful to observe and what questions it might be relevant to ask. The primary research goal in this case is to discover those questions, which will emerge along with the concepts within the theoretical framework as the study proceeds.

Burns (1994) suggests that it is important to understand that the general research question, related literature, theory and research design are all interrelated, each building on the others in a process of unfolding, incubation, creativity, intuition, or just plain common sense. The initial operation of study is like a strategy of attack which takes shape as a function of previous activity rather than a fixed roadmap taking one from A to B without deviation.

3.6.4 Phase 4

The Action-Research Method as described by Burns (1994) has been viewed as the next phase of the research process capitalising on the analysis and synthesis having been done. This action-research was applied to a subject – Design Documentation, which is part of the curriculum of the National Diploma in Architectural Technology and taught by the author with the intention to improve its content and way of delivery. This was seen as an opportunity innovatory methods, based on the research conclusions of the study to be introduced in a subject that had been taught for years in the same old-fashioned way. As Burns (1994, p.294) asserts “theories in action-research are validated through practice”. A problem situation was diagnosed (limited use of graphic languages in architectural design) with the problems being analysed and a working hypothesis developed. In the therapeutic stage of the action-research, a remedial action was planned through the development of a new model consisting of four disparate concepts (bubble diagrams, parallelism of layered depth, mind maps and graphic design techniques), based on a variety of graphic languages. This new model was implemented and monitored in an educational context in first
year studio class taught by the author. Comments by architectural professionals have been included in the “Evaluation” chapter of the research.
Fig. 34: Preliminary Diagrams
Chapter 4: Case Studies

The case studies presented in this chapter have been introduced in a descriptive manner followed by an interpretive analysis of the design process in the Analysis chapter.

4.1 Tjibaou Cultural Centre – the “building that sings”

“The Centre is an architectural triumph and the poetic forms are now a celebrated landmark for New Caledonia and the Kanak people” (Falkoner, 2001, p.29).

“Inspired by tradition, formed by modern technology, this centre celebrates and explains the Melanesian culture of the Kanaks. Response to sea and site has generated a heraldic dance reflected in the waves” (Mcinstry, 1998, p.1).

“The mysterious forms of Renzo Piano’s Jean-Marie Tjibaou Cultural Centre are at once unexpected and beautiful. Rising from tropical vegetation to brush the sky, the centre’s swelling wooden shaped seem simultaneously alien and indigenous, as impressive as the landscape that surrounds them” (Findley, 1998, p.1)

Fig.36: The cases, abstracted huts, rise beckoningly along the peninsula (The Architectural Review, Dec., 1998)
The new Kanak Cultural Centre in Noumea, New Caledonia was dedicated to the chief political organiser of the Kanaks – Jean-Marie Tjibaou. Leader of the New Caledonian independence movement and founder of the FLNSK (Kanak Socialist National Liberation Front) “his vision for the development of his people was forward-thinking” (Falconer, 2001, p.28). Tjibaou had strong feelings and ideas about cultural identity that are embodied in his statement: “To return to tradition is a myth…no nation has ever done so. In the quest for identity, you must look forwards, never backwards. Our identity lies ahead of us” (Falconer, 2001, p.28). After his tragic death in 1989 the then President of France, Francois Mitterand declared that a new Cultural Centre celebrating the Kanak culture and dedicated to Tjibaou would be built in Noumea.

The international design competition for the Cultural Centre announced in 1991 had a huge response and attracted over 160 designers from all over the world. The chosen location for the future Centre was a small peninsula, Plage 1000, with a lagoon on the windy southern outskirts of Noumea. The competition brief was quite comprehensive calling for “modern facilities including a resource centre, art gallery, performance theatre, reception rooms, artist accommodation, gardens, outdoor entertainment spaces and a traditional village” (Falconer, 2001, p.28). Apart from this long list of requirements looking more at the specifics of the project, there was a strong notion that this Centre would be a “window to the world, a start not a finish, and a blend of tradition and modernity” (Falconer, 2001, p.28). Among the ten short-listed finalists engaged to produce developed concept designs, there was one company from New Zealand, Isthmus Group, the Australian modernist Harry Siedler and the Italian architect – Renzo Piano.

Unlike the other competitors, who tried really hard to explore every possible detail of the brief in an attempt to make all requirements work together,

“Renzo Piano’s winning scheme focused on what seemed to be the simple and dramatic. His design had taken the tallest, narrowest form of the traditional chief’s hut and lined the central ridge with a series of these forms in a seemingly partially unconstructed fashion.
He had met the spirit of the brief but with hardly a mention of the landscape or much of the other detail. Apparently Piano came up with the concept on a brief two-hour site visit” (Falconer, 2001, p.28).

Findley (1998, p.2) describes Piano’s winning design in the following way: “The result of an international design competition held in 1991, the US$33.4 million arts and education complex has neither the picturesque nostalgia nor the Eurocentric arrogance often associated with projects for native people”.

The Cultural Centre is not actually a single building but an assemblage of buildings like a village with open spaces planted with trees and incorporated in the overall design. The Centre consists of three groups or villages of “cases”, as Piano calls them, pavilions or abstracted huts that are of “three heights, the tallest 28m, as high as an eight- or nine-storey urban building” (Mcinstry, 1998, p.1). These cases are used to exhibit elements from the life of the Kanaks, and to revive ancient ceremonies. The visual link between the different parts of the complex and traditional Kanak villages is made very explicit not just through the
arrangement of the buildings but through their form as well. The “cases” have a circular layout with vertical curved ribs “made of laminated iroko, structurally linked by horizontal tubes and diagonal rod ties of stainless steel” (Mcinstry, 1998, p.1). In the original vernacular architecture, the “ribs are of palm saplings” (Mcinstry, 1998, p.1). This array of curved ribs with varying heights gives the huts an unusual appearance of huge buds. “The individual cases are almost botanical in form, gigantic buds contracting with the stiff symmetrical forms of the transplanted Norfolk Island pines” (Mcinstry, 1998, p.1).

Fig. 38: The architectural plan of the Centre

The overall arrangement of the huts follows a very gently curving line along the axis of the peninsula. The spine of the building, which is a long passage or hallway organises two types of architectural forms – on the slightly sloping lagoon side, four Modernist, flat-roofed glass and steel pavilions with landscaping between each pavilion and on the steeper side, 10 soaring wood cases. These cases turn their curved and slatted facades to the wind and open to the main passage. Emmanuel Kasarherou, cultural director of the Centre explains the reasons behind this design decision that stem from the local culture and tradition.

“In the process of developing the project the architect opened the shape of it and made them unfinished (the cases) which was for us a very good architectural answer for one of the main quotations we use from Jean Marie Tjibaou, which stated that our identity is beyond us, it is not behind us, it’s just beyond. So you always have to create it day by day. It’s not something you can lean on and it means that culture is always unfinished.
This is the way Renzo Piano interpreted this idea in his architecture” (De Blas, 2000, p.2).

The entrance to the complex is not that obvious. “The entrance to the centre is a path lined by mythological gardens which tell the story of Tea Kanake” (De Blas, 2000, p.1). A wide meandering concrete walkway leads from the reception to the lagoon and then heads back to the pavilions and the traditional area. Piano’s approach is again quite unconventional and unusual deeply influenced by the local culture. Findley (1998, p.3) describes the following incident: “On the centre’s opening day, non-Kanak visitors searched in confusion for the entrance, while Kanak visitors wandered calmly to it”.

4.2 “Tarzans in the Media Forest”

4.2.1 Japanese Architecture – an artistic exploration of the phenomenal and the ephemeral

Fig.39: Notions of impermanence and ephemerality

Vittorio Gregotti in Bognar (1997, p.1) describes Japan as “the world’s most technologically advanced and productive nation of formidable economic power, with an astounding capacity for work, organisation, investment and research”. Bognar continues by exploring the nature of Japanese architecture in this specific economic context.

“Both the economy and the extraordinarily advanced nature of Japanese consumer society significantly affect the rapid lifecycle of architecture and the cityscape. As the second largest economic superpower, Japan has tremendous wealth, technological prowess, extensive investments, great research capabilities, highly skilled and dedicated workers, and a tremendous need and appetite for construction; it has the world’s largest construction market, accounting for more than 20% of the country’s GNP and employing about 10% of its labour force” (Bognar, 1997, p.1).

In order to fully understand the specific nature of Japanese architecture in the context of remarkable economic boom and consumer power another equally important factor - Japanese culture needs consideration. As Bognar (1997, p.3)
concludes “Japanese culture has evolved around the notion of impermanence regarding change and renewal, and specifically demolition and rebuilding”.

“Buddhist teachings — for instance, that there is “no permanence” and that “all things must pass” — in equally profound ways, conditioned the Japanese mentality toward the phenomena of change and the transitory nature of existence. Buddhism emphasizes the evanescence and insubstantiality of things. Universal and immutable laws do not appeal to the Japanese. Nor does the logic of clear or autonomous identity; traditionally, Japanese things have not been subjected to the process of individuation and objectification” (Bognar, 1997, p.3).

Mitsuo Inoue (in Bognar, 1997, p.3) summarises these Buddhist concepts permeating every aspect of Japanese culture as ephemeral in essence. “The present that we inhabit is nothing more than a momentary wedge in eternal nothingness”. Japanese architecture and urbanism become a true reflection and embodiment of these cultural traditions.

“Japanese architecture and urbanism, in the tradition of ‘ritual’ building and rebuilding, constitute a culture of ‘making-and-remaking’ rather than of ‘making-and-holding’; what is preserved is thus the way of acting, the ritual of doing” (Bognar, 1997, p.4).

Bognar’s analysis of Japanese architecture marks the 1980’s as a period when a radical paradigm shift has encouraged the appreciation and artistic exploration of the phenomenal and the ephemeral. Paradoxically, despite such notions of impermanence and transience characteristic of Japanese culture, the architecture that has been created “embodies futuristic qualities and is realized with cutting-edge craftsmanship” (Bognar, 1997, p.5). Architectural experimentation and innovation become the norm rather than optional. Bognar (1997) presents a poetic description of Japanese architecture relating it to the notion of impermanence.

“Contemporary design in Japan is characterized by lightness, surface, fragmentation, and dissolution, often with a “ruinous” quality, a sense of temporality, image ability,
sensuousness, and, finally, a spectacular phenomenalism — all attributes of the ephemeral; combined with new interpretations of nature and the new software technologies, it favours ambiguity, transparency, and perceptual instability with an implicit indeterminacy of meaning” (Bognar, 1997, p.6).

Architecture will no longer be a question of mass and volume but of lightweight structures whose superimposed transparent layers will create form so that construction will be effectively dematerialised. The essence of these light constructions is not only related to natural, human, and urban phenomena, but also in effect evoked by them. “This architecture, aspiring to evoke the perceptual impermanence of building, has brought about a new ‘industrial vernacular’, on the one hand, and a new kind of ‘imminent’ space on the other” (Bognar, 1997, p.7).

Examining recent developments in Japanese architecture, Bognar (1997) describes the sensual side of architecture evoked by the presence of imagery.

“Since the late 1970s, architecture in Japan has been influenced increasingly by information and media technologies. Although capable of engaging the speculative mind, if used critically, these new technologies are predisposed to appeal to human emotions and desires; and they inspire an increased fascination with images, and with the sensual, in architecture” (Bognar, 1997, p.4).

Toyo Ito’s Mediatheque (media and culture centre) in Sendai, Northern Japan has been used as a case study exemplifying this contemporary trend with an analysis going beyond the mundane description of the building and its associated events to the underlying levels of explanation and exploration. The Sendai Mediatheque is a graceful model of minimalism, illustrating the ingenuity and efficiency of modern engineering. The design expresses Ito’s vision of the place of architecture in our electronic, image – oriented society. He places himself at the forefront of those exploring architecture’s relationship to electronic media and the virtual world.
4.2.2 The art-world “Samurai”

“Since the mid 1970s, Toyo Ito has been one of the world’s most innovative and influential architects, creating new concepts for life in modern cities, searching for architecture appropriate to our electronic, image-oriented consumer society” (Barrie, 2001, p.1). One of the world’s top architects, Ito is known for creating extreme concept buildings informed by new technologies.

Throughout his career Toyo Ito has created sleek, abstract, ephemeral concept-buildings characterised by flowing spaces, using materials such as aluminium and glass and the dematerialising qualities of light. Ito has often written that the human body now exists on two levels: the real and the virtual.
“Each of us today possesses two bodies: the primitive body that a human being has always possessed and the virtual body that has come into being with the spread of the media. The former seeks the beautiful light and fresh breeze found in nature. The other body, which responds to the electronic environment, might be called "a media-like body in search of information" (Barrie, 2001, p.1).

Ito maintains that the relationship between these two bodies is constantly shifting. The prominent architect argues that we connect to architecture and the city through both of them. Architects, he says, must assist in their re-integration; buildings and cities must provide for both the virtual body and the primitive one.

Ito’s designs seek to represent the invisible electronic world as a parallel to our physical environment. He describes his latest project, the Mediatheque (media and culture centre) in Sendai, northern Japan, “as the culmination of his quest to fuse the physical and virtual worlds” (Barrie, 2001, p.1). It has been hailed as the building of the year. The situation in Sendai is reminiscent of Kurosawa’s movie “The Seven Samurai,” where a small town unaccustomed to warfare hires experienced fighters to defend them. Like the townspeople in the movie, the Sendai officials recruited the art-world samurai to “rescue” the city and create something of a significant value.

4.2.3 The lyrical grace of the Mediatheque

The Mediatheque story began around 1993 when the city of Sendai decided to replace one of its seven district libraries with a building that would house diverse functions like an art gallery, an audiovisual facility with a screening room and auditorium, and an information centre for the disabled. Yasuaki Onoda, involved in the project, says that “Japan is very centralized around Tokyo and Sendai people wanted their own intellectual resource. They wanted cutting-edge space that Tokyo didn’t have, something that would make the people of Sendai feel
proud” (Levy, 2001, p.2). The Sendai officials opted to recruit outsiders to provide what they could never produce internally – a cutting-edge facility or a remarkable landmark of a city. “Its goal was to put this north-central Japanese city, population about 1 million, on the world’s cultural map. And in a sense, it has succeeded. But at what cost?” (Levy, 2001, p.1). The financial aspect of this avant-garde project was equally amazing – the Sendai Mediatheque “costs 13 billion yen to construct (about $100 million)” (Levy, 2001, p.3).

The chronology of the events surrounding this famous building as described by Barrie (2001) started with the 1995 Mediatheque competition brief that called for a complex containing an art gallery, library and an audiovisual centre. The competition organisers requested proposals that were not bound by convention. In 1995 after an elaborate public design competition, the selection committee chose the architect from amongst 235 competing proposals. The winner was Toyo Ito, whose scheme “was not concerned with formal expression but was prototypical and conceptual” (Barrie, 2001, p.2).

Having been originally “inspired by the image of floating seaweed” (Ito, 2001) the architecture is both transparent and light, as if the form is suspended in mid air.
This is achieved by having thirteen steel tubular lattice structures penetrating through and carrying the thin floor slabs (each only 400 mm thick) on all seven floors. Ito’s conception is of a building made of three elements: floor plates, structural tubes, and skin. On an early schematic drawing the floors are shown as horizontal lines set at irregular heights; the tubes are transparent lattices snaking through the building; the vertical glass skin hangs from the floor plates.

![Lightness, transparency and mystique](image)

Ito’s intention and design justification have been summarised in the annotation accompanying the sketch: “to express the three elements – the flat slab, the columns that resemble seaweeds, and the screen of the façade – in their purest form” (Barrie, 2001, p.2). The competition model presented the sketch in three dimensions, suggesting an entirely plausible building, which was at the same time stunningly ethereal without the mass normally expected of architecture.
The double-skinned façade creates a natural air-conditioning system that ventilates in summer and insulates in winter. The central tubes circulate air, water, information, and both artificial and natural light - rays captured on the roof are distributed by a series of optical mechanisms.

Light, both daylight and artificial lighting, plays an important role in the design of the Sendai Mediatheque. In the day, the spaces are filled with diffused light from the outside while at night the entire structure is filled with light and the building glows invitingly. Not one of the seven floors would have the same colour scheme, lighting scheme or ceiling height.

Fig. 43: The architectural model of the building
Turning the winning scheme into a physical structure presented huge challenges. The main problem was not that the architect’s idea was so radical and hence not feasible, the problem was that it was so clear. The whole “building is disposed of partitions or traditional concepts like ‘rooms’, boundaries are shifting, spaces are fluid” (Levy, 2001, p.3). The continuity of each floor is rarely interrupted. The open structure gives the building an inherent flexibility and the possibility for future reconfigurations to meet changing demands.

The complications involved in realising the scheme, risked deviations from the original design. A later presentation model acknowledges this; walls, ducts, stairs, furniture and even people were shown as either translucent or transparent.
The most distinctive feature of the building are the series of columns that run from top to bottom – “trees made of metal mesh” or “technological forest” as Ito calls them (Levy, 2001, p.3). After consulting the structural engineer, Ito later wrote: “mesh like columns could exist only in the imagination” (Levy, 2001, p.3) and they were replaced by fantastic “tubes” of welded steel pipe. As vertical circulation routes, the tubes channel people, light, air and energy; some contain stairs or elevators, others air conditioning ducts.

Dozens of layout variations were produced for each floor looking for alternative solutions. Ito did not want to compromise with the original ideas and images that inspired his design. In 1999, midway through construction, Ito worked with computer graphics firm 000/Studio on a large scale video installation presenting sequences generated from simple plan, elevation and section drawings. These animations created an enhanced perception of space.

![Fig.46: Sophisticated computer animations presenting the Mediatheque idea](image)
One of these sequences giving the impression of an infinite tube-and-plate structure clarified and extended a crucial idea that was not immediately apparent in the building design: “that the Mediatheque be understood as a small piece cut from an infinite structure” (Barrie, 2001, p.2). A section through the building will not defer at all from an elevation. “When slicing an infinite whole, every cut produces the same result, hence the similarity between the Mediatheque’s elevations and section and Ito’s understated treatment of the facades” (Barrie, 2001, p.3). “Ito sees the building as a stack of interchangeable floors with distinct characters: different ceiling heights, surface finishes, furniture and lighting” (Barrie, 2001, p.4). The finished building’s most distinctive feature is its structure (thin steel floor plates penetrated by tubes of welded steel pipe), whose most remarkable quality is that it barely resembles structure at all. Negative details suggest the tubes pass through the plates without touching. The whole space looks abstract, conceptual and image driven, and infinite. Ito says: “Communicating architectural concepts is difficult because architecture inevitably has a dual character. It is both an abstract model of ideas and something that actually exists” (Barrie, 2001, p.2).
4.3 Te Papa - Museum of New Zealand

JASMAX - who “believe that architecture has the power to inspire the spirit”

JASMAX is a leading New Zealand architectural and interior design practice with expertise spanning more than 35 years. The fact that the company possesses a diverse range of skills and specialist knowledge of many different building types and building sectors has contributed to making a reputation that places the firm in a high profile position on the New Zealand market as well as internationally. The firm’s portfolio encompasses a wide range of building types like office buildings, recreational, hospitality and leisure developments, cultural and civic buildings, educational, retail and industrial facilities.

Establishing a good working relationship with its clients is seen by the firm as an important premise to understand their culture and the particularities of each project. The company “believes that architecture has the power to inspire the
spirit while meeting the practical requirements of human endeavour”.
Architecture is not a commodity with a price tag; it is apparently something more
for the company that sees poetry in what they do. The strong aspiration for
beauty, innovation and professionalism pervades all aspects of the firm’s creative
approach to design. Managing this design process effectively and searching for
alternative innovative ways to add value to the final product making it more
marketable, is the design philosophy embraced by the firm.

JASMAX has 7 directors who not only manage the company but also bring
projects and are actively involved in the design process from inception to
completion. The interview that was arranged at the company’s offices was with
one of the directors – a key figure involved in the largest projects in New Zealand
like Te Papa and the Britomart development. The conversation was easy going
and informal, the style chatty and the atmosphere relaxed. All the interview
questions were structured around the management of design in the office, who
gets involved, does design exist only in the inception stage or does it go right
through, what are the sources of inspiration and how they inform the design
decision.

The management of the firm believes that it is important for all staff to feel
involved in the design, as this would motivate them and expresses the opinion
that “design exists in each phase of the project but has a different impact on the
final project.” This would mean that the degree and nature of involvement and
contribution to the design would vary depending on the project stage.

Design is determined by time and budget constraints as the director affirmed, so
“aligning our desires with the client’s expectations” becomes the predominant
way of doing business. In other words, some clients prefer simple buildings, are
interested in the quality of execution and see ideas exploration as a challenge
with undesirable time and budget implications. In other projects the general
approach to design is much more sophisticated as it is not concerned only with
site context (north orientation, prevailing winds, noise control, access to the site) but also with "the social aspects of the job." Various images "sometimes in the range of a hundred" with references pertinent to the project are explored as sources of inspiration as the director explained. Later they are narrowed down to "about ten really meaningful ones" that help explain the whole concept. The integration of images and line drawings is a preferred way by the company of expressing ideas and inspirations.
4.3.2 The Museum of New Zealand Te Papa - “a statement of national identity”

“The opening of Te Papa in February 1998, concludes an exciting and challenging journey". Te Papa’s story started with “the political decision to build a national museum in Wellington, on a specific waterfront site" (Mercep, Architecture NZ, 1998, p.8). Although the appropriateness of the site generated much debate at the time, the successful design proved that this was “the ideal place to give architectural expression to the unique society that is evolving in New Zealand" (Mercep, Architecture NZ, 1998, p.8). The uniqueness of the location (proximity to the harbour and the city) or the specific site context in this instance is in unison with the social aspects of the project. “Te Papa embodies all the contextual ingredients of both traditional marae alignment and the urban background symbolising the pakeha impact on the land" (Mercep, Architecture NZ, 1998, p.8).

The design competition held in 1989 had thirty-seven submissions by architectural practices. The design issues that needed to be addressed in the concept submissions
“were grouped under three headings: building in context, biculturalism, and national identity/symbolism”… From its inception, the Museum of New Zealand Te Papa Tongarewa was also envisaged as a ‘powerful expression of the total culture of this country’, and a statement of national identity” (Hunt, Architecture NZ, 1998, p.14).

As a result of the first design competition, five submissions were selected for development in a second stage. JASMAX winning design had distinctive qualities making it quite unique. “Three interrelated conceptual ideas distinguished the original JASMAX scheme as unique amongst all of the submissions” (Hunt, Architecture NZ, 1998, p.16). The first is the location of the marae and parts of the Maori collection on a raised promontory in a direct relationship with land, sea and sky. Incorporating a “living” marae, with the purpose far beyond the welcome ceremony normally performed for tourists is quite unique. On the other hand the immediate proximity to the spaces of the other galleries exhibiting artefacts from the European settlement period symbolises the cultural realities in this country. The second idea incorporated in the design evolved around “a framework encompassing Tangata Whenua (those belonging to the land by right of first discovery), Tangata Tiriti (those belonging to the land by right of treaty), and Papatuanuku (the common land) (Hunt, Architecture NZ, 1998, p.16). The third idea of the design is redefining the harbour edge capitalising on the already existing potential. The natural blending of the new complex in the surrounding picturesque environment contributes to an astonishing and dramatic result.
JASMAX innovative approach encompassing these three conceptual ideas shows real appreciation and understanding of the bicultural nature of New Zealand making such issues an integral part of the building design rather than a simple addition.

“Common to both sub cultures in New Zealand are attitudes to openness, relationships with sea and sky, the transitional nature of the occupied spaces between land and ocean, and the importance of the land. A desire to emphasise these, within the structures of the required museum environment, has informed most of our design decisions” (Bossley, 1998, p.19).

The physical context and the specific site requirements become entangled with cultural issues and start acting as major determinants of the design. JASMAX innovative approach to solving this array of complicated issues has resulted in a winning scheme and a building, which tells in a poetic way the life story of one whole nation.
Such design scheme becomes a true reflection of the vision – a museum, which is a “powerful expression of the total culture of this country”. This original and imaginative manner does not mean just displaying cultural artefacts in a museum setting; it is more about creating a whole new design language. As it was pointed out by the judging panel, “the strength of the underlying design concept” proved to be the major criterion in making the final decision.

“Significant and memorable architecture is invariably founded on strong ideas brought together in a way that establishes a certain interdependence amongst them. Without any one idea, the others lose much of their relevance and their power…Each piece is essential to the whole, yet so also are their interrelationships. Remove one piece, and the remainder fall apart” (Hunt, Architecture NZ, 1998, p.16).

Together with issues regarding design innovation and originality, equal importance was attached to the marketing or entrepreneurial side of the project. When Te Papa was designed there was the notion that the exhibits within the museum needed to be as fresh and unique as the building. These exhibitions are carefully targeted for specific market segments to widen the museum’s core audience. It was recognised from the beginning of the project that overall, Te Papa needs to attract a broad cross-generational audience to generate the revenue necessary to keep it going. The exhibition concepts and designs were carefully evaluated to see that they meet both the audience needs and expectations, and the museum’s safety, security and budget requirements. It was well understood by the design team that the exhibitions had to be engaging and tell a story. The story is told as the visitors move through an exhibition space; the task of exhibition design is to move people enjoyably, almost subconsciously, through the story. Across the museum and within every exhibition, the design intentionally modulates the visitor experience with high points, attractors, and quiet moments. To augment traditional museum display techniques, special teams were organised to develop audiovisual products, computer interactives and mechanical interactives across all exhibitions. The end product was a combination of an astonishing building that houses exhibitions
with unique, untried designs unlike standard building construction where although the shape of the building might be quite unique, the interior can be pretty ordinary made up of standard products like low height partitions, light fixtures, carpeted areas, and so forth. The relationship between design innovation and entrepreneurship was seen as a factor of significant importance. This project is regarded by experts in this field as having profound implications in the ways in which the museum business will be done in future.
Chapter 5: From the status quo to where we want to be

5.1 Analysis

This section is structured around three themes starting with some of the great masters in architecture exploring their views on creativity in architectural design through the masterpieces they have created that embody their vision (analysis of the case studies from the previous chapter and two secondary examples – F. Gehry and S. Calatrava) to the reality surrounding us where such ideas look remote and unpractical but definitely as a place where we want to be (analysis of the industry research in New Zealand).

5.1.1 From the great Minds…

Piano, Gehry, Ito and Calatrava – inspirations, ideas, views and approaches.

“Architecture is about illusion and symbolism, semantics, and the art of telling stories”.

Renzo Piano (Architectural Record, Oct., 2002)

“My theory is that our buildings, the ideas that come from buildings are from art”.

Frank Gehry (Architectural Record, Oct., 2002)

“Communicating architectural concepts is difficult because architecture inevitably has a dual character. It is both an abstract model of ideas and something that actually exists”.

Toyo Ito (Barrie, 2001, p.2)

“We are living in a universe in which we use automation to do everything. What we didn’t have until now is the poetic, because in the last number of years, architecture has looked to technology as the goal”.

Santiago Calatrava (Architectural Record, Oct., 2002)
Architecture inspired by nature, tradition and the beauty of the human body that searches for poetry and lyricism in buildings is what unites the work of Piano, Gehry, Ito and Calatrava.

Fig. 50: Architects’ Inspirations
Renzo Piano

For Renzo Piano “expression in architecture” is paramount. As a response to his desire to fight gravity, Piano makes the statement “Magic is essential in architecture” (Architectural Record, Oct., 2001). When he explains his approach to design Piano elaborates on his own evolution as an architect. “Developing objects” or “the piece-by-piece approach was essential to me”. Later architecture was perceived as “more than putting things together. It’s about the organic, about illusions, a sense of memory, and a textural approach” (Architectural Record, Oct., 2001)

Renzo Piano distinguishes between style and coherence. He summarises that coherence for him is about the experience that a person has and its reapplication, which does not make him necessarily recognizable. Piano associates architecture with the act of exploration in terms of place, client and society. “Culturally, historically, psychologically, anthropologically, and topographically, every job is different” (Architectural Record, Oct., 2001). The architect states that the way he starts a new job is by visiting the site first and getting a basic understanding of the context. Architecture according to him not always needs to be integrated in this context, as sometimes it should contribute to that context. The way Renzo Piano carries out his site visits is fundamentally different from the conventional way that would tolerate examining of site factors like sun traverse, north orientation, prevailing winds, noise, views, adjacent buildings and so forth. As the architect puts it in a poetic way he would “try to get a basic, fundamental emotion. Because that’s what it’s all about – building emotion” (Architectural Record, Oct., 2001).

The “building that sings” (Architectural Record, Oct., 2001) in Noumea, New Caledonia with its poetic and at the same time dramatic forms is a concrete example of expressing that powerful emotion. His “two-hour site visit” (Falconer,
2001, p.28) resulted in a concept inspired by tradition, a true celebration of the Melanesian culture of the Kanaks.

“His design had taken the tallest, narrowest form of the traditional chief’s hut and lined the central ridge with a series of these forms in a seemingly partially unconstructed fashion. He had met the spirit of the brief but with hardly a mention of the landscape or much of the other detail” (Falkoner, 2001, p.28).
Fig. 51: Piano Sketch of traditional huts (The Architectural Review, Dec., 1998)

Fig. 52: Inspired by tradition, formed by modern technology, this centre celebrates and explains the Melanesian culture of the Kanaks (The Architectural Review, Dec., 1998)
In contrast Isthmus Group – the only one from New Zealand, teamed with Frameworks from Papua New Guinea, one of the ten short-listed finalists “spent several weeks in Noumea, visiting the site each day in different conditions, clambering all over it, visiting other villages and interviewing many people” (Falkoner, 2001, p.28). The team was passionate about the project and at the same time “intrigued by the opportunity to combine a sense of tradition with modernism” (Falkoner, 2001, p.28). Unfortunately their strategy focused too much on the detail, failing to understand the whole or the emotion of the site, as Renzo Piano would approach it. “Knowing the competition, our strategy focused on meticulously understanding the details of the Kanak culture and its relevance to the particular site” (Falkoner, 2001, p.28). Being self-critical, the team summarises its experience in retrospect concluding that this ungrounded obsession with detail proved to be a wrong strategy. “In a classic situation of analysis/paralysis and information overload we were still working on the concept design right up to the deadline. Indeed it was a struggle to answer all the detail requirements set down in the brief” (Falkoner, 2001, p.28).

The author’s own site visit to Noumea shed more light on the issue. The models of five of the finalists were on display in one of the ten cases of the complex. The concepts were so disparate and at the same time the author’s perception was that Piano’s design stood out as the most expressive of tradition and local culture. The author’s personal opinion was of all the other four as universal designs that would suit almost any other location around the world.

![Fig.53: Frameworks' and Piano's competition models (L.Kiroff, site visit, 2002)](Image)
It can be argued that Piano’s approach to design, which is pattern seeking first and detail second can be explained with the Gestalt psychology (see the Literature Review chapter). Main principle of this theory is that in every perceptual image the whole is more than the sum of its parts whose organisation is subordinate to a “gestalt” that holds them together. McKim (1980) argues that the “gestalt” should be complemented by analytical thinking exploring the richness of detail in the surrounding environment. According to the author pattern seeking should precede analytical seeing implying that visual analysis should be followed by a reformulation of the overall pattern. Cycling back and forth between pattern seeking, analysis and re-pattering again enables catching the unusual, the unfamiliar and the unexpected. In the case of the Tjibaou Cultural Centre, the main theme song or the “melody” that holds the entire harmonious ensemble of buildings together, has powerful cultural connotations derived from a rich indigenous heritage. The ability to achieve a “gestalt” or it can be argued the ability to make a powerful statement through design requires mastery that rises above the tedious obsession with detail and embodies the vision of the integrated whole. It is a fact that Piano spent only two hours on the site (Falkoner, 2001, p.28) researching its possibilities and limitations possibly composing the theme song in his head while other architectural firms spent between two to three weeks analysing each possible detail in terms of site context that might affect the design obviously without experiencing the “melody”. The perfection of the individual musical instruments cannot be a substitute for the overall harmonious sounding of an orchestra. Translated in architectural language, perfecting each detail will not result in a powerful design statement; it will only add another trivial building to the heritage that already exists.

McKim (1980) introduces the “graphic abstraction ladder” with the two levels of the concrete and the abstract graphic languages. The logical question that can be posed at this stage is: “Can a ‘melody’ fit into these two levels, as it is neither a drawing (concrete level) nor a scheme (abstract level)? Does this suggest in a way the necessity of adding a new step to the ladder?”
Frank Gehry

Another renowned architect having the gift of creating remarkable architecture – Frank Gehry describes the way he starts a project by doing sketches. “As soon as I understand the scale of the building and the relationship to the site and relationship to the client, as it becomes more and more clear to me, I start doing sketches” (Knight, 2000). This is his individual way to explore ideas and see the whole without going into much detail. Christopher Knight, an art critic at Los Angeles Times (2000) says:

“The key to Frank O. Gehry’s architecture is in his drawings. A Gehry building begins with a sketch and Gehry’s sketches are distinctive. They are characterized by a sense of off-hand improvisation, of intuitive spontaneity. The drawings convey no architectural mass or weight, only loose directions and shifting spatial relationships” (Knight, 2000, p.2).

Gehry’s inspirational sketches can be related to the phase of graphic ideation as introduced by Mckim (1980) (see the Literature Review chapter). According to the author graphic ideation is an important phase in the process of generating ideas and it can be regarded as an expression of ideas by means of drawing. McKim argues that graphic ideation has two basic modes – exploratory during which ideas are captured and documented in a sketch form, and developmental when a promising concept although initially crude undergoes evolution to a more mature form. In terms of techniques the exploratory mode is sketchier with general features and no concrete detail like Gehry’s sketches, while the developmental mode is more detailed and less schematic.
Knight (2000, p.2) qualifies the Guggenheim Bilbao as “a remarkable turning point in Gehry’s work and in the history of architecture – because it manages to maintain in built form the impromptu sketchiness of his drawings. It’s a sketch in real space, a sketch you can walk into”.

Arthur Lazere (2001, p.2) expresses a genuine fascination with the building resembling a sculptural masterpiece.

“Frank Gehry’s Guggenheim Museum Bilbao is a building of such brilliant innovation and aesthetic triumph that it has been called a twentieth century Chartres. Indeed, what Gehry has wrought is a cathedral to art, a soaring sculpture functioning both as exhibition space and symbol of civic pride for a provincial city reaching for greatness.”
“The metaphor for a sailing ship” inspired by the unique location of the building on the shore of the river is further expanded by Lazere (2001, p.1) to “space ships and exotic alien botanies” due to “its exotic and futuristic look”.

Vanessa Castellano (1998, p.4) perceives the building as “a huge futurist sculpture”. She maintains that Gehry’s fascination with art has found true expression in Guggenheim. The architect himself believes that ideas in architecture actually come from art. “The building was inspired by Pablo Picasso’s famous cubist work ‘The Accordionist’, and the successful architectural interpretation of that painting is what makes Gehry’s achievement unprecedented” (Castellano, 1998, p.4).
Gehry sees the development of his own visual intellect as extremely important. “I mindset myself a long time ago to look at a lot of stuff. To look at things. Spend a lot of time looking. Looking at the space between objects. And I used to sit and just fantasize about cities. And I do that in the built environment (Architectural Record, Dec., 1998).

Referring again to McKim (1980) and his “graphic abstraction ladder” that he introduces, it is hard to define where such fantasies and dreams pertinent to the early stages of a project reside. Obviously the two steps of the ladder cannot accommodate the intangible, the subconscious and the emotional.

Gehry’s emphasis on visual intellect and visual memory and the “idea of architecture as sculpture” (Lazere, 2001, p.1) has resulted in a unique style exploring spatial relationships and dramatic forms through model making. The architect explains that he works on models simultaneously at two scales.

“The reason I work at two scales at once is so that I don’t get enamoured with one, the object of desire I call it. It is seductive..., focusing on the real building all the time while you’re working is a trick, because you get lazy, and by shifting scales it forces you to be careful” (Architectural Record, Dec., 1998).

Gehry’s approach to design through model making exemplifies McKim’s (1980) concept of externalised thinking in the idea generation stage (see the Literature Review Chapter). According to McKim seeing and thinking can function together or can be regarded as synchronous activities as opposed to the popular belief that these two activities operate in a sequential order or are asynchronous. McKim exemplifies his idea with a sculptor who thinks in clay. In architectural context Gehry, the architect, who has a genuine fascination with sculpture and art, uses this method of externalised thinking extensively when working on his projects.
Model making has two disparate applications. There is a fine distinction between a model being manipulated while exploring a concept and a model being presented as a final product communicating a fully formed idea. The author’s personal observations reveal that the second application of model making proves to be more ubiquitous while the first one remains neglected and undervalued.

Gehry emphasizes the importance of the architect-client relationship. He maintains that he spends a lot of time with clients trying to understand what their expectations of the project really are. He even admits that he enjoys the people process more than the end product or the final building. He perceives this process as the one that has the potential to stretch the imagination to unexpected limits. “It also is a process that creates the opportunities for invention, because it is that interaction that makes it exciting and rich” (Architectural Record, Dec., 1998).
Art and sculpture are central to Gehry’s work. He admits,

“Paintings and sculpture have been very crucial to my world and my life – probably more than literature…My theory is that our buildings, the ideas that come from buildings are from art. So when I was working in Mexico on a project, I was thinking of “The Madonna and Child” (Architectural Record, Dec., 1998).

Toyo Ito

Toyo Ito’s style is “authoritative, arresting, technologically sophisticated, even futuristically minimal but also deeply informed by cultural history and the shifting, ever-present natural materials – wind, light, sound, space” (Designboom, 2001). Inspired by new social and urban developments, and facilitated by new materials, structures, and technologies, Ito’s unique approach to design promotes architecture with an almost immaterial lightness and transparency being metaphors of a new understanding of a world in flux. Ito’s sleek, abstract and ephemeral concept-buildings are characterised by flowing spaces with no definition, and the use of light materials like aluminium and glass. His “wind architecture” (Tower of Winds, Yokohama, 1986) exemplifies the architect’s striving for “formal instability, or for a hypothetical condition of ‘no form’ combined with his architecture of ‘urban nomads’. In the wind-blown tents of the nomads there is no distinction between formation and deformation – between form and no-form” (Bognar, 1997, p.7).
Inspired by the ephemerality of the information society, and especially by its manifestations in the Japanese city, Toyo Ito progressively “dematerialised” his architectural designs. “The ephemeral, taken in a positive sense does not necessarily mean that the architecture is short-lived, but that new meanings are perpetually emerging” (Bognar, 1997, p.7).

His architecture of the ephemeral is replete with references to nature and environment. For Toyo Ito “all architecture is an extension of nature”. He says: “Our architecture has traditionally been linked with nature through figuration of movements of vortices occurring in water and air” (Designboom, 2001). The image of floating seaweed becomes his source of inspiration in the Sendai Mediatheque design.
Ito gives the following clarification about the use of the word “floating”. “I often use the word ‘floating’ not only to describe a lightness I want to achieve in architecture, but also to express a belief that our lives are losing touch with reality” (Bognar, 1997, p.8). Deeply inspired by nature, he summarises the main concept of the Mediatheque as a “technology forest” (the mesh like columns) and the displays on the seventh floor as a “technology garden” (Toyo Ito’s lecture, 2001, Auckland).

The interactive imagery idea as introduced by McKim (1980) (see the Literature Review Chapter) can be illustrated in architectural context with Toyo Ito’s Mediatheque design. Visual thinking according to McKim encompasses three kinds of visual imagery that are in an interactive type of relationship: the kind that we see, the kind that we imagine and the kind that we draw. This type of relationship allowing dynamic cycling from one activity to another makes the “interactive imagery” idea applicable to any problem-solving situation. Exploring different viewpoints (seeing the problem) in search of alternative solutions (imagining the resolution) and representing them through quick sketches (drawing the solution) is seen as an efficient way to tackle a specific problem.
Across his designs, Ito proclaimed a model where boundaries such as inside/outside and private/public are becoming blurred. Ito coins the term “architecture as epidermis and introduces further analogies to nature referring to underwater organisms for greater flexibility-fluid bodies-biomorphic structures” (Hanru & Obrist, 2001, p.4).

At a public lecture in Auckland, New Zealand in 2001 attended by the author, Ito explained passionately the philosophy of his approach to design by making the statement that “designs should resemble ripples in a water surface rather than resemble static rods in water”. The metaphorical way of thinking and expression are present in all his work.
Toyo Ito in an Interview taken on 27 Oct. 2001 by Designboom made the following statements about architecture.

“Architecture in electronic age is an extended form of media suit. In 1960s, M. McLuhan said that our clothing and shelter are the extended form of our skin. From old times, architecture has served as a means to adjust ourselves to the natural environment. The contemporary architecture needs to function, in addition, as a means to adjust ourselves to the information environment. It must function as the extended form of skin in relation both to nature and information at once. Architecture today must be a media suite. People, when clad in a mechanical suit called automobile, had their physical body expanded. People clad in a media suite have their brain expanded. Architecture as media suit is the externalised brain. In the whirlpool of voluminous information, people freely browse through information, control the outside world and appeal themselves to the outside world. Instead of appealing to the outside world by armouring themselves with a hard shell-like suit, people do so by wearing a light and pliant media suit which is the figuration of information vortex. People clad in such media suit are the Tarzans in the media forest” (Designboom, 2001, p.3).

Santiago Calatrava

Calatrava, the architect “who would maybe take us somewhere that we hadn’t quite imagined” (Bowman, director of the Milwaukee Art Museum) emphasizes the importance of place when formulating ideas in a similar fashion as Piano’s emotion generated by the site. “The very first impression will come from the place. And I think it is fundamental to establish a link of feeling with the place” (Architectural Record, Aug., 2000). For Calatrava the “human context” is equally important along with the “topographical landscape, climatic environment and cultural landscape”. He believes that “these will inspire or bring the essence to a project” (Architectural Record, Aug., 2000).

“And with those elements I then begin a work of synthesis. I try to express ideas as best as I can maybe by sketching on paper. At this point, the sketch is the first manifestation of the idea. In terms of a graphic language, it is just the result of an idea that comes from these factors combined” (Architectural record, Aug., 2000).
Calatrava perceives sketching as a method of seeing. The architect states: “the sketch is the instrument that helps me materialize the ideas at another level. And the most abstract way to do studies of morphology probably is sculpture” (Architectural Record, Aug., 2000). He believes that the problem of an idea is not only having the idea but also the clear communication or the expression of that idea. He places a very high value on sketches since they are seen as the translation of the idea. Calatrava quotes two famous filmmakers – Fellini and Akira Kurosawa who both use the method of sketching for their movie shots as a way to express not only their ideas but also their vision.

Calatrava maintains that one draws the human body to understand movement and gesture. “For myself, I venerate the human body, which I keep drawing and drawing and drawing”. The architect believes that it is much easier to read the purity of form in drawing and in sculpture than to read it in the buildings themselves. Some of his best known work, like the Liege Railway Station, Lyon-Satolas Airport Railway Station and Montjuich Communications Tower in Barcelona are closely related to his own drawings of the human body, and to his sculptures of geometric forms, inspired by the dynamics of movement and tension.
Fig. 63: The human body in architectural design
Calatrava believes that “you can channel all the impulses of free thinking, free feeling, shape, form, the natural flow, and this goes from the sketches and the human body into the sculptures” (Architectural Record, Aug., 2000). Both Gehry and Calatrava are fascinated by sculpture. As Gehry for example goes from sketches to models, Calatrava starts with sketches and moves to sculptures as a method to do studies of morphology.

When working on projects with complex structures like the stations in Lyon and in Lisbon, and the Milwaukee’s Art Museum, Calatrava adopts an interesting approach, which subdivides the objects in two parts.

“One we call a container, in which many things can happen, and another will be a single part. You design a part of the building that is much more the ‘idea’ part than the rest of the building, because the rest of the building in all its complexity needs a certain operational understanding” (Architectural Record, Aug., 2000).

Calatrava’s ability to synthesize has been regarded as a gift uncommon in contemporary architecture. “You are synthesizing, you are taking abstract ideas, and you are taking the programmatic rational ideas, and you are making something more than an object of pure reason” (Architectural Record, Aug., 2000). For Calatrava this ability to synthesize has become an alternative path in an attempt “to overcome the dryness of the pure function of analysis” (Architectural Record, Aug., 2000). The architect shares his fascination with Cezanne’s work, which makes him consider himself as having not only the paradigm of an architect but also the paradigm of a painter. Gehry shares similar fascinations with art – Matisse and Picasso.
5.1.2 …to the great buildings…

Tjibaou Cultural Centre, Sendai Mediatheque, Te Papa

The analysis of the three iconic buildings (introduced descriptively in the Case Studies chapter) presents the different sources of inspiration that have influenced the design – traditional huts, nature and the search for bicultural identity. Other aspects of the design remain beyond the scope of this study.

The “Building that sings”

“Real architecture, real painting, real poetry, real music is never detached from physicality. In architecture, that’s it”.

(Renzo Piano, Architectural Record, 2002, p.1)

Piano proves what he believes in with the unconventional design of the Tjibaou Cultural Centre in Noumea, New Caledonia. It is an unambiguous statement, with its bold, modern style, both elegant and restrained, drawing inspiration from traditional Kanak architecture. The Centre is a unique architectural embodiment of an age-old identity.

Fig.64: Traditional Kanak case (house) (L.Kiroff, site visit, 2002)
Learning from the Kanak culture, the vernacular architecture and the relatively small site with an iconic requirement was the starting point in the design process. “From the first, Piano was concerned to learn from local culture, buildings and nature, but he was determined not to end up with a kitsch replication of Kanak huts” (Mcinstry, 1998, p.1). The architect says: “It was not feasible to offer a standard product of Western architecture, with a layer of camouflage over the top: It would have looked like an armoured car covered with palm fronds” (Findley, 1998, p.2). Piano’s innovative approach to the design has resulted in a unique complex inspired by tradition but at the same time consciously avoiding the accurate replication of the Kanak huts. The idea of the village cluster and the ribbed hut structure are elements of the vernacular architecture that were taken and interpreted by Piano. In the traditional hut design “tall thin curved timber members cluster together at the top and carry the cladding” (Mcinstry, 1998, p.1). Piano says: “I decided to tone down the resemblance between ‘my’ huts and reducing the length of the vertical elements and giving the shells more open form…the staves no longer meet at the top, as had initially been planned” (Mcinstry, 1998, p.1). Another modification to the original vernacular architecture was the use of laminated iroko for the curved ribs instead of the palm saplings. “Piano hopes that the rot-proof iroko ribs will weather to the same pale silvery grey as the trunks of the indigenous palm trees” (Mcinstry, 1998, p.2). Achieving the native natural look is obviously an important consideration in the design.

Fig.65: The cases of Tjibaou Cultural Centre (L.Kiroff. site visit, 2002)
The architect’s explanation of this design attitude is that he works “like a thief, reinterpreting what exists” realising that the complex should be “reminiscent of a Kanak house not a copy” (Falconer, 2001, p.29). Falkoner (2001, p.28) analysing Piano’s design approach summarises his view:

“Design for him is a spiritual process, not a linear process but a circular reworking of an idea starting with tradition and a keen sense of place as points of departure”. The initial design idea was then explored further by through “building a full scale model of a pavilion. Piano was for the Kanaks close to their existential position but with a sophisticated sense of modernity and technical expertise. He gave them something different and that is just what they wanted” (Falconer, 2001, p.29).

Findley (1998, p.1) qualifies the centre as “a subtle and generous work, a model of diplomacy, and a compelling contribution to New Caledonia’s native Kanak people.

Designing “a building that sings” can be considered as quite an eccentric and unusual approach to design but it has its cultural inspirations. Renzo Piano shares his experience: “In New Caledonia we learned from the local culture that buildings sing” (Architectural Record, 2001, p.2). That was successfully achieved in the design – the building actually makes a sound when the wind blows giving the impression that the “building sings”. The abstracted tall huts catch the high winds and modify their effects through a system of horizontal slats carried by the curved ribs. “The wind surging through the slats of the open outer carapace gives the huts a ‘voice’…it is that of the Kanak villages and their forests” (Mcinstry, 1998, p.2). As Renzo Piano argues the complexity of a building is not necessarily associated with geometrical complexity. In the case with the Tjibaou Cultural Centre in New Caledonia this “complexity comes from the skin, the surface of the building actually vibrating, working with the weather” (Architectural Record, 2001, p.2).
The “swelling wooden shapes”, “simultaneously alien and indigenous” as Findley (1998, p.1) calls them or the “gigantic buds”, “almost botanical in form” as Mcinstry (1998, p.1) describes them are probably the most prominent feature of the architectural design, but at the same time they are skilfully complemented by other design features (the main entry and the landscape design) both original and symbolically resonant with local tradition. This unusual design approach to the base of the cases, which take the form of “gigantic buds” rather than the round in plan view but vertically straight shape of the traditional Kanak hut intrigued the author of this research and set her on an exploratory path during a visit to Noumea, New Caledonia in July, 2002. That was further instigated by the lack of reference in literature sources pointing to the idea behind this. A sudden break-through experienced during the site visit resulted in a serendipitous find of a point of reference to the unusual “bud” shape. It was the equally unusual base of native palm trees growing in close proximity. That was the author’s personal perception, the reason being Piano’s fascination with traditional architecture and nature.

Fig.66: “Buds” in buildings and in nature (L.Kiroff, site visit, 2002)
Piano’s architectural approach to the design of the main entry is quite unconventional, a definite departure from well established Western norms and practices. Findley (1998, p.3) says:

“The entrance to the complex is not at the landward end of the hallway, where conventional Western architectural logic would have it. Instead, one follows a path that swings toward the building to enter under a wide porch along the northwestern side. In Kanak tradition, an indirect path is the proper way to approach a dwelling” (Findley, 1998, p.3).

Falkoner (2001, p.29) expresses similar views: “The entry is not directly accessible: instead, a path winds around to the lagoon side entering at right angles into the middle of the complex”. This “Kanak Path”, the expression of a nation’s soul, leads the way to the Melanesian identity. It is the main landscape feature that was deliberately incorporated in the design. “It is a picturesque narrative aimed at teaching visitors episodes of the Kanak story using the mythical Tea Kanak figure as a guide” (Falkoner, 2001, p.29). Findley (1998) expresses his fascination with the landscape design that is also inspired by tradition.

“The agrarian Kanaks attach practical and cultural significance to a wide range of plants: as food and medicine, and as markers of boundary, entrance, greeting, and occupation. This affinity with the land is revealed in the Kanak Path, a sequence of landscapes between the centre and the lagoon that refers to Kanak myths of creation and the cycles of life, death, and rebirth” (Findley, 1998, p.4).
The lyrical grace of the Mediatheque

The pursuit of a harmonious relationship between Man and Nature has always been a part of eastern tradition. The concept and practice of Feng Shui (which is usually translated as “geomancy” or literally as “wind and water”) is perhaps the embodiment of this harmony. Emphasising the importance of respecting the world’s natural state, one which is vital, fluid and ever changing, Feng Shui is meant to help the man-made world attain perfect harmony with Nature by indicating the correct locus for architectural and urban construction. This could be seen as the opposite of Western Modernism’s separation between Man and Nature. It is because of Modernism’s opposition to Nature that many Asian architects, urbanists and artists have begun seeking a re-introduction of Feng Shui as essential to the restructuring of urban space in particular, and Asian culture in general. This is a cultural strategy meant to confront and resist the domination of Western modernism and post-modernism on the processes of globalisation.

In this context, Toyo Ito’s Mediatheque is innovative at every level, fusing the physical and virtual worlds. The integration of diverse functions under one roof and the innovative steel-tube structural system have forged new approaches to spatial definition, building services, circulation and construction.

“Inspired by new social and urban developments, and facilitated by new materials, structures, and technologies, the evolving new design paradigm embraced by Ito can evoke and construct ‘architecture’ with an almost immaterial lightness and transparency; here lightness and transparency as metaphors are the manifestations of a new understanding of a world in flux, whose paradoxical order of ‘creative chaos’ can be approached only with a radical new ‘modal consciousness’ unfettered by conservative conceptions of the world” (Bognar, 1997, p.8).

The fascination that Toyo Ito has with layering semi-transparent skins and then drawing analogies between them and the natural phenomena of clouds or forests
remains a genuine wish to be associated with the basic observable elements of nature. The “technology forest” (the mesh like columns) and the displays on the seventh floor - “the technology garden” embody and illustrate Ito’s fascination with nature (Ito, 2001).

The image of the “trees made of metal mesh”, the “tubes” (Ito, 2001, p.6) or the actual columns of the building was the dominant one in the initial stages of the design. The thirteen tubes, which are bent and twisted are all different in configuration and size and are as big in places as nine meters in diameter. The “trees made of metal mesh” were imagined as columns seemingly without mass, that is, as treelike structures without materiality. The process of disillusionment or the transformation of the image has begun with the proposal for the actual structure made by the structural engineer on the project.
As construction on site was progressing the steel tubes turned out to be very solid material objects - a far cry from the pliant and delicate “seaweeds” existing in the architect’s imagination. In reality something more prosaic like thick steel pipes were needed to carry the heavy loads. Ito (2001) says:

“As the building underwent construction I finally came to recognise the tubes for what they are: things, nothing more, nothing less. I was overwhelmed by their presence and forced to rethink. As it turned out mesh like columns could only exist in the imagination” (Ito, 2001, p.6).

Another transformation occurred when the tubes were painted white and wrapped in glass. “It was as if the tubes had become like products in a showcase. The transformation from virtual tubes to real tubes…also involved a transformation in my concept of the tubes” (Ito, 2001, p.7). Wrapping the tubes in glass is another deviation from the original design. The steel, painted white and placed behind glass ceased to be so conspicuous and overwhelming. The transformation of the concept of the tubes from virtual objects to real ones is in fact the conversion that inevitably takes place when ideas and concepts existing only in the imagination are translated into reality. This gap is a pervasive contemporary condition.

Ito is aware of the gap that exists between architects’ ideas and their constructed buildings. He says: “A real building can only be an imperfect model, an approximation of ones architectural ideas” (Barrie, 2001, p.2). Transferring concepts and brilliant ideas into buildings has its limitations and is a complicated process requiring a whole range of diverse skills. “Concepts can be communicated only if an effort is made…to eliminate imperfections and to make the model as pure as possible” (Barrie, 2001, p.2).

Another change that was caused by the process of translating the initial image into reality is perceiving the entire building from outside when it is illuminated after the sun has set. The differences between the floors become more distinct
not only because of their different height, ceiling finish and furniture but also because of the different method and colour of illumination. The unexpected effect is of an assemblage of floors as if from different buildings. The tubes do not play the dominant role in the design at night as they were in the model prepared for the competition. The floors are more conspicuous, and this results in a greater emphasis on the horizontality. This difference in perceptions during the day and at night reveals the creative application of lighting in the design. It has the powerful ability to completely transform the entire building proving that ideas can evolve and are prone to metamorphosis.

Fig.70: Transformation at night – horizontal slices of different colours
Te Papa – “concepts in culture”

“Significant and memorable architecture is invariably founded on strong ideas brought together in a way that establishes a certain interdependence amongst them” (Hunt, Architecture NZ, 1998, p.16).

Fig.71: Maori cultural icons

The design brief for Te Papa had specific requirements for the building to be a “bicultural” institution, a building that will “powerfully express the total culture of New Zealand” and will represent the “bicultural nature of the country, recognising the mana and significance of the two mainstreams of tradition and cultural heritage and provide for each to contribute effectively to a statement of the nation’s identity” (Bossley, 1998, p.18). JASMAX design was quite unique in that respect as it did not seek merely cultural presence through the display of indigenous artefacts. Overstating traditional forms incorporated in the design had not been seen as a possible alternative either.

“At JASMAX, we were determined to ensure that any definition of the bicultural nature of the country would be integral to the building design, rather than a seemingly ‘carved’
addition. We also intended that such reference would be within the larger language and idiom of the building, rather than a potentially patronising enlargement of traditional-looking forms” (Bossley, 1998, p.18).

The inclusion of a “living” marae in the design was also unique and a true expression of a nation’s soul within the bicultural definition of the building. The Museum is a testimony to the validity of Maori and other Pacific cultures. The impression that the marae makes on the visitor is extremely powerful. Including references to both Maori and Pakeha had been considered by the design team as the first step that needed to be taken further by placing these references in an appropriate context where recognition, acceptance and celebration of cultural differences make biculturalism realistic and valued. “It seemed important that the concept should do more than merely incorporate references to Maori and Pakeha – it should celebrate them” (Bossley, 1998, p.18).

In a similar fashion as Renzo Piano researched the Kanak traditional culture and learned from it, Bossley (1998) shares the experience of the design team who explored Maori and Pakeha settlement patterns as well as “a number of underlying preferences which had often informed the siting of marae and wharenui around the country” (Bossley, 1998, p.18). Bossley continues
analysing the differences between Maori and European attitudes to settling the land – on one hand “orientation towards the most open landscape aspect, towards the rising sun, with enclosure behind” and on the other hand “the predominant European urban approach where the orthogonal street grid was used to mark and inhabit the land” (Bossley, 1998, p.18). This preliminary research resulted in different design approaches – two orientations are present in the design. For example the History, Art and Natural Environment galleries influenced by the European tradition have a structural grid characteristic of colonial Wellington. The marae situated in close proximity to the Maori Art and History Gallery can be regarded as a deviation from the traditional museum culture. Different design rules applied to this part of the building, mainly Maori urban patterns – orientation towards the rising sun and the positioning of the marae on a promontory in close contact with sea and sky.

Looking at design as an opportunity and concurrently as a challenge for cultural issues to be aired is conducive to making the design process more creative and innovative. Such challenges spur the imagination to explore new exciting design philosophies that lack the ubiquity of conventional design, to test possibilities and debate controversial concepts. The two A’s – Art and Architecture in a cultural context become a powerful tool in contemporary design. The concrete physical context and the site with its potential possibilities and limitations, overlaid on the cultural theme can be considered as a premise for uniqueness in design.

Giles Reid (1998, p.33) makes the following conclusion in his article “Museo-Logic”: “Throughout the debate on Te Papa, expressed in newspapers across the country, one word stuck in the mind: icon…Aside from public concerns, Te Papa had its own unique agenda, namely to express the nation’s philosophical commitment to biculturalism”.

5.1.3 …and back to earth

Analysis of the industry research involving ten architectural firms in Auckland

The purpose of the industry research was to establish everyday practices in Auckland and analyse guiding notions, idea generators and metaphorical thinking in design. The next step was a comparison with the three case studies previously discussed and the way the great masters in architecture approach design.

Ten architectural companies – five large, three medium and two small ones were interviewed for the purposes of this research. The size of the practices was just one criterion for selection with the other one being the portfolio of the firm. The author’s preference was to interview companies involved in commercial type of projects. The number of staff in each one of these categories ranges from 30 upwards for the large ones, to 10-15 for the medium size ones and 3-5 people in the small companies. A good cross-section of people has been included - interviewees were Project Directors, Design Architects and Assistant Architects. The selected range of people was determined by the type of work they were involved in and namely the design phase of a project. The organisational background research as described in the “Research Methodology” chapter preceded the actual interviews. They were complemented by observation and document analysis of projects presented at the interviews for discussion. The main purpose was to explore only certain aspects of the design process or the phase when sources of inspiration are explored and ideas generated. The research results have been analysed by the author in that respect forming a representative study of a small segment of the market in New Zealand at a specific time. Visions, approaches to design, importance of creativity and innovation to the quality of design vary significantly from one firm to another reflecting a diverse range of values, interests and preferences.
The research results, presented in a narrative format, have been organised around the same four broad headings as they appear in the questionnaire – background/context, the vision, preliminary design and presentation drawings. The original quotes by the interviewees have also been included throughout the narrative.

**Background/Context**

First impressions of most of the companies were of an extreme informality of manners and dress code, of high accessibility of staff encouraging spontaneous interaction among staff members and the senior partners. Projects posted on the walls throughout the offices and glossy brochures and pamphlets with visual images displayed in the reception areas in most firms created an image of the company at a glance. The offices of all ten interviewed companies were primarily open plan, with adjustable workstations, shared discussion areas and service nodes. The space with no rooms and partitions obviously promoted a culture of open communication and informality of manners. The nature of the design work itself contributes in its own way to this type of free spirit environment. This avant-garde approach to office space, common in all ten offices, puts the emphasis on functionality and job relationships, moving away from the traditional thinking of the office space as a determinant of social status. In the five large offices and the three medium size ones the first thing that strikes an outsider is the ubiquity of computer hardware on each desk suggesting that these companies have totally embraced the sophistication of modern computerised business. Manual drawings are considered in these eight companies obsolete and computer drawings produced instead. In the two of the large firms computer technology like Intranets, Extranets and the Internet are widely used not only to perform everyday business tasks (the production of drawings) but also as an effective communication and research tool through the use of an extensive E-mail network and Internet facilities. In one of the small size firms the company aptitude for modern computer technology was quite obvious, all drawings were produced
through the use of CAD. In the other small one there was still a bit of reluctance and manifested resistance towards the CAD invasion, with manual drawings still being the norm. This can be explained with the fact that small companies are usually run by sole practitioners and if they are from the older generation of architects not conversant with CAD, then the preference for manual drawings becomes logical.

The semi-structured interviews aided by a specifically designed questionnaire involved also a quick review of some of the companies’ projects. This approach proved to be very efficient as the actual projects supported most of the statements made by the interviewees. The first question “What makes you stay in the architecture business” got a similar response. Architects find their profession “interesting”, “dynamic” and “pleasant”. Making money was not mentioned as a main driver and stimulant. Job satisfaction, the opportunity to be involved in a “continual learning process”, “interests in the fabric of societies and cities”, and “the ability to create and affect people’s lives” seemed to be more important than the money factor. As one Project Architect put it: “Architecture is a celebration of human existence”. This genuine interest, the motivation and the excitement of the work are what make architecture art and not craftsmanship. One of the firms has a values statement: “we believe that architecture has the power to inspire the spirit”. Architecture is not a commodity with a price tag; it is apparently something more for the company that sees poetry in what they do. At the same time it is a fact that there is a gap between espoused values and reality and this discrepancy is often manifested through conventional and uninspiring designs. One example of such discrepancy is company’s requirements for staff to possess innovative skills: “to demonstrate a vision”, “to generate and/or recognise creative solutions”, “to gain commitment to innovative ideas”. In reality such skills are neither required, nor applicable as other factors like client’s vision, budget and time constraints take over and shape up the innovative and creative approach to design.
The formation of the creative teams seems to follow a similar pattern across the firms. Past experience in the field and immediate availability are the two factors that determine the selection of people on a project. The structure within the team is in a way hierarchical: Director – Project Architect – Design Architects – CAD Operators. Project Architect reports to the Project Director, Design Architects assist the Project Architect and CAD operators (who can also happen to be Architects) are at the bottom of the pyramid. There were slight variations in the firms in terms of this particular order, with the Project Architect being a Design Architect as well and in the two small firms the Director being a Project Architect and Design Architect at the same time. In some companies, regardless of the size, the main design is done by the Director and the Project Architect with the involvement of the Assistant Architects in smaller parts of the design like reception counters, balustrades and so forth. In three of the large offices that order was slightly deviated again – the design was done by the Director and the Design Architects and the Project Architect was brought into the project later to coordinate and execute the work. All interviewees unanimously expressed the opinion that there is a high level of specialisation in their offices, which implies that design is done only by certain people. In this more or less established order that resembles a hierarchical structure there are little opportunities left for staff members who are not Project Architects or Design Architects to contribute to the design process. The management in several offices was of the opinion that “design exists in each phase of the project but has a different impact on the final building”. The management believes that it is important for all staff to feel involved in the design, as this would motivate them. This statement is only partially true, as it does not take into consideration the magnitude of personal job satisfaction, which is unfortunately proportional to the scale of the design contribution. It is not the same to design the main atrium of a large commercial building or to decide whether a door will need a vision panel or what door handle type to select. This scheme of work distribution is widely considered as quite efficient by the management especially in large organisations. This fact infers that generally design will be created only by certain people without capitalising
upon other human resources. In one of the large firms the Director pointed out the tendency at the company for “this hierarchical structure to be flattened”. As he explained: “Cretes and brainstorming sessions are often held to explore a wider pool of ideas”. Unfortunately the author was under the impression that this statement was an exception rather than a wide spread practice in the interviewed firms.

It is a common practice for all interviewed firms to follow the design stages as set out by the NZIA document “Agreement for Architects Services” (AAS2, 1996): Pre-Design – Site Analysis – Preliminary Design – Developed Design – Contract Documentation. For larger projects all stages are followed and for smaller ones usually only the Preliminary, Developed Design and Contract Documentation. In some large firms the preference is for the Developed Design to be dropped while still doing all the other phases.

**The Vision**

There are three scenarios for developing the vision when working on a project – it can be either a team effort (usually in larger offices), a result of collaborative work involving the Director and the Project Architect, or a combination between any of the above two and a Client’s input, which in some cases can be very significant (“around 60%”). One implication then is that the vision often departs from the poetic realm and turns into a pragmatic brief with items to be covered. Architects defined several sources of inspiration. For some the actual site with its idiosyncrasies is seen as a major source of inspiration while for others it is not “the physical site only” that they are interested in, the site is regarded as “a threshold”, a reason to start looking at the “fabric around it” and explore “connections beyond the site boundaries”. For most architects looking at magazines with similar buildings or the work of others is a common practice, the reason for this being forming an aggregate view that will later inform the concrete design through the “crystallization of the idea on a subconscious level”. The
author’s own experience around the world points to another picture of specific building elements or even whole buildings copied from one country to another with the only difference that in some cases there might be a change of function – from an apartment block, for example, to a telecommunications commercial building. Obviously in some isolated cases “this crystallization of an idea on a subconscious level” may experience the oddities of a metamorphosis and start operating on a quite conscious level. Nobody from the interviewees made any reference to the other domains of visual culture. Seeing “seaweeds”, “ballet”, “the human body”, “paintings” or “nomad tents” as diverse sources of inspiration was perceived as a “risky field”, which was explained with the need of “aligning our desires with the client’s expectations”. In other words, some clients prefer simple buildings, are interested in the quality of execution and see ideas exploration as a challenge with undesirable time and budget implications. In other projects the general approach to design is much more sophisticated as it is not concerned only with site context (north orientation, prevailing winds, noise control, access to the site) but also with “the social aspects of the job.” Only in one of the large offices there was a practice of including imagery in the design concept. Various images in the range of a hundred with references pertinent to the project were explored as sources of inspiration as the director explained. Later they were narrowed down to about ten really meaningful ones, which helped to explain the whole concept.

**Preliminary Design**

All interviewed architects communicate their ideas to the client by using orthographic (manual or CAD) drawings, sketches and only in a few firms “some diagrams”. Appropriate body language and a persuasive style of presentation are also considered as part of the whole package. The clients being property developers and managers functioning in a highly “commercialised environment” were predominantly described as “money and profit oriented”. In such a “cruel reality” bringing imagery, which is not about concrete buildings that can
potentially be liked by the client and copied, and making abstract associations was not seen as a viable option. It is interesting to be noted that at the same time overseas such ideas obviously get their proponents and end up becoming masterpieces - a landmark of a city. In that respect one of the interviewed architects made the statement that “New Zealand produces a very good domestic architecture but unfortunately does not go beyond that”.

**Presentation Drawings**

Apart from manual sketches that are discussed with the client, in all firms the most popular way to produce presentation drawings is through the use of CAD drafting packages (AutoCAD, ArchiCAD, Vector Works), as well as Photoshop and Power Point and only in one large office, Page Maker. All interviewees unanimously stated that clients prefer hard copies and only in certain cases they are accompanied by a Power Point file on a CD-ROM. Some offices, especially the smaller ones, sub contract out some of the perspectives (CAD and manual), as they do not have the expertise in house. The larger firms produce everything internally. Regardless of the computer software with all the sophistication that it entails on a technological level, all interviewed firms seem to operate in the realm of the “concrete graphic languages” (McKim, 1980) (see the Literature Review chapter) that is producing drawings, orthographic ones and perspectives.
Only in one large company the level of the “abstract graphic languages” (McKim, 1980) was also represented alongside the concrete one through communication diagrams, environmental studies and bubble diagrams. This approach was not perceived as necessary in the other firms as the level of the “concrete graphic languages” seemed to serve the purpose without excessive extravagance. This unusual discussion about emotions, fantasies and dreams in design triggered a deeper analysis outside the everyday jargon: “how would you convey the notion of smell in your drawings”, or “how can you describe your fascination with light in your design”, which is of course not about including more windows.
5.1.4 Summary

In conclusion visual language in architectural design was described by all interviewed architects as “presentation drawings - orthographic or perspectives”. Pertinent images evoking feelings, emotions and associations and using references from the other domains of visual culture with connotations of remoteness rather than immediacy were not something experienced and experimented. In other words, looking at similar buildings, when working on a specific project, would be the preferred approach rather than searching for abstract images to convey meanings and emotions thus shaping the design philosophy. Seeing “seaweeds”, “ballet”, “the human body”, “paintings” or “nomad tents” as diverse sources of inspiration should not be perceived as a “risky field” as one of the interviewees put it. If we continue to strive to “align our desires with the client’s expectations” we put ourselves at risk to simply add another conventional and uninspiring building to the heritage that already exists.

Summarising the analysis section it can be concluded, with the reservation that this study is a snapshot of a relatively small sample, that there is definitely a discrepancy between espoused values and reality on a local industry level caused mainly by the commercially driven market and on a more global level a profound difference between approaches to design, that ones of the great masters in architecture and the everyday routine practices of the other architectural professionals.

The logical question then is: “Where do we go from here?” People, who cannot see alternative viewpoints remain locked in the confined space of the stereotyped vision of reality; they merely help to make this world a practical but uninspiring place to live. As McKim (1980, p.50) (see the Literature Review chapter) puts it: “Creative seeing involves using imagination to recenter viewpoint; it is the ability
to change from one imaginative filter to another”. The Synthesis chapter that follows makes some suggestions how we can start seeing creatively using our imagination and look at all domains of visual culture as sources of inspiration and ideas. Referring again to McKim (1980) and the “graphic abstraction ladder” that he introduces with the two levels of the concrete and the abstract graphic languages, it is hard to define where such fantasies and dreams pertinent to the early stages of a project reside. They are neither a drawing (concrete level) nor a scheme (abstract level). Obviously the two steps of the ladder cannot accommodate the intangible, the subconscious and the emotional. Does this suggest in a way the necessity of adding a new step to the ladder?

The Action-Research component of the Synthesis chapter tests some of the research outcomes in an educational context.
5.2 Synthesis

5.2.1 Is this unusual or odd, or is it something to think about?

Architecture and da Vinci, Picasso, Dali, ballet and why not Audrey Hepburn and Humphrey Bogart

Walker & Chaplin (1997, p.2) in Visual Culture: an introduction give a detailed definition of visual culture and identify its domains (see the Literature Review chapter).

Fig.74: The field of Visual Culture (Walker & Chaplin, 1997, p.33)

The advantage of such a large and diverse field is that the application of different approaches and points of view can lead to different interpretations. Using architectural design within the field of visual culture (and more concretely in the fine arts domain) as a starting point and exploring the overlaps with the other constituent components of the same sub-field on one hand and with the other three domains of the visual culture field on the other hand, is one approach that gives interesting and unexpected results. In this respect the use of references relevant to a specific theme can be of a diverse nature – ranging from paintings, sculpture, and landscape design to photography, film and television. According
to the author’s own opinion, it can be argued that architecture in fact belongs to the Crafts/Design domain sharing common concepts and principles with urban design, landscape design, engineering design, CAD and so forth. Positioning architecture in the Fine Arts domain together with paintings, sculpture, print-making, mixed media forms and so forth requires a more abstract level of thinking as the relationships are not that obvious. The discussion that develops further is based on the premise that whether architecture is positioned in the Fine Arts domain (Walker & Chaplin, 1997) or in the Crafts/Design domain according to the author, this would not change the essence and the course of the argument as the primary purpose is establishing relationships on a local domain and on an interdomain level.

Fig.75: Relationships diagram developed for the purposes of this research (L.Kiroff, 2002)
Key: A (architecture), P (painting), D (drawing), S (sculpture), CAD (Computer Aided Design), G (graphics), U (urban design), L (landscape design), C (cinema), M (magazines), O (photography), H (theme parks), T (theatre, dance and ballet)

Exploring a relationship on a local domain level can be exemplified with art and architecture, which belong to the same domain of the fine arts. How art relates to architecture can be examined from different angles: the simplistic approach would be referring to art on a literal level – for example, the display of cultural
artefacts in buildings (Maori carvings in New Zealand architecture, Aboriginal paintings in Australian architecture, Shona sculptures in Southern African architecture). Another more complex and comprehensive approach would be analysing art on a symbolic level and using art references in relation to a particular architectural project. Frank Gehry’s Guggenheim Museum in Bilbao exemplifies this approach. Vanessa Castellano (1998, p.4) perceives the building as “a huge futurist sculpture”. She maintains that Gehry’s fascination with art has found true expression in Guggenheim. The architect himself believes that ideas in architecture actually come from art. “The building was inspired by Pablo Picasso’s famous cubist work ‘The Accordionist’, and the successful architectural interpretation of that painting is what makes Gehry’s achievement unprecedented” (Castellano, 1998, p.4).

Fig. 76: The titanium-clad Bilbao Guggenheim and a detail from Picasso’s “The Accordionist”
Elaborating further on the art and architecture relationship, it can be argued that the specific nature of a painting may have a significant impact on the whole design process. What are the associations that can be made examining, for example, Leonardo’s famous painting “Mona Lisa” and is there a relationship of any kind between this painting and architectural design? Mona Lisa’s eyes seem to stare at you wherever you are – standing in front of the painting or looking at it from an angle. How can this art fact be used in a museum design, for example? This may challenge the traditional museum norms and practices and affect the whole layout of the building by providing a central space for the famous painting, almost treating it as a sculpture instead of having it lined up with other paintings of the same genre.

Fig.77: True Lies
Another slant on the art – architecture relationship would be a comparative analysis between a concept embodied in a painting and a complex architectural design (Dali’s “The Endless Enigma” and Ito’s Sendai Mediatheque). Looking at the picture you can make out some objects, but at the same time they seem to disappear and begin to change into something else. Dali drew six pictures into one: a seated woman mending a sail, a greyhound, a reclining philosopher, a composition of a mandolin, fruit dish with pears and two figs on a table, a one-eyed moron and a mythological beast. This unusual approach to a painting can be compared with the design of Toyo Ito’s Mediatheque in Sendai, a multi-functional complex, which is an art gallery, library, an audiovisual centre and a facility for the disabled – all in one.
Abstract connections and associations can be made not only in the context of architectural design but also as part of the storytelling. How does Salvador Dali’s painting “The Persistence of Memory” relate to the modern business concept of 24/7? The way it can be interpreted is that the pace of our business life becomes so hectic around the clock that the clocks reach almost the point of melting… in Dali’s picture.

Fig.79: The Persistence of Business
Based on the above relationships diagram for the Field of Visual Culture (Walker & Chaplin, 1997), the connection between architecture and the other constituent parts belonging to the same group of the Fine Arts can be established more easily while the relationship between architecture and performing arts, for example, is of a more obscure nature. Extending the example with Toyo Ito’s Sendai Mediatheque it can be argued that the artistic elegance of the mesh columns of the building emulates the grace of ballet movements.

![Columns and Ballet](Fig.80: Columns and Ballet)
It can also be contended that there is a relationship between architecture from the group of the Fine Arts as defined by Walker & Chaplin (1997) and photography, advertisements and films belonging to the Mass and Electronic Media group, with the reservation that the subject of the analysis excludes using the mass media to promote architectural documentaries. Although more remote at least at a first glance, an advert “Elegance is an Attitude” especially when picturing Humphrey Bogart and Audrey Hepburn can be contextualised in architectural design. Elegance as a notion is not restricted to one domain of visual culture only, which then serves as a base to explore this notion across disparate domains of visual culture. The artistic elegance of Calatrava’s work is fascinating – the Alamillo Bridge in Seville, Spain, the extension for the Milwaukee’s Art Museum in the USA and the Montjuic Communications Tower in Barcelona, Spain. These are designs that can take us somewhere that we haven’t quite imagined. Inspiration and elegance permeate all aspects of Calatrava’s work to the extent that they become a way of life rather than means of livelihood.
The relationship between architecture and the mass and electronic media group can be illustrated with another example, seeking a common ground between the terms vision and visuality and “Sense and Sensibility” (the film based on the Jane Austin’s novel) in architectural context. As vision has previously been defined as a physical/physiological process by Walker & Chaplin (1997), it is in fact one of the five senses of the body by which a person is conscious of things. Visuality on the other hand has been defined as a social process through which we acquire knowledge. It is in this sense that visuality is “a socialised vision” based on “multiple acts of seeing” (Walker & Chaplin, 1997). In other words seeing or vision forms the foundation of visuality. In a similar way sense can be considered as the foundation and the premise for sensibility in design or the power of delicate, artistic feelings. It may be argued that an architectural design based on a sound sense will yield a reasonable but trivial result while a design based on sensibility will be fascinating and inspiring. Therefore sensibility can be regarded as an attitude or perspective, which enables disparate activities and choices to be seen as consonant or consistent leading to an emerging pattern recognizable to those who share it and to outsiders.

5.2.2 The logic behind idea generation and manipulation
Dialectical Materialism and Pyramids

McKim (1980, p.9) emphasizes the power of visual thinking encompassing the processes of seeing, imagining and drawing that are constantly in an “active interplay” (see the Literature Review chapter). Being an important phase in the process of generating ideas, drawing or “graphic ideation” has been defined by the author as a way to express ideas visually. The first stage in graphic ideation is the expression of ideas that are then carefully evaluated and tested leading to some conclusions being drawn that become the basis for a new cycle of idea
expression. This new cycle is on a higher analytical level than the previous one, as information gained during the testing phase is used later in the next cycle. New strategies to tackle problems are also developed and adopted as a result of the first cycle. McKim (1980, p.124) (see the Literature Review chapter) represents this “cyclic feedback process that is fundamentally iterative” with the feedback loop.

The two-dimensional diagram can also be presented in a three-dimensional format showing the hierarchy of the loops in the process of cycling. Each one above can be regarded as a synthesis of the one below showing the endless evolution of ideas. The direction of evolution changes from a horizontal one in the 2D diagram above to a vertical one in the 3D one that has been suggested.
Philosophical explanation of this spiral evolution can be sought in the theory of dialectical materialism. Dialectics is the logic of evolution, movement, and change. Its starting point is reality itself. Dialectical thought had its basic origins 2,000 years ago; it was systematically developed by Hegel, and then further deepened by Marx and Engels.

The three laws of the dialectical materialism are able to explain things in their development and motion. Whereas formal logic is essentially the logic of lifeless, rigid and static relationships, dialectics is an understanding of real life-processes of motion, contradiction and change. The law of the Negation of the Negation or as Engels says: “an extremely far reaching and important law”, expresses the connection of the old and the new, and the repetition at a higher stage of development of some properties of the lower stage of a process. Change is not simply a repetition of the past. The working out of contradictions does not mean that earlier stages of development are repeated exactly, but developed on a higher level. Motion, change and development move through an uninterrupted series of negations. But the past is not totally obliterated, but overcome and preserved at the same time. Features of the past may reappear, but in a new and enriched form.

Expanding on this basis how can the law of the Negation of the Negation explain architectural concepts or is there a relationship of any kind between architecture and the third law of the dialectical materialism? This hypothesis can be argued applying the law to the concept of pyramids, for example, and demonstrate that there is a connection between the old and the new and that some properties of a lower stage of a process are repeated and further developed at a higher stage. This repetition is not an exact copy of earlier stages of development (the ancient Egyptian pyramids) but an evolution on a higher level (The Louvre in Paris, Luxor Hotel in Las Vegas or Canary Wharf in London). This example is a result of approaching an architectural concept, that one of the pyramids, from a philosophical point of view. Depending on the context, the same concept can be
explored from a business or socio-economic viewpoint. The following “visual essay” illustrates the process of idea generation and manipulation and demonstrates how a concept can be approached from different viewpoints resulting in a vast array of interpretations, some of a pragmatic nature and others residing within a more theoretical framework.
“A visual essay” on pyramids and the rise of wonder

The invention process covers the generation of ideas. Receptivity to these ideas (conventional and unconventional) is a key strategy. Such ideas have chances to become innovations if they are acted upon. “There are, however, significant differences between ‘idea-havers’ and ‘idea-exploiters’ – those who come up with ideas and those who do something with the ideas they have generated” (Katz, 1997, p.584). The complete process leads to successful commercialisation of new products and services.

The Egyptian pyramids may be used as a metaphor, visually representing the process of generating an idea (creating something of such breathtaking size and scale), which becomes a reality or an innovation if it is acted upon (the actual pyramid construction) leading to successful commercialisation (becoming one of Seven Wonders of the Ancient World).

“The three pyramids of Giza are the largest and most impressive monuments to have survived from antiquity, and are the only one of Seven Wonders of the Ancient World still surviving” (Kingsley, 1998, p.21). The superior construction and scale have turned them into an astonishing engineering achievement.

Fig.84: The Pyramids of Giza
Construction work on the pyramids started almost 4600 years ago (Kingsley, 1998, p.25). This was the time when the realisation of the idea started and the invention was on its way to becoming an innovation. The survey and planning work preceding the actual construction was enormous, consisting of numerous small inventions – levelling of the site by digging a trench of water around the square perimeter, calculating the angles of the pyramids based on some knowledge of mathematics, geometry and astronomy, the incredibly accurate orientation of the pyramids whose four sides are aligned almost exactly on true north, south, east and west (the magnetic compass was unknown to the ancient Egyptians), (Kingsley, 1998). The receptivity to all these unconventional ideas together with the conventional ones originating from so many sources has contributed immensely to the final masterpiece. “In order for an invention to become useful, it must be adopted” (Faste, 1995, p.11).

Few, if any, modern building works can match the skill and organisation needed to build the pyramids. According to the Greek historian Herodotus, “100 000 workmen, rotating in shifts of three months each, toiled for twenty years building the Great Pyramid” (Kingsley, 1998, p.26). Even the largest construction company today would take just as long to do the same work using modern methods and machinery. The association with the modern teamwork environment is in the idea that many people contribute to the development of ideas.

The Great Pyramid of Giza does not exist in isolation. Beside the Great Pyramid stand two other pyramids almost as old as it – the Pyramid of Chephren and the Pyramid of Mycerinus. In between and beyond these pyramids there “are an infinite number of undreamed ideas. These are ideas outside of current human consciousness” (Faste, 1995, p.9). These are in fact other potential places where people may create buildings and monuments through realising their ideas.

The Pyramids were built in several stages and in layers, starting with the foundation or the biggest square of stones. Each layer would be a smaller square than the one on which it stood, leading to a very small square at the top of the pyramid. The numbered layers of squares show the order of building (Kingsley, 1998).
The form of the pyramid has been successfully exploited over the centuries mainly in two directions – either through creating building designs as a replica of the Egyptian Pyramids but developed on a higher technological level (The Louvre in Paris, Luxor Hotel in Las Vegas or Canary Wharf in London) or using the pyramidal shape as a visual aid or tool to explain social and business concepts. These trends exemplify the extension of the product life cycle beyond a specific geographical location (Giza) through modern diversification. This is the amazing evolution of one ancient invention that is reproduced in various forms of innovation having different connotations and ultimately leading to a diverse range of entrepreneurial strategies.
The legacy of the Pyramids’ architecture has inspired architects of more modern times. What will happen if a pyramid is made of glass instead of stone, so that each side reflects a different view of the sky? Sounds poetic and ambitious. If you were as great as the architect I.M. Pei, you would have designed the dramatic pyramid that stands by the entrance to the Louvre Museum in Paris. The ancient invention of the pyramidal structure has taken a new form of innovation – a modern glass pyramid, becoming a landmark of a city. An old concept has been replicated but on a higher technological level of development in terms of modern materials – glass instead of blocks of stone and advanced methods of construction. The old idea has also evolved and undergone functional transformation in a variety of contexts. As the law of the negation of the negation states the past is not totally obliterated, but overcome and preserved at the same time. Features of the past may reappear, but in a new and enriched form.

Fig.85: The famous Pyramid standing by the entrance to the Louvre Museum in Paris
A more modest version of a pyramid in terms of dramatic appearance is the one topping a 50-storey structure in London. The giant office building, the tallest in the UK, built in the 1980s, rises over the River Thames in the east end of London. Unlike the great pyramids at Giza, housing the buried bodies of the pharaohs and protecting them forever, it stores only the machinery used to operate the lifts and the air conditioning – a typical example of modern world utilitarianism.

Fig.86: Canary Wharf in London
What will happen if we stretch our imagination even further and immerse ourselves in the glamorous and exciting life of Las Vegas? Shall we be able to find a replica of the Egyptian pyramids there? The answer is yes, plus the bonus of finding a replica of the Great Sphinx keeping guard outside as well. If in ancient times one Great Pyramid can take only one body, these days in our modern and commercialised world we can definitely prove that one pyramid can take at least 10 000. Isn't that a real innovation?

Fig.87: Luxor Hotel In Las Vegas
The second line of development of the “pyramid” concept is on a more abstract level as a visual tool to explain social and business concepts within a more theoretical framework.

An association can be made with traditional hierarchical organisational structures where the capstone represents the top management and the base layer are the human resources, basic principles, set of rules and guidelines, espoused values and mission and vision statements. A visual horizontal dissection of the pyramid enables an in depth analysis of the relationships on the horizontal levels. This serves as a premise for extending the analysis in vertical direction through exploring interrelationships’ overlaps, concepts and constructs.

What would happen if we cut off the capstone and the foundation of the pyramid…it will obviously collapse? What is an organisation without management and without the human resources forming the base? And what will happen if we apply a vertical force from above…the pyramid will flatten and we will get a flat management structure – a form of modern management with emphasis on employee empowerment.
Using the pyramidal shape as a visual aid or tool to explain theoretical concepts can be also illustrated with Maslow’s hierarchy of needs theory and Walker’s “cultural pyramid”. The layers of the ancient Egyptian Pyramids resemble Maslow’s hierarchy of needs theory, suggesting that individuals have five different levels of needs and, as each lower order need becomes satisfied, the individual will strive to satisfy the next one up. Although not scientifically proved, this theory argues that unless all physiological and safety needs are satisfied, there is little room for moving up the levels. In this case invention and innovation remain in the realm of the unthinkable.

Fig.90: Maslow’s Hierarchy of Needs
Another interpretation of the pyramidal form is the “Cultural Pyramid – three levels of mental programming” described by David Walker in his article “Mapping New Zealand culture” (Walker, 2000, p.62). The base level of the pyramid represents the “characteristics of the species shared by all humankind” (Walker, 2000, p.62). This embodies value systems, patterns of thinking and emotional responsiveness determining a specific behaviour. The next level up, culture, represents “characteristics of social groups and national cultures; such as language, ceremonials, rituals, ways of working” (Walker, 2000, p.62). Culture is viewed as a group phenomenon and as something learned. The top of the pyramid where personality resides represents the “unique characteristics of individuals - their capabilities, temperament and personality” (Walker, 2000, p.62). The top level of the pyramid can be considered as a combination of the lower two as each individual is a unique combination of characteristics, partly inherited and partly learned.

Fig.91: The Cultural Pyramid
While the previous three examples illustrate theoretical constructs of a static nature, the following model is a visual representation of a dynamic process. Imagining that we tip the pyramid on one side, we will get the model representing the process of invention, innovation and entrepreneurship in a visual form, otherwise known as the “ice cream cone” (MDM, Auckland, NZ). The fuzzy front end of the ice cream cone is at the base of the pyramid characterised by the abundance of conventional and unconventional ideas. Gradually they are narrowed down and filtered as they move along the cone (the invention stage). The feasible ones are sifted and acted upon to become innovations entering the marketplace and ultimately ending the cycle (the tip of the ice cream cone or the capstone of the pyramid). It can be argued that entrepreneurship encompasses both the invention and innovation stages as proactiveness, vigilance and adequate responsiveness permeate all aspects of a product life cycle. Hence the argument that creativity is pertinent to all stages.

![Diagram of the ice cream cone model]

**Fig.92: Design Management promotion campaign**

“Ice Cream for the Soul"

Over 100 playful activities for Joy and Wisdom
5.2.3 The “I feel” and “I have a Dream Method”
From concrete to abstract to ...hybrid

The logic and mechanism behind idea generation and manipulation exemplifying also the evolution of an idea at different stages – invention, innovation and entrepreneurship or marketing the idea – can be applied to a more fundamental structure pertinent to architectural design. What are then the visualisation tools that express and communicate these ideas? McKim (1980) in *Thinking Visually* argues that all graphic languages fall into two main groups: abstract and concrete (see the Literature Review chapter). The abstract ones embody abstract ideas and convey messages on a different level unlike the concrete ones that aim at more accurate graphic representation of an idea. The “graphic abstraction ladder” presented by McKim shows the two main categories of visual languages along the dimension of abstract-to-concrete.

![Graphic Abstraction Ladder](image)

*Fig.93: Graphic Abstraction Ladder (McKim, 1980, p.149)*
The industry research of ten New Zealand architectural offices (five large, three medium and two small) provided ample evidence that all interviewed firms with one exception operate on the level of the concrete abstract languages, which is producing predominantly orthographic drawings and perspectives. One company demonstrated some level of abstract thinking through the use of communications diagrams and site analysis examining such factors as sun traverse, north orientation, prevailing winds, noise, views and site access. The same office was the only one using imagery of similar buildings, materials, and landscape features when working on a project to evoke feelings and emotions and to create a specific mood. This approach together with the pyramid example where an old concept finds a new application with some degree of replication, is different from setting the ambitious task of generating an idea in architectural context starting with an unusual perception, notion, or vision and turning it into architectural design. This can involve using references from the other domains of visual culture like crafts/design, mass and electronic media and performing arts. The great minds in architecture have proved that nature, the human body, paintings and indigenous architectural forms can inspire the creation of iconic, original and fascinating architecture. Their approach to design is not about obsession with a design brief; it is about inspiration, gestalt, graphic ideation and externalised thinking. The result is architecture that tells a story in a poetic way. This line of thinking suggests an expansion of McKim’s graphic abstraction ladder.
Initially you may not know where you are going but eventually you may reach for the sky

Storytelling based on references from all domains of visual culture

The “I feel” and “I have a dream” method

Hybrid graphic languages

Fig.94: A proposal for a new category - Hybrid graphic languages (L.Kiroff, 2002)
In architectural context what will be the results based on the conventional method of meticulously following a design brief as opposed to applying the "I feel" and "I have a dream" method? Is the second one the antithesis of mediocre, ordinary, and trivial? It can be argued that the two ways of thinking and the two languages resulting in two separate points of view as described by Hanks & Belliston (1990) in *Rapid Viz* can be applied to architectural design (see the Literature Review chapter).

The sequential, verbal and logical way of thinking is based on the 3 r’s of reading, writing, and arithmetic. The authors argue that this is the traditional and most popular way of learning but not the only one. In architectural context the sequential and logical approach would be an orderly way of handling the design obsessively following the design brief. The second language and way of thinking is visual, intuitive and holistic and Hanks & Belliston (1990) call it the “I feel” method. If this method is based on intuition and feelings rather than logic, then why not on dreams and visions for the future similar to Martin Luther King’s vision.
for America’s future. Hence the new proposed method operating on the level of the hybrid graphic languages, which is about storytelling based on references from all domains of visual culture, can be called the “I feel” and “I have a dream” method.

The act of seeing and perceiving is undoubtedly a subjective process determined by a person’s individual value systems, breadth of knowledge and intellectual power. Who are the people that can possibly apply the “I feel” and “I have a dream” method? In an attempt to describe this category an appropriate analogy can be made with The Little Prince by Antoine de Saint – Exupery. In this magical book the little prince draws a picture of a boa constrictor digesting an elephant. But when he shows his masterpiece to grown-ups and asks them whether they are frightened by the picture, they ask why they should be frightened by a picture of a hat. It is the ability to see that the hat is a boa constrictor digesting an elephant, or the ability to see beyond the conventions and stereotypes. Developing the next level of graphic languages, the hybrid ones, will require looking for references of a diverse nature outside the traditional and safe realms. Depending on the individual’s way of seeing and perceiving various combinations and associations will be made or this will be a task requiring multiplicity of answers.

Fig.96: The Little Prince by Antoine de Saint - Exupery
5.2.4 From feelings and dreams to diagrams and drawings

The realisation of an Idea

Walker & Chaplin (1997) in *Visual Culture: an Introduction* explain the notion of reality and images through the use of an appropriate terminology “unmediated vision” and “mediated vision” respectively (see the Literature Review chapter). “Some theorists speak of ‘unmediated’ vision – seeing the world, and ‘mediated’ vision – seeing images” (Walker & Chaplin, 1997, p.23). The authors maintain that most buildings and designed goods are not depictions of anything but simply new inventions, additions to nature. The author’s opinion is that drawings and paintings can be regarded as an example of visual representations but as they are constructed and do not claim accuracy in the representation, they have the freedom and at the same time the ability to present imaginative visions and inspire unexpected associations conveying encoded meanings. Within this context the overlap between architecture and the other forms of visual culture can be materialised through such constructed visual representations encompassing and overlaying images pertinent to all domains of visual culture within a specific theme. The use of images, text and line drawings representing the essence of the four sub-fields of visual culture as defined by Walker & Chaplin (1997) may result in hybrid designs, employing two or more media with the reservation that the mere combination of media techniques will not be an end in itself, as such visual representations should not lack narratives, important themes and ideas. Examining the intersections among these four domains and exploring unusual combinations may unleash creative thinking. The merits of these sub-fields considered in isolation are well known, but random combinations within the field of visual culture should not be underestimated as a powerful tool and an idea generator.

As previously argued the industry research carried out supplied evidence of the extensive and predominant use of the concrete graphic languages, that is
orthographic drawings and perspectives. Not surprisingly the educational environment operates in the same fashion. The author’s own architectural experience both in the industry and in the education field contribute to the formation of this argument. As even the level of the abstract graphic languages in an educational context is so poorly represented, the author’s own efforts as a lecturer were focused on the design of appropriate assignments seeking a balance between the two established groups of graphic languages – abstract and concrete. That was perceived as the first step climbing up the graphic abstraction ladder. This approach was based firstly on the fact that the students lacked the breadth of knowledge required to operate on the hybrid graphic level and secondly on the nature of the programme (National Diploma in Architectural Technology) they were enrolled in training architectural draftsmen.

In an industry context the logical progression would be from the top of the ladder, the hybrid level (sources of inspiration) to the abstract (diagrams, flow charts and mind maps) and finally to the concrete one (orthographic drawings and perspectives). The steps of the graphic abstraction ladder work in synchrony with the stages as set out by the NZIA (the New Zealand Institute of Architects) in their document – “Agreement for Architects Services”, AAS2, 1996) (see the Literature Review chapter) starting with Pre-Design (the hybrid level), Site Analysis (the abstract level), Preliminary, Developed Design and Contract Documentation (the concrete level).

As the mastery of the concrete graphic languages is already a common requirement of the curriculum of the National Diploma in Architectural Technology, the author’s focus was on the abstract level. Four disparate concepts within the abstract graphic languages were included as components in the assignment’s design – bubble diagrams, parallelism of layered depth, mind maps and graphic design as an architectural tool. Although all these concepts
were not new in essence, their modification and novel application can be considered as making a difference in the way an architectural assignment can be approached and executed. Previously the same student assignment was produced in a typical A4 written format with some basic sketches and diagrams. The poster format that was introduced by the author had all assignment components displayed in a visual way substituting the written format.

The purpose of this Action-Research was to test some of the research outcomes and concepts developed in the Synthesis chapter of this study. The aim was to unleash creative thinking encouraging simultaneous use of both abstract and concrete graphic languages. This alternative approach to a design assignment led to dramatic results. Opinions and comments on the Action-Research component of this study have been included in the Evaluation chapter.
Fig.97: Before presentations…
Fig.98: …and after presentations (L.Kiroff’s studio class, 2002)
Architectural diagramming

The first concept - bubble diagrams – representing one of the components of the assignment design, can be considered as a form of architectural diagramming, falling into the group of the abstract graphic languages. Do & Gross (in Blackwell, 2001) in their paper *Thinking with Diagrams in Architectural Design* (see the Literature Review chapter) maintain that architectural diagrams are conceptual by nature and abstract in format. They explore spatial relationships, site circulation and environmental factors having an impact on a particular design. Architectural diagrams are usually used in the early phases of design as a graphic communication medium preceding the production of preliminary design drawings.

Bubble diagrams, for instance, explore, explain and clarify spatial relationships and environmental schemes (as in the first example from the left) analysing a specific site context. A bubble diagram of a floor plan (as in the second picture from the left) is one example of architectural diagrams. Each bubble in such a diagram represents a specific space without any scale considerations. The layout of the bubbles represents spatial relationships and the connecting arrows - the spatial flow. One possible further extension of the bubble diagram concept is the introduction of specific pictorial representations aiming at increasing its legibility. Such diagrams can be regarded as a client oriented communication
tool demonstrating the evolution of the design and the architect’s endeavours to solve a particular problem.
Fig.100: Environmental schemes analysing a specific site context (sun traverse, north orientation, noise, prevailing wind, views, site access) (L. Kiroff's studio class, 2002)
Fig. 101: Bubbles, bubbles...and more bubbles (L. Kiroff's studio class, 2002)
E. Tufte’s parallelism in layered depth

The second concept, representing the next component of the assignment design that was explored was based on Tufte’s parallelism. Edward Tufte (1997) in *Visual Explanations* elaborates on the term “visual parallelism in space and in time” (see the Literature Review chapter). The former can be illustrated with two images located in close proximity to each other – two views of one and the same object, and the latter with before/after presentations of architectural redesigns. Analysing the two types of parallelism, in space and in time, Tufte draws the conclusion that “despite the enchantment of flaps, comparisons are usually more effective when the information is adjacent in space rather than stacked in time” (Tufte, 1997, p.81).

One useful application of Tufte’s spatial and temporal parallelism in architectural design can be sought through displaying content of a diverse nature on separate flaps or overlays to achieve a “parallelism of layered depth”. Instead of before/after presentations that Tufte argues are more difficult to comprehend, secondary information pertaining to the same design can be displayed on transparent overlays so that the visual connection with the main design is still maintained. One example is a site plan overlaid with an environmental scheme comprising factors that have a significant impact on the design like prevailing winds, sun traverse, north point, views, noise and site access. Another way of presenting the environmental scheme can be with a compass revealing a whole range of factors when the flap is lifted up. The second storey of a house can be presented on a flap with the staircase being the link between the two and shown through a transparent hole in the flap. These were some of the applications of Tufte’s parallelism that were explored by the author in her Studio 1 class.
Fig.102: The magic of flaps in environmental schemes, a site plan and floor plans  
(L.Kiroff's studio class, 2002)
Mind Mapping

Mind mapping was formalized as a technique in the early 1970s by Tony Buzan as an alternative to linear thinking.

“*A mind map is a tool to help us deliberately and consciously extend our associations so we can make imaginative connections and unleash our creative powers…It’s an organized brainstorming method to find out what you know by writing a central theme and then depicting thoughts and associations as vines growing in all directions from the central theme*” (Michalko, 1998, p.55).

Mind mapping as a technique is based on using key words, which are not organized in any way in categories. Plotting them as clusters around the central theme triggers associations, which in their turn trigger new ones making the whole process potentially infinite. Finding a “unifying pattern” and connections linking thoughts that might initially look radically different and unrelated is a step of paramount importance in the process of finding a creative solution to a problem.

“Associations and imaginative connections are essential elements of creativity; they distinguish ideas that are truly original and innovative from those that are logical but inconsequential” (Michalko, 1998, p.56).

Several stages can be identified in the mind mapping process. Selecting a **theme** represented as a short phrase or a picture may be considered as a starting point. It usually has a central position in the diagram and is surrounded by **key words**. In the case with the student assignment the theme is the concrete design and the key words - all the factors that have an impact on the design like the group of the design professionals - architect, engineer, surveyor – the client with budget and timeline, government acts and regulations, and so forth. Expressing thoughts can be in the form of visual images, geometric symbols or colours, which have the clear advantage of easy remembering over
handwriting. The students’ preference was for visual images rather than words resulting in an interesting concepts and artistic presentations. Brainstorming and jotting down all spontaneous associations that come to mind unleashes creativity.

Connecting the key words with lines radiating from the central theme, establishing relationships and organizing the ideas into clusters is the next important stage of the process. Organizing the major clusters into themes is a powerful tool for generating ideas. Missing bits of information in certain areas can be quickly identified and more information collected. Continually refining and elaborating the mind map by adding new thoughts and establishing new connections is a part of the revision process aiming at better understanding and ultimately finding a creative solution to a particular problem.

The mind mapping technique is a creative thinking mechanism. “The Mind Map is ideally suited to creative thinking because it utilises all the skills commonly associated with creativity, especially imagination, association of ideas and flexibility” (Buzan, 1997, p.154). In past years instead of producing their own mind map, the students were given a series of handouts with a list of factors that influenced the design. Unfortunately the interest that these handouts generated was not up to the lecturers’ expectations. That was one of the reasons why the author changed the method of delivery. The benefits of creative thinking mind maps are in the possibilities a great many elements to be viewed all at once enabling creative association and integration. In this way people explore ideas, which normally lie in the periphery of their thinking leading to gaining new insights and increasing the probability of generating new ideas.
Fig. 103: Mind maps can also be very individual (L. Kiroff’s studio class, 2002)
Graphic Design techniques in an architectural context

Traditionally graphic design is considered as a professional realm quite separate from architecture. It puts an emphasis on typography and its combinations with image in the digital development of design solutions. As a result a layout, drawing and computer aided image manipulation is developed. Pictorial imagery is perceived as a powerful tool in the development of visual awareness and visual intelligence. The ability to express ideas and emotions as well as to communicate, record and interpret information through pictorial imagery creates the premise to explore some overlaps between graphic design and architecture especially on the proposed hybrid graphic language level. In past years site photos taken with a digital camera were simply inserted by the students as in-line graphics in Word documents. In the new design of the assignment the site visit was organised around a brainstorming session identifying key design factors and in some cases design icons. The final result was that the site photos as the main theme were overlaid by design justifications in the form of points of reference alluding to the primary sources of inspiration that make the design unique.
Fig. 104: Graphic Design techniques in an architectural context (L. Kiroff’s studio class, 2002)
Chapter 6: Evaluation

Opinions and comments by architectural professionals on the Action-Research component of the thesis have been provided.

* * * * * * * *

I have been provided with an explanation of the research being undertaken by Lydia Kiroff as a part of her Masters of Design Management degree and have discussed it with her. In my view the research is conceived with an innovative approach to issues of student learning in creative fields, particularly with its emphasis on creative visual communication techniques. Lydia appears to have developed a proper methodology for this work and the initial results are of considerable interest to me, bearing as they do on work being done by students in the School of Architecture. The issue of visual communications is, of course, a central platform of student learning in this programme, as it is in the programmes that Lydia teaches. It would certainly appear that she has achieved a significant improvement in student performance by the adoption of the procedures and strategies she is using. I am therefore supportive of this research and remain interested in its further development.

Tony van Raat
Head of School
School of Architecture, Faculty of Architecture and Design
UNITEC Institute of Technology
Auckland, New Zealand
27 August 2002
An Assessment of the action-research segment of Lydia Kiroff's Master's Thesis

On 15 August 2002 I met Lydia Kiroff and discussed a segment of her recently submitted Master's Thesis in the Master of Design Management programme. Lydia presented to me the methodology, the outcomes, and the research material of that part of her thesis, which is based on her improvements in teaching the Design Documentation course in the Diploma in Architectural Technology. I saw about a dozen of student projects she supervised in the first semester of 2002 as part of her studio class, as well as a number of last year’s projects in the same paper.

I am very positively impressed by the students’ work and can clearly see the connection between this classroom exercise and Lydia’s thesis. The improvement in students’ output this year when compared to the projects produced in the same class last year is remarkable.

Lydia’s basic intention was to demonstrate that a wide portfolio of “vis-comm” tools is possible, desirable and substantially more effective in the work of architectural designers than what is common practice and what is traditionally taught. She introduced four techniques or principles - Architectural Diagramming, E.Tufte’s Parallelism in Space and in Time, Buzan’s Mind Mapping, and a general “Graphic Design approach” - in presenting design projects in their multiple aspects. Her students responded with an amazing degree of creativity, imagination, and personal expression. The result was far superior to the conventional report format, as could be observed from a large sample of work that Lydia presented to me.

It is my overall impression that Lydia has achieved a significant improvement in the education of the students in the Diploma programme and that the subject material supports her thesis that design skills should include a wider palette of
graphic communication tools than the ones commonly practised. I endorse both the method and the results of this part of Lydia's Master's research.

Dr. Dushko Bogunovich
Associate Professor of Urban Design
School of Architecture, Faculty of Architecture and Design
UNITEC Institute of Technology
Auckland, New Zealand
15 August 2002
An Assessment of the Research Segment of Lydia Kiroff's Master's Thesis

On 16.08.2002 Lydia Kiroff presented to me a segment of her thesis for the Master of Design Management program. I had the chance to discuss with Lydia the methodology and the results of her work - and especially the section, which pertained to her improvements in teaching the Design Documentation course at UNITEC's School of Construction. I was shown a substantial number of students' works done over the past couple of years.

I should say that I think very highly of students' works and especially the improvement, which resulted from Lydia's application of visually based methodology in teaching. There exists thus a significant relationship between the classroom exercise and Lydia's thesis. Lydia has explored the possible use of different visual communication tools in teaching - such as architectural diagramming, Tufte's parallelism in space and in time, Buzan's mind mapping, and a "graphic design approach". The approach has led to substantial improvement in students' works in the diploma program. The results of the study confirm Lydia's thesis that the teaching of design skills should include a wider spectrum of visual communication tools.

Dr. Branko Mitrovic
Associate Professor
School of Architecture, Faculty of Architecture and Design
UNITEC Institute of Technology
Auckland, New Zealand
18 August 2002
On 16 August 2002 I discussed with Lydia Kiroff the Action-Research section of her proposed MDM thesis where it traverses her innovative work in the teaching of Design Documentation in the National Diploma of Architectural Technology programme.

I am a lecturer on the same programme and also run classes in this same course. Our “standard” format for the course has been to require the students to explore and research the issues of a project by producing an A4 format report, largely word oriented with moderate illustrations. Students find this a laborious and monolithic approach, and it is often difficult for them to appreciate simultaneously the complex facets of any one project by means of such a report.

This year Lydia approached the course by encouraging the students to produce posters based on four concepts, namely Architectural Diagramming (including bubble diagrams), Tufte’s parallelism in layered depth (space/time aspects), mind mapping, and applying graphic design techniques to architectural design.

I have observed the resultant posters produced by her students, and I have compared them to the work of other students in the same course, and there is no doubt this fresh approach has engendered a big improvement in the quality and depth of the students’ work. As well as illustrating the many issues associated with a project, the students benefited experientially through utilising this visual based technology.
The success of this approach, which I believe supports the thrust of Lydia Kiroff’s thesis, is such that our future teaching of this course will adopt this multi-faceted visual based approach.

Colin Janett MArch, BArch, ANZIA, Registered Architect
Lecturer
School of Construction, Faculty of Architecture and Design
UNITEC Institute of Technology
Auckland, New Zealand
23 August 2002
Lydia Kiroff: Assessment of MDM thesis.

During the three years prior to 2002, Peter Snape (now Programme Leader) and I worked on the re-development of the National Diploma in Architectural Technology course. The purpose was to make the programme more cohesive, to reduce the duplication in the programme, and to integrate the various courses. The research that Lydia has undertaken for her thesis for the degree of Master of Design Management and the way that she has applied the four elements: viz. architectural diagramming, parallelism in space and in time, mind mapping, and graphic design as an architectural tool to the Design Documentation 1 course meets, and more than satisfies the expectations that we have set.

The way in which students are allowed to develop their artistic skills in the re-developed course introduced by Lydia this year is evident from the student work that she has included as a part of her research. The students are encouraged and allowed to put into practice the theories that they have personally developed. I can certainly endorse the theories discussed in the research and can confirm that they are practical in their approach.

David Gatley MDesMgmt, DipArchTech., ANZIA MNZIOB FAMINZ(Arb),
Registered Architect
Senior Academic Staff Member
School of Construction, Faculty of Architecture and Design
UNITEC Institute of Technology
Auckland, New Zealand
23 August 2002
Chapter 7: Conclusion and Further Research

What lies ahead?

Forster (1999, p.2) asserts: “Architecture has become our habitat and therefore one of the principal mediators between nature and human civilisation”. The author argues that there is a clear sign of change in the cultural significance of current architecture. Articulating symbols of utility or the mechanics of construction are not regarded any more as the only forces driving the art to create buildings. Other forces, mainly invisible ones, have begun to manifest themselves through the physical properties and the experiential effects of buildings. Forster continues his discourse on the meaning of modern architecture by expressing his opinion that where architecture merely aligns itself with its own conditions – exhibiting little more than economy, efficiency, and ambition – it fails to mediate between its own material existence and our need to locate ourselves in the world. “Only acts of imaginative transmission allow us to figure out how we came to fall into the place we occupy and what prospects lie before us” (Forster, 1999, p.5). Utilitarian buildings employing high-tech construction technologies usually receive great acclaim but they often remain impersonal and somehow detached from our emotions, failing to touch our souls. Imaginative buildings speak to us and as Forster (1999, p.5) maintains, “they engage our senses by means of ingenious inscriptions of many-layered meanings no one can grasp, much less exhaust, at a glance”.

These imaginative acts manifested in a building are what make some buildings more interesting than others. Diverse sources of ideas and unconventional approach to design are the essence of these imaginative acts. In this context the two research questions posed at the beginning of this study were:
1. Can all domains of visual culture be sources of ideas in architectural design?
2. If so, what visual tools can be employed to represent them?

The research methodology adopted for the purposes of this study was the qualitative one, the reason being the verbal nature of the data collected and the difficulty of establishing reliable results over a relatively small number of respondents using quantitative methods. The sub methodologies or the methods within the qualitative research methodology employed to study the breadth of the research topic were: grounded theory, ethnography, case studies, semi-structured interviewing, and action-research. This diverse range of methods was perceived by the author as helpful to gather, collect and analyse the relevant data in order to establish prevalent perceptions and attitudes necessary to generate a comprehensive analysis and synthesis.

The research results revealed and emphasized the place of creativity in the complex and exciting process of generating imaginative acts. Creating entails the proper combination of numerous elements – human potential, discovery processes, creative tools and techniques that can sharpen and expand innovative thinking and the right environment. Creative thinking combines the energy from each one of these elements. There is no magic in the components, but the result can have a magical quality to it. The outcome can be synergy or serendipity for individuals or groups. Then fluctuations in conventional, reproductive thinking can be caused, unleashing ideas that give breadth, find a better twist, or discover a novel path. Creating has an adventurous side, an excitement and allure that captures the spirit and gives one purpose.

The literature review presented in the second chapter explored the two broad realms of visual culture and visual communication to provide the underlying knowledge base and substantiate perceptions, views and opinions. It was
perceived by the author as necessary to define the broad theoretical framework within which the discussion, aiming at answering the two research questions, would evolve. They were contextualised through Walker & Chaplin’s (1997) diagram of the field of visual culture with its four domains (the diverse sources of ideas) and McKim’s (1980) graphic abstraction ladder (the design tools).

The case studies (Tjibaou Cultural Centre, Sendai Mediaheque and Te Papa) and the secondary examples (F. Gehry and S. Calatrava) included in the research illustrate creativity through the imaginative acts manifested in these buildings. They demonstrate that extensive knowledge in a field alone cannot produce the imaginative transmission discussed above if there is no element of creativity and serendipity added to it. These iconic buildings have been chosen in peer review as good examples of architecture. Issues regarding national identity were beyond the scope of this research as the emphasis was on the design process itself. These examples helped to answer the two research questions whether all domains within the field of visual culture are sources of inspiration that can influence significantly architectural design through the use of a wide array of visual tools.

The primary research conducted with ten architectural firms in Auckland of different sizes (large, medium and small) showed general unawareness in the architecture profession of the field of visual culture in the broad sense of the word and limited use of graphic languages. Standard practices and conventional methods are widely spread and still the norm in a commercially driven architectural market. The research results from the primary research were then analysed in comparison with the case studies and the way the great masters in architecture approach design. This analysis showed that metaphorical thinking and the use of references from all domains of visual culture were still for exclusive rather than ubiquitous use. Visual language in architectural design was described by all interviewed architects as “presentation drawings - orthographic or perspectives”. Pertinent images evoking feelings, emotions and associations
and using references from the other domains of visual culture with connotations of remoteness rather than immediacy were not something experienced and experimented. In other words, looking at similar buildings, when working on a specific project, would be the preferred approach rather than searching for abstract images to convey meanings and emotions thus shaping the design philosophy. Seeing “seaweeds”, “ballet”, “the human body”, “paintings” or “nomad tents” as diverse sources of inspiration should not be perceived as a “risky field” as one of the interviewees put it. If we continue to strive to “align our desires with the client’s expectations” we put ourselves at risk to simply add another conventional and uninspiring building to the heritage that already exists.

Benedikt (1999, p.3) argues: “architecture, as an industry, broadly conceived, has become less and less able to deliver a superior, evolving, and popularly engaging product that can compete with other, more successful products – with cars, music, movies, sports, and travel”. Similarly, Schwarzer (2000, p.18) contends: “our eyes are conditioned by film, video, and computers to see objects in states of representation, dramatization, animation, and of course, commodification. By comparison, most buildings appear lethargic, devoid of life”.

In conclusion, the answer to the first research question is that all domains of visual culture can be regarded as sources of ideas supported by the inspiring designs of the great masters in architecture. The field of visual culture as defined by Walker & Chaplin (1997) is huge and can be approached from a different viewpoint. The focus of this study was on the design process in architectural context and particularly on the development of a visual language for richer outcomes. The second research question operating within the realm of visual tools used to represent the relationships between architecture and the other domains of visual culture can be exemplified with the three case studies (Tjibaou Cultural Centre, Sendai Mediaheque and Te Papa) and the two secondary examples (F. Gehry and S. Calatrava). McKim’s (1980) graphic abstraction ladder (with the two levels of the concrete and abstract graphic languages) has
been used as a base to add the new level of the hybrid graphic languages, which
is about storytelling based on all domains of visual culture. This concept has
been discussed in the “Synthesis” chapter and further developed and exemplified
through the action-research method testing it in an education environment. The
“Evaluation” chapter provides opinions and comments by architectural
professionals regarding this experimental stage.

Benedikt (1999, p.7) offers his opinion of raising “architectural sensibility, a realm
of facts and insights that can support popular connoisseurship of the qualities of
buildings equal to that devoted to the valuation of music, cars, and movies”.
Schwarzer (2000, p.18) poses the question about future architectural creativity,
apart from matters of efficiency and comfort, suggesting that architects should
rethink their identities and action within the commodified built landscape. In this
view architectural sensibility and creativity emerge as the driving forces in the art
of creating buildings.

It has been argued that there are two main reasons for our durable fascination
with creativity – society’s need to create for change, and the individual’s need to
create for personal satisfaction. Creativity, by its very nature, guarantees change
as opposed to the comfortable notion of stability, predictability, and continuity in
our lives. Change requires at least a willingness to depart from the old habitual
way of doing things. The second reason for our fascination with creativity is quite
a complex one; it is a blend of various motivations such as curiosity, inspiration,
admiration, and stimulation from the work of others, and the quest for personal
achievement, visibility, and self-actualisation through our own efforts. Any
creative process brings a sense of excitement, overwhelming enjoyment and is
deeply emotional. As in the powerful Martin Luther King’s speech “I have a
Dream” (paraphrased) “we must not allow our creative protest to degenerate into
mediocrity. Again and again we must rise to the majestic heights of meeting
intellectual force with soul force. Architectural designs based on sensibility will
be fascinating and inspiring to make our lives less ordinary”.

260
Further Research

Two possible directions for further research emerge as a result of this study. The action-research that was carried out in an education environment was structured around the development of a new model consisting of four disparate concepts (bubble diagrams, parallelism of layered depth, mind maps and graphic design techniques), utilising the concrete and abstract graphic languages. In essence this can be interpreted as the modification and further development of existing concepts and applying them in a novel way through a wide range of visual tools. This was perceived by the author as a transitional level and the easiest one appropriate to architecture students enrolled in a Diploma programme (National Diploma in Architectural Technology).

One further development would be applying the research model developed in the “Synthesis” chapter, the graphic abstraction ladder, on the level of the hybrid graphic languages, which will be designs based on storytelling using not only the other two levels below, the concrete and the abstract graphic languages, but also references from all domains of visual culture. This is a more complex level, as it requires a breadth of knowledge not only of the field of architecture but also of art, sculpture, advertising, film, literature, ballet and so forth. Making connections and seeing relationships is an expression of personal creativity, so the act of exercising this will foster creativity, intuition and serendipity. This higher level of application can be tested in both – an education and an industry environment.

The second line of development would be applying the concepts developed in the “Synthesis” chapter to another related field, for example, engineering. It can be tested whether the proposed model will work in an area regarded traditionally as more methodical and analytical without superfluous glamour and based on sound sense rather than on intuition, emotions and serendipity. After all S. Calatrava, the creator of the most elegant and spectacular buildings and bridges whose work is inspired by the dynamics of movement and tension is an architect.
and an engineer. Architects and engineers of such class whose work is situated at the junction between art, architecture and engineering become the leading figures of a new generation which is determining the shape of architectural design for the future.
Chapter 8: Bibliography


- Architecture NZ (1998), Special issue, *The designing of Te Papa*


• Bognar, B. (Number 3, Fall1997) *What goes up, Must come down*, Harvard Design Magazine, “Durability and Ephimerality”.


• Falconer, G. (2001) *The best of both Worlds*, Landscape NZ (July/August)


• Ito, T. (2001) *Public Lecture*, Bruce Mason Centre, Auckland, NZ


• Kiroff, L. (2001) *Toyo Ito, Public Lecture*, Bruce Mason Centre, Auckland, New Zealand


