Design Codes and Design Language

By Eleni Tracada

1. Brief introductory note about my background

Before any reference to my teaching experience, it should be timely to talk about my own learning experience; this could explain how and why I have been inspired to pursue studies, practise and finally teach design and architecture. I studied architecture in the Faculty of Florence in Italy between 1973 and 1980; I moved there from Greece during the last year of the colonels' regime, which lasted from 1967 for seven very tough years for everybody and especially students. So, as it happened to a large number of students in Greece, I had to struggle to get enough preparatory studies at a standard which could offer me the chance to look at more developed systems in higher education abroad. Therefore, beyond the material offered at high school level, I had to search for other private tuition schools in order to be able to learn and practise drawing and also learn more about history of art, design and architecture.

In early 1970s I managed to be admitted into the Eliades School in Arts and Drawing in Athens and there I started eagerly learning arts and drawing under the attentive guidance of Kostas Eliades, one of the most known maestros in Greece and France. In fact Kostas Eliades' had attended the Ecole des Beaux Arts of Paris before World War II; he had not only been my first inspiring teacher in drawing, but also he introduced me and the rest of the class to the years of exciting creativity in literature, arts, design and architecture in Europe just in the middle of the horrors of two world wars. Eliades did not use to teach by means of elaborated presentations – as

we are used to today. Instead he used to talk and recall his own days as a student learning and training by other maestros in France. Therefore our imagination had to play a vital role in learning. Besides his narrative, Eliades used to read poetry and prose of famous authors. Whilst drawing, the words unconsciously were translated into powerful lines, shapes and forms by combinations of patterns of colours. The year I spent in Eliades' School of Drawing had been a milestone to my career development as a professional architect and teacher later; my skills in drawing and designing were further enhanced by the teaching and support of another architect at the same school; Timos Missios[1] taught us architectural drawing through historical explorations of existing buildings and open spaces around Athens; we discovered how to read the historical past life of the built environment.

Consequently, the accomplishment of learning how to be creative was enriched by further studies in architecture in the Faculty of Architecture in Florence, Italy. At the end of these studies and before moving in Britain, I had been practising as a self employed architect in Florence between 1983 and 1993. Between 1993 and 1996 I pursued MA studies in 3D and Interior Design in the Manchester Metropolitan University where I had the great opportunity to have Prof. John Bailey Parkinson, historian, as one of the supervisors of my thesis; he also inspired me to choose a teaching career in higher education.

---

[1] In 1972 Timos Missios also started teaching in the famous Vakalò School of Arts and Design in Athens, in which he is now one of its directors.

2. Aspirations and context

In this paper I wish to explain my intentions and experience as a teacher involved with ongoing research in spatial design teaching with particular reference to my own teachers' teaching on social architecture and inclusive societies during my years in Italy. This paper will additionally explain how co-ordination of research between teachers and students may lead from codes and modelling to concepts and philosophies and finally to syntax and design language in order to attain coherent, creative and innovative solutions. I shall make reference to learning and teaching outcomes from specific projects developed in Interior Architecture recently and personal experiences in developing research in History and Theories of Architecture[2]. And above all, I should like to reflect on my own practice as an educator by critically looking back to my own history of formation.

Education and practice in architecture have seen a dramatic development in many European countries after World War II, but the origins of the educational structure in modern architecture should be found in Italy's more tumultuous years back in the 1930s, when architects managed to impose "law and order" in their first Schools in Architecture and also declared their independence from the oppressive establishment of engineering cliques, such as these of the School Engineering in Milan or the traditionalist and conservative Academies of Arts of Rome and

---

[2] I started teaching Interior Design to students at distance learning in the Open College of Arts, Barnsley in 1999. Between October 2001 and May 2007, I taught Interior Design in the Leeds College of Art and Design to Year 2 and 3 students and supervised project work and dissertations. Currently I am teaching Studio Design 1, History of Art, Design and Architecture, Innovations in Design and Technology and I am supervising Independent Studies' Projects in the Department of Built Environment, Faculty of Arts, Design and Technology of the University of Derby.

Milan. Back in the 1930s Italian architects, such as Giovanni Michelucci[3], managed to create

strategies and won competitions under Mussolini's repressive regime. Politics became vital part of

Italian architecture and revolutionary Modernist ideas flourished under the constant threat of the

Fascist regime. Nothing was able to stop Rationalism[4] and Mussolini himself had to declare a

status of acceptance of the architects' rules until Nazism prevailed also in Italy in late 1930s and

war stopped any activity everywhere in Europe. Whereas Modernists from Germany's Bauhaus

School were escaping to Britain and America, Italian architects were defiant to Fascism; they

stayed in their schools and unions and continued to produce architectures which managed to be

recognized as archetypes for further developments in Postmodernism after the end of the World

War II.

The Faculty of Architecture of Florence in which I studied in the 1970s had emerged

during the turbulent years of Fascism under the guidance of architects like Giovanni Michelucci

and it survived the war to see its new programme in course soon after. This new programme was

the result of discussions and debate between many architects and teachers who had taught in the

Faculty for many years. I had the opportunity to be taught by most of these innovative educators.

In the Faculty of Florence I learnt about my profession and techniques to maintain always active

interest about innovation in research and continuous investigation on social and political issues

---

[3] Giovanni Michelucci (1891-1990), born in Pistoia in Tuscany, was a famous Italian architect working and dealing for many years with public works related to mainly social architecture. Michelucci worked as a teacher in the Faculty of Architecture of Florence from the 1930s (when the Faculty emerged) until 1948 when he moved to the Faculty of Engineering of Bologna until late 1950s. Then he carried on working on projects until the end of his life; he founded a Foundation bearing his own name which is still working on unfinished project work or on projects inspired by his ideas on supporting local communities, mental health and reformation institutions and other projects of public interest.

[4] Rationalism was the term used to distinguish design and architecture during the Modernist era in Italy between 1920s and 1930s; the term emerged for the first time in the title of an exhibition of design and architecture in Rome in the 1920s. Between the followers of this movement we can find names like Antonio Sant'Elia, Giuseppe Pagano, Giuseppe Terragni, etc

related to design and architecture. Although Giovanni Michelucci left the Faculty of Architecture

in the 1960s, he always kept contact with teachers and students until the last years of his life; he

has been considered as one of the main promoters of liberal programmes in architecture and also a

skilled educator of many generations of architects until his death just two days before the

celebrations of his centenary birthday in December 1990. I had the opportunity to meet

Michelucci in various occasions and had been also involved with activities promoted by the

Michelucci Foundation and the Regional Council of Tuscany for many years until very recently[5].

Following the passes of my teachers, I worked as a professional for a decade in Florence

(before moving in Britain in 1993) and pursued continuous independent research whilst in practice.

Drawing for me became synonymous of creative research and architectural history blended with

the architect and researcher, as it has always happened to my teachers as well. My main ambition

has been to transfer my skills and values to my students and my efforts have been repaid by the

end as you will see in this paper. Being a student in the 1970s, it was inevitable for me to be

involved in activities related to cutting edge methods of teaching of architects, like Adolfo

Natalini[6], founder of the Superstudio group. In the years of revolution in the Faculty of Florence,

Superstudio also collaborated with other groups, such as Archizoom founded by Andrea Branzi[7].

---

[5] In July and August 2000, The Regional Council of Tuscany in Florence and the Michelucci Foundation (Via Beato Angelico 15, S. Domenico, Fiesole, Italy) organised a Campus in various cities; I worked in a team of twenty-nine experts from several countries aiming to produce a Charter on housing and urban integration of immigration in Tuscany. Special publications came out from this Campus, such as Nicola Solimano, Antonio Tosi (ed.s) (2000), Living in City and Urban Cultures, Florence: Ed. Polistampa.

[6] Adolfo Natalini was born in Pistoia in 1941. 'After a pictorial experience, that shall be reflected in his constant use of drawing, he took a degree in Florence in 1966 and founded Superstudio (with Cristiano Toraldo di Francia, Gian Piero Frassinelli, Roberto and Alessandro Magris)… Since 1979 Natalini started an own activity and focalised his research about the project in historical centres in Italy and Europe, looking for the traces time puts on objects and places and proposing a conciliation between collective memory and private memory.' (Ibelings, 2003, back cover page)

[7] Andrea Branzi, architect and designer, was born in Florence in 1938 where he was awarded a degree in architecture in 1967; he lives and works in Milan. Between 1964 and 1974, he had been member of the group Archizoom

So, radical architecture has got a particular effect on me and, most of the radical architecture's values still remain evident in my teaching.

3. Genesis of radical architecture and teaching

In the 1970s the Archizoom associates, an avant-garde group of Florentine architects, affirmed that 'ultimate purpose of the modern architecture is the eradication or elimination of the architecture itself' (Navone *et all*, 1974, p7). However during the same years and because of general mistrust towards all previous education systems, most architects believed that every single model of urban form had failed. In 1974, by reflecting back on the years of student uprising, Andrea Branzi affirmed that it was generally thought that urban planning had become part of some sort of 'institutional instrumentalism', because Urbanism[8] used to be imposed by law; he expressed his strong criticism by saying that 'urban planning may be enforced by the use of weapons in the years to come ahead' (Navone *et all*, 1974, p8).

In fact, urban planning should use correct policies related to urban areas and it should be accepted by the society as a discipline understanding clearly all manifestations of architecture in it; architecture is thought as a non-political tool. According to the philosophy of the 1970s, architecture should always verify the social values of all operations set by urban planning. In the

---

Associati; several original pieces of work of projects of that famous radical group are held by the Centre of Studies and Archives on Comminication of the University of Parma and the Centre Georges Pompidou in Paris. He is a very active teacher (associated professor in the Faculty of Architecture and Industrial Design of the Polytechnic of Milan) and designer in experimental industrial design, architecture and urban planning.

[8] Urbanism is the study of cities and it is related to the notion of creating and designing cities according to local communities needs and necessities; Urbanism in Italian Faculties of architecture became a strong subject which ahs linked architecture with policy making at local and national level. So, Urbanism has been always interested in geographic, economic, political, social and cultural environment of cities and the imprint of all these forces on the built environment.

years before student revolution, architects thought that urban planning had never aspired to offer

equilibrium; especially in the 1970s, architects and students thought that no moments of

equilibrium ever existed. According to them again and until then, both urban planning and

architecture used to interact in a totally utopian environment. For example, between the 1950s and

1970s, in Italy we could find local authorities asking architects and planners to reduce the

dimensions of their projects into the format of very simple physical models in scale. So, the model

became the real alternative to all processes of verification. A model presented in a very

professional way changed its role from being a communication medium to representing the project

itself. Any kind of fault was carefully covered by a nice looking model! By creating miniatures of

reality, architects could easily manipulate either the public opinion or the future users/stakeholders

of a project by just showing them simply a model of a proposal.

In the 1970s many avant-garde groups adopted some methods of traditional presentation combined

with new methods of the so-called Linguistic Metabolism. But, according to the radical groups,

architecture ought to embrace technology and show its technological metabolism in a different

figurative way. Models of high technological concept were made of collages of machinery parts

and organic materials; they could honestly represent organic architectural environment and create

clarity in visual communication. As an end result, radical architecture destroyed any authoritarian

utopian process of interaction between urban planning and architecture; it assumed that utopias

should only exist at initial stages of the realisation of a project as metaphors and concepts. New

utopian architecture under radical representation acted in exceptionally realistic ways.   The end

result of a project was accomplished as a perfect self conceived outcome achieved by both

originality and technology; the whole architectural process was thought to be some kind of creative

power able to be transformed automatically into constructive energy without any losses. Therefore utopia exists in the real process of a project and cannot be imposed by policies and regulations. According to the radical architectural teaching, utopia is some kind of pure process and may enable architects to be freed from restrictions of legality. Architecture can be a metaphor and a real natural phenomenon at the same time. In that sense, radical architecture tried to recover some kind of absolute realism on the top of it; it accepted the conditions of discontinuous social phenomena by avoiding to propose new hypothetical conditions. Everything was left free to open research and continuous investigation and, as young students, we all had to adapt our activities on line with new historical rules imposed by new teaching methods.

In the 1970s architects discovered a new way of doing architecture and did not intend to create only housing and commercial buildings. Architects discovered that architecture did also mean expression, communication and innovation; they recognized the fact that, by separating creativity from construction, they should be able to explore more concepts and ideas as means of primary motivation. Radical architecture was now able to identify key relationships between the users and the natural environment. Therefore architects could now work by following new social models of culture. At that stage, architecture was unable to identify itself through only construction processes and technical language, because the avant-garde architecture was only available to identify primary relationships between people and environment. Therefore, architects had to practise according to newly introduced social cultures; that meant that whole communities were able to reclaim now their creative power as one of their main civil rights. The arts did not simply represent reality, but they also totally coincided with it. In order to create arts and natural activities, generally speaking, people in the 1970s did not need to know how they could use

different techniques of various disciplines, because there were no such limits in techniques. Everybody could challenge the intellectual class in order to become an author themselves.

The adventure of the new avant-garde architecture started in Florence between 1963 and 1967 inside cultural and ideological debates promoted by the most up-to-date cultural movements of students. New teachers in the Faculty of Florence, like Leonardo Savioli and Leonardo Ricci, proposed experimental programmes of studies and new methods of teaching. The titles of taught subjects now included Integrated urban planning, Visual Design, Spaces of Social Participation. The profile of the architect was now considered as a positive image dealing with primary social problems and the architectural design was inspired by intellectual creativity. The component of creative imagination was enhanced by the use of technological imagery. As young architects we had the opportunity to come across contemporary works produced by other colleagues in Vienna and London. In one of his articles in the review Casabella, Andrea Branzi had mentioned that the Archigram should be considered as our 'ancestors of current research activities in architecture' (Branzi, 1972 p 2).

As young architects in Florence, we were familiar with all innovators very well, since the Vallecchi Editori, famous Florentine publishers, had translated and published Ulrich Conrad's Manifesti e programmi per l'architettura del XX secolo (=Manifestos and programmes of the twentieth century architecture) in which several new manifestos represented a clear denial of the Rationalism. Between 1960 and 1963, students in Italy were also influenced by famous Italian architects, like Giovanni Michelucci who used to experiment with model making by using organic materials in order to explain amazing sculptural and exceptionally technological buildings. Pop

Art and culture also emerged and became field of cultural reference for revolutionary students during the same years. Pop Art had changed the image of new culture in architecture; architecture was now represented as a global image. Pop Art had been a real answer expected for a long time. Most problems of visual representation were to be resolved by rich, colourful and quite exhibitionist illustrations. The experience of Pop Art was imported into the society of young Florentine architects and students of architecture mainly by Adolfo Natalini; he used to work closely with Roberto Barni, sculptor (Fig. 1), and Gianni Ruffi, artist. The three of them formed the so-called School of Pistoia. To remind you that Pistoia has been always a thriving city in arts, culture and architecture since the 1920s and it was promoted by the Modernist movement. Pistoia also became famous before them by Giovanni Michelucci, leader of the Gruppo Toscano[9], who had won the competition for the Railway Station of Florence, one of the finest examples of Modernist architecture in the 1930s.

Adolfo Natalini came from a traditionally radical environment and introduced Pop Art as a medium of architectural visual communication. The Pop Art illustration method was soon adopted by many young architects as we saw in the exhibitions with the title Superarchitettura (=Super architecture) in Pistoia in 1966 and in Modena in 1967. In their Manifesto presented on that occasion, the students-architects declared in a prophetic way:

> 'Superarchitettura is the architecture of Super production, of Super consumerism, of Super induction to consumerism, to the Super markets, to Superman and to Super petrol'
> (Excerpt translated from the Manifesto/Poster of 2nd Exhibition of Superarchitettura, 1967).

Here the intention is not only sarcastic, but also demystifying; there is confidence that the users can finally rise up against consumerism. Now architecture is intended to resolve both urban and

---

[9] Giovanni Michelucci and the Gruppo Toscano (a group of his students at that time) won the competition for the Railway Station of Florence which was built in 1933 and it is thought to be one of the most important architectures of Modernism in Italy.

human problems at the same time. Visual communication is going to manipulate the behaviour of the visitors of radical exhibitions.

Today, Adolfo Natalini is an established professor in the Faculty of Architecture of Florence. I interviewed him in his studio in Florence on 30 April 2004. During that interview, Natalini strongly denied that architecture had ever been in decline; instead he affirmed that architecture is still alive, or better, architecture is still in evolution. Adolfo Natalini's work is a clear answer. In his small sketchbooks, the so-called tacuini, we can find sketches created by the same techniques used in the Superstudio's istogrammi (=webs); he is still trying to compare 'generating' webs of lines hidden in the main structure and the façades or external skins of buildings. Natalini is happy to create drawings by using pencil, pen and colour in fragile webs reminding us of Paul Klee's technique to create increasing and decreasing forms; he is able to create architecture and urban environment by majestic use of networks of lines in drawings and these drawings can be easily translated into solid architectural constructions and in living cities. By referring to Natalini's work (see Fig. 1), Hans Ibelings, Dutch architectural historian, affirms that architecture cannot be eradicated or dormant; non-built Superstudio projects are still valid research patrimony for younger generations. Ibelings affirmed that there is 'a mechanism in architectural criticism and history whereby everything is constantly repeated and everything and everybody are forever being compared with their earlier shelves' (Ibelings, 2003, p7). In Natalini's work webs grown inside the urban fabric of Tuscan towns, and especially in Pistoia, have managed to become powerful lines of architectural design and style. Because of these lines which are infinite and in continuous motion, architecture remains constantly in motion and evolution. No place is similar to another, but there is a common link between places. Architecture

is an explosion of lines intended to accompany human life manipulated by architects and their own creativity.

4. Eternal drama of lines in architectural drawing

Any line has been always an inspirational element into our work as architects and researchers. During practising years I had also the opportunity to research on urban patterns of regeneration in historical city fabrics; I also carried on researching and discovering interesting findings which can show us why cities are developing in a very organic way in which human energy plays a vital role. Hidden pathlines in urban fabric can be often considered as urban indexes of human behaviour; they can prove and also guarantee continuous and harmonious development at all times. I pursued research on urban developments for many years and gradually discovered to be supported by strong evidence through various authors' work, from maths to arts.

Pathways drawn through landscapes and contained by urban fabric may be considered as powerful elements of uninterrupted urban development of every town and city around the globe. We may bear in mind that paths are nothing else than lines. The lines defined by geometrical conventions may be considered as listed elements strictly controlled by human performance inside both the natural and the artificial environment.

> 'How can human beings who are motivated by emotions be so <u>rational</u> to follow lines and also perform along these powerful elements in such an intensive manner that art and architecture can spiral out of them at any moment of everyday life? Every single person can be an artist or <u>performer</u> capable to orchestrate a cosmic movement of pathlines exploding into cosmic geometries which can penetrate nature and create artefacts; this is the perpetual way of creating three dimensional forms in harmony with human deeds or activities or actions. In that eternal play, a human being unconsciously is transformed into an <u>actor</u> or <u>performer</u> or <u>art-doer</u> or finally an <u>artist</u>.'
> (Tracada, 1996)

Artists have been always inspired by geometric forms without being mathematicians; mathematics is intellectual and verbal, whilst art is made of emotions and is non-verbal. However artists cannot reject powerful geometric models capable of making them see the world differently. Spaces are created by geometries and exploitation of space for the artists becomes their real obsession. Guillaume Apollinaire's famous quote from The Cubist Painters affirming that 'geometry is to the plastic arts what grammar is to the art of the writer' (Apollinaire, 1970, p13) may be considered as strong evidence to the indexical character of complex geometries, such as grids created by intersecting dynamic lines, for example. Therefore the reality is that, we all have been fascinated by geometries made by generating lines as mystical forces able to create primordial cells or forms; form comes to the real world when line moves along a creative performing process. There is always an everlasting performance act of lines which penetrates space and defines it as a telic art.

Line as proforma (=performance) especially in pictorial spaces has been the main procreating element in arts. But, also in architecture performing lines have been generously manipulated by architects in order to create spaces. We are now able to argue about architectural lines as procreating forces able to condition interventions in macro-scales, such as these of whole cities. It is obvious that lines could affect our intentions of creating at any time; cities are made of infinite vertical and horizontal lines. Lines do not only form edges, boundaries and outlines, but also penetrate whole spaces as paths-generators of buildings. Therefore arts and urbanism have simply emerged during this 'eternal act of the line performance act' (Tracada, 1996). And because act means action, it becomes obvious that complexity in systems of actions can discharge enormous amounts of performing or procreating energy to create complex artefacts, such as buildings and cities.

 The glossary provenience of performance's meaning relates to the verb <u>perform</u> + <u>-ance</u>, in Anglo-French and its main meaning is the action of performing. Emerging in various old European languages, the word <u>performance</u> presents itself in a range of versions, such as perfourme, parforme, perform, perfourne, perforny, perfourny; that means we get an interesting combination between always two words, such as <u>par + form</u> or <u>per + form</u> or <u>par + fournir</u> or finally as <u>pro + form(a)</u>. Originally it might have been something like <u>par</u> (or <u>per</u>) + <u>for</u> + <u>former</u>. The presence of the component <u>form</u>, as a physically powerful element of the whole composite word, may be the key indexical meaning transferred into arts and architecture by means of real scales in artistic and architectural compositions. This assumption may become more congruous, if we also consider the etymological sense recommended by the dictionary as follows: 'to carry through in due form' (The Oxford English Dictionary, 1989, p123). A simple phonetic alteration of the much frequent Old French word <u>par-fournir</u> to <u>per-furnish</u> may provide us with the real meaning of the word reaching our times; that is <u>to accomplish entirely</u>, <u>to achieve</u>, <u>complete</u>, <u>carry into effect</u>, <u>execute</u>, which are in effect all meanings related to remarkable actions of creativity and inventiveness.

       <u>Performance</u> or <u>proforma</u> can be the whole mystic process which proceeds the formation or genesis of forms. We cannot avoid the meaning of the Latin word <u>proforma</u>; <u>proforma</u> means <u>to form in front of</u> or <u>before</u> and this may associate <u>proforma</u> (or <u>performance</u>) to space, as time and place. Performers are offered the opportunity to create a shape, or better, a form before somebody else's form or in front of another performer's form. Under these conditions we can get the most imperative meaning of performance; that means by performing, artists can juxtapose spaces and elements to increase interaction and finalize the <u>telic act</u> of performance. The result of performing

might be a range of diverse between them forms, because <u>art doers-performers</u> may express their

emotions differently according to their diverse social and cultural background or formation. As a

matter of fact, forming a space by forms through human participation is a very complex act,

because of different <u>codes</u> and <u>conventions</u> dictated by individual human emotions able to

empower manipulation of human behaviour. In the event of performance, we can perceive it as an

enchanting space of infinite varieties of forms. Therefore in this innate environment called the

space of <u>line performance act</u>, the artist, or better, the <u>performer</u> moves, creates and lives in it.

      <u>Line</u>, <u>performance</u> and <u>act</u> connected together may become key codes; act is a performance

of an intelligent being. The formal etymology of the word <u>act</u> may be equally interesting and

important as that of performance; the meaning of act becomes fascinating if we explore its

primordial roots in time. We can discover that <u>act</u> presents a solid bond to the ancient Arian root

<u>ak-</u> or <u>ak(c)-is</u>, as also accounted in the Old Greek language. This root contains the real original

meaning of a very sharp edge or of a pointing and intimidating (or piercing and penetrating)

element. If we regard act and action as penetrating elements into a space, we may be able at some

point to define a specific space according to these co-ordinates; they turn out to be scale co-

ordinates of an old index showing developments of human behaviour in different places around the

world. Whenever we explore that magnificent performing act of an explosion of lines into the

natural environment (concept), at the same time we discover and define its genesis, consistency

and affinity and, most importantly, its boundaries inside the built environment (syntax and design

language).

According to the vocabulary, act is 'a state of accomplished fact or reality, as distinguished from subjective existence, intention' (The Oxford English Dictionary, 1989, p 123). A subjective intention relates to a subject or to a practitioner of act as art; that means it relates to an architect. An action or performance act presumes the active presence of a human being or a group of human beings and therefore by exploring act-art, we discover the complexity and the plurality of it. By examining the phrase 'to get into the act', we discover the meaning of becoming participant, of getting involved with some activity or of bringing into the action of performing, doing, and working. The reality of doing may be opposed to think and speak; that means 'perform(ing) on the stage of existence' (The Oxford English Dictionary, 1989, p 124).

If performance is an action or a multifaceted set of actions capable to influence human attitudes and principles, also architecture may be an impressive combination of performances. According to Le Corbusier:

> 'We are here immersed in the full music of forms. Each one is there to play with those that surround it. Whether a palace or a house, each is governed by a similar intention; the intention ... of assimilating, of speaking clearly... Once we have drawn up the plan and the section, the game has started. There is the unity of the whole, the sculptural gamble, the temerity of the construction, the challenge. There are acrobatics, sport, and wit. We are enjoying ourselves; yes, we have had a wonderful time risking everything'
> (Le Corbusier, 1948 p 44).

According to the same author, the first thing to consider is to reduce shapes to the smallest size compatible with perfect functioning ("machine for living"). By enlarging the machine, we get the evolution of the form or the evolution of the actions-acts-activities. In a sense, Le Corbusier's machine for living may be clearly linked to indexical codification imposed by architectural performance acts into very simple and essential architectural spaces.

5. Pictorial and architectural spaces: syntaxes of lines-codes

Space is inevitably related to everything concerning human life. Space to vocabulary has been

related to time and duration as well, whereas space denoting area or extension is a linear distance

or interval between two or more points or objects. An exceptionally interesting aspect of space can

be found in the ancient Greek word ch-òros, which contains the root òros (= edge, boundary, but

also rule). According to Le Corbusier, a form is the result of the right choice of a regulating

diagram (geometry) of vertical and horizontal lines (rules); any kind of design expresses its

character through certain geometric laws and these laws may be revealed in a regulating diagram.

Diagrams are visible in any kind of contemporary art production, not only in architecture. If we

consider Le Corbusier's regulating lines inside the structure of his buildings, we may be able to

distinguish similar patterns formed by internal flows of human activities inside the same buildings

as well. This can be considered as human life's performance act into spaces and it can be defined

into the dynamism of both vertical and horizontal routes. Therefore, regulating lines may become

key codes in the scientific creation of spaces.

In his Eye and Mind, M. Merleau-Ponty says:

'My body simultaneously sees and is seen ... Visible and mobile, my body is thing among things; (form
between other forms) ... But, because it moves itself and sees, it holds things in a circle around itself'
(Merleau-Ponty, 1978 pp58-59).

Also Leonardo Da Vinci referred to the same primordial generating element of the pictorial

image: the point. In excerpts of his Treatise in painting, he affirmed:

'in the eye the shapes, the colours, all the images of the parts of the universe are reduced to a point and this point is such a marvellous thing ... In such a small space the image may be recreated by recomposing its expansion'
(Kemp *et al*, 1989, p50).

Leonardo explains:

'The surface is the boundary ... and the boundary of a body is not part of that body, but the boundary of a body is the start of another. The boundaries of bodies are the least of all things'
(Kemp *et al*, 1989, p53).

We can see clearly that, Leonardo believes that forms are made of boundaries formed by lines and tensions between points. According to Walter Crane, historian, the mind must work through the eye; he also says:

'An eye trained to observe and select may, even in the dullest and dingiest street find artistic suggestions, if not in the buildings, then in the life. And where there is life, movement, humanity, there is sure to be character and interest'
(Crane, 1904, p.151).

In his <u>Logic and Design</u>, Krome Barratt, mathematician, affirms that emotions are aroused by <u>symbols</u> seen by the eye and by <u>associated ideas</u> (emotive fragments). Images can generate emotions and 'the intellect is the sum of all emotions' (Barratt, 1980, p.286). Forms and surfaces may offer emotional stimulation. The dramatization of emotive fragments stimulates the intellect, the enrichment of forms and surfaces of the general environment 'acts as a social catalyst' (Barratt, 1980, p.286). 'A line is a path that can offer a pleasant and varied journey' (Barratt, 1980, p.186); having the opportunity to taste pleasant surprises, anybody wishes to repeat the same journey again and again. A pleasant journey, which once has been defined by urban indexes belonging to the past, at some point may become virtual scale of ever lasting reality which depends upon conservation of human behaviour through time space. According to Krome Barratt, 'only the ever

changing (line) is never changing'; lines are so powerful that they may be transformed from real life codes to eternal virtual reality regulating scales of artistic and architectural creativity.

Harmony dictated by universal natural laws can create a state of morality, if morality coincides with emotions. By using harmonious proportions in architecture, we can generate forms in accordance to universal laws, so that both physical and psychical equilibrium could be achieved. If equilibrium is so important in architecture, we can see why architects, like Le Corbusier or Natalini or Michelucci (Figures 2 and 3) have been obsessed by geometries. Le Corbusier often spoke about n-dimension geometries in architecture; this meant that, by experimenting new geometries in architecture, he was playing down the whole morality of architecture itself. Performance is anyway something complex; it is not necessarily something literary and polemic. Performance act presents a ritualistic and more primitive atmosphere, during which urban myths enable us to understand and also control human (either natural or social) experiences.

Historically it has been proved that a moving point creates a line and this intentional movement in three dimensions can also fill a space. When a point moves along curved paths, then it is able to describe more complex areas and shapes, such as pictorial lines. Several artists, like Paul Klee, used these theories as basics to produce artwork. We should consume energy to start a line. A line is inclined to continue its movement along the direction of its starting point; it is inclined to be straight or curving and it points towards its final destiny. There is always a meaningful purpose of the use of the line, such as that meaning of its shared use in a society network or web. On that occasion, the line follows a predetermined course. According to Krome Barratt, a path can be defined as 'a continuum of infinite length defining a finite space' (Barratt,

1980, p170). Theories on the genesis of built environment become extremely fascinating, when we try to replace a point or points with real people; automatically abstraction of pictorial spaces could be transformed into real urban environment by acquiring complexity systems based upon lines and mathematics as natural phenomena of life. People can enjoy winding paths or undulating lines, which present a friendly variety; they are certain that they will survive inside these paths' embracing forms.

According to Walter Crane wave-lines not only reveal movement, but also describe direction and force; that means wave-lines may represent human traffic flows into spaces. Organic flows of lines are interpenetrated images created by interweaving lines, which are present in maps as juxtaposed elements and, in specific territories or hidden paths, inside the built environment; they are still functioning as virtual scales of continuous urban development. In most cases, these interweaving lines expand into grids either horizontally or vertically and in a very energetic way. In fact, grids of lines, such as roads, for example, are formed by geometrical repetition or combination of the most combative linear symbol: the cross. We can find out that a line is highly performing when in contrast with another line or a group of lines and also that, Sigmund Freud's assumption that people derive intense enjoyment only from a contrast and very little from a state of things, may consist an obvious example.

One of the main components of performance is drama (action); drama is a communication of contrast, while anti-drama is a repetition that leads to apathy. Again Krome Barratt insists that 'drama can be enriched beyond competition between two themes by the use of transitions and interweaving plots' (Barratt, 1980, p301). It is obvious that, rich dramas are required in every

design and every design needs a scenario, which may be, for example, a town centre. By

providing a scenario, 'a hierarchy of players and activities will emerge... Any expectation is a

projection into the future of past experiences or combination of those' (Barratt, 1980, p301). The

same kind of pathlines found in pictorial images can be also encountered in three-dimensional

urban structures; urban genesis is a natural event which depends upon dynamic routes created by

movement of highly active points-units (people's energy).

Important events can act as dynamic tensions or contrasts capable to set in movement cells-

points into a cosmic ordered environment, such as that of a city. Obviously today conditions of

life in cities are the consequence of events contributing in the formation of cities in which their

inhabitants have always got very active roles to establish harmonised behaviours in use of the

natural and built environment. So, the codes adopted by most radical architects in the 1970s, like

Adolfo Natalini, for example, have now evolved to paradigms following and preparing syntaxes

for the future. All methods of communication with the wider societies taught by architects, like

Giovanni Michelucci, have now been accepted by the latest generations of designers and

architects; there is an unstoppable historical process still going on and heading towards the future.

I spent several years in research on Urbanism and had the opportunity to meet famous

historians, experts in Urbanism, like Piero Sanpaolesi, urbanist and architectural historian, who

strongly supported the idea of interpenetrated images and interweaving active lines inside the

urban fabric of the city of Florence. In an unpublished study in 1975, Piero Sanpaolesi described

his findings from research on a very important part of the centre of Florence in the north of the

Cathedral: the area of the SS. Annunziata Church and the Convent in close proximity to the

famous Innocenti Hospice. The whole area started developing in the thirteenth century and it is

still considered as a district showing a high density of very important buildings with long history in

arts and architecture.   Today in the same district people unconsciously move along pathlines as

preferential routes of human flows of traffic as it has always happened for many centuries since

medieval times. During the years in which I taught Interior Design in the Leeds College of Art

Design, these invaluable pieces of information were presented to my students to help them with

their own projects' research.

My research into pathlines in relation to the developments of urban fabrics in cities and

subsequent findings were re-introduced to the students I taught and particularly when they were

trying to read and understand the built environment. In a sense history was repeating itself in

learning and teaching in design and architecture. Radical ideas of the 1970s and perhaps from the

whole previous century were easily transferred into today's student knowledge; the students' new

experiences could now create real places for real people. I have selected a couple of images from

the ideas development files (Figures 4 and 5) of Rebecca Weldon, one of my students in 2005/06;

in these images you can easily recognise the signs of teaching in her visual exploration of urban

spaces and buildings.

Giovanni Michelucci declared towards the end of his life:

'No place has to change drastically; people's perceptions and prejudices must change... a space is poor when
it lacks human relationships and it is always beautiful when it encourages human encounters; there is always
hope to explore such a space for many years to come'
(Michelucci, 1993, p143-144).

Therefore history goes on and on with teaching; history of architecture is simply the

architects' eternal and ongoing history in learning, teaching and creating. I am really grateful to all

my teachers as my academic career progress and my own teaching experience builds up at the same time. And I can also understand that, perhaps the same will happen to my students one day; through my teaching they are able to capture and assimilate ideas and principles which will become <u>historical seeds</u> of transferable professional knowledge and formation. My teachers' teaching and the teaching of all generations before them has already passed into the high technological marvels of the 21st century art, design and architecture and is going to prepare the everlasting performance act of lines for the future of the whole humanity for the years to come.

<u>REFERENCES</u>

1. Apollinaire, G. (1970) *The Cubist Painters* New York: G. Wittenburn publishers

2. Barratt, K. (1980) *Logic and Design: Art, Science and Mathematics* London: The Herbert Press

3. Branzi A (1972) 'Il ruolo dell' avanguardia 2: L'Africa è vicina', *Casabella*, 364, p2.

4. Crane, W. (1904) *Line and Form* Manchester: George Bell and Sons

5. Ibelings, H. (2003) 'A Dutch Perspective on the Dutch architecture of Adolfo Natalini', in *Adolfo Natalini: Album Olandese* Florence: Aión Edizioni

6. Kemp, M. & Walker, M. (1989) *Leonardo on Painting* New Haven and London: Yale University Press

7. *L'architecture d' aujourd'hui* (1948), Special issue, p44

8. *Manifesto* 'IIa Mostra di Superarchitettura' (1967), Modena

9. Merleau-Ponty, M. (1978) 'Eye and Mind' in Osborne, H. (ed.) *Aesthetics* Oxford: Oxford University Press

10. Michelucci, G. (1993) 'Un sogno, la capanna dell'angelo' in Bassi, G.B. (ed.) *Alle Radici di Giovanni Michelucci: Pistoia come Luogo Felice* Firenze: Alinea editrice srl

11. Navone, P. & Orlandoni, B. (1974) *Architettura radicale* Segrate (Milan): G. Milani sas editrice

12. *The Oxford English Dictionary*, 2nd edition (1989), Oxford: Oxford University Press

13. Tracada, E. (1996) *Line performance act*, unpublished MA dissertation submitted in the Manchester Metropolitan University.

LIST OF ILLUSTRATIONS:

Fig. 1: Natalini architetti: Boscotondo at Helmond (1995-2000) - a small paved square with Roberto Barni's bronze sculptures.
(Source: Ibelings, H. (2003) 'A Dutch Perspective on the Dutch architecture of Adolfo Natalini', in *Adolfo Natalini: Album Olandese* Florence: Aión Edizioni, p55)
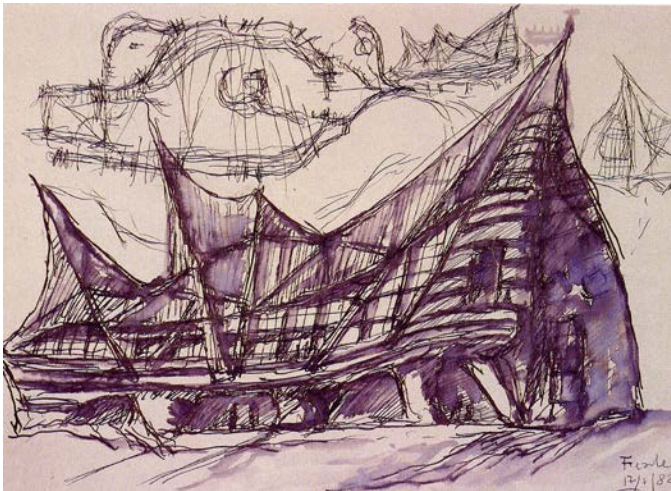
Fig. 2: Giovanni Michelucci: a church project in San Miniato, Siena (1982) – This drawing belongs to the collection of the Giovanni Michelucci Foundation, Fiesole, Nr Florence.
(Source: Belluzzi, A. & Conforti, C. (1987) Lo Spazio Sacro di Michelucci – fotografie di Sgrilli, G., Siena : Umberto Allemandi & C., p56)
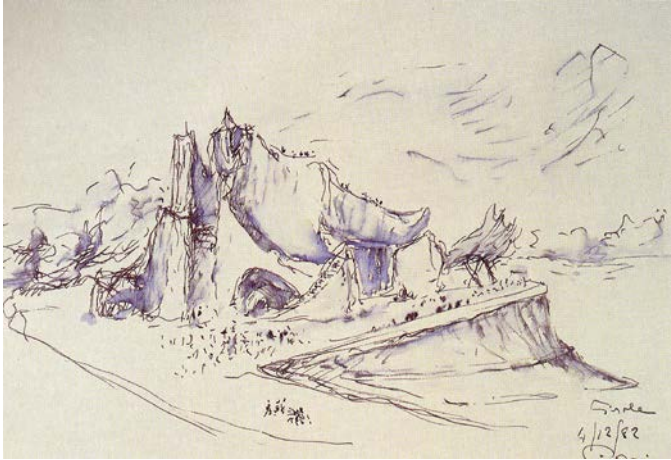
Fig. 3: Giovanni Michelucci: project of the San Francesco a Guri church (1982) – This drawing belongs to the collection of the Giovanni Michelucci Foundation, Fiesole, Nr Florence.
(Source: Belluzzi, A. & Conforti, C. (1987) Lo Spazio Sacro di Michelucci – fotografie di Sgrilli, G., Siena : Umberto Allemandi & C., p54)

Fig. 4: Rebecca Weldon's student project: ideas development (Interior Design, Leeds College of Art & Design, 2005-06)

Fig. 5: Rebecca Weldon's student project: ideas development (Interior Design, Leeds College of Art & Design, 2005-06)

Fig. 1: Natalini architetti: Boscotondo at Helmond (1995-2000) - a small paved square with Roberto Barni's bronze sculptures.

Fig. 2: Giovanni Michelucci: a church project in San Miniato, Siena (1982) – This drawing belongs to the collection of the Giovanni Michelucci Foundation, Fiesole, Nr Florence.

Fig. 3: Giovanni Michelucci: project of the San Francesco a Guri church (1982) – This drawing belongs to the collection of the Giovanni Michelucci Foundation, Fiesole, Nr Florence.
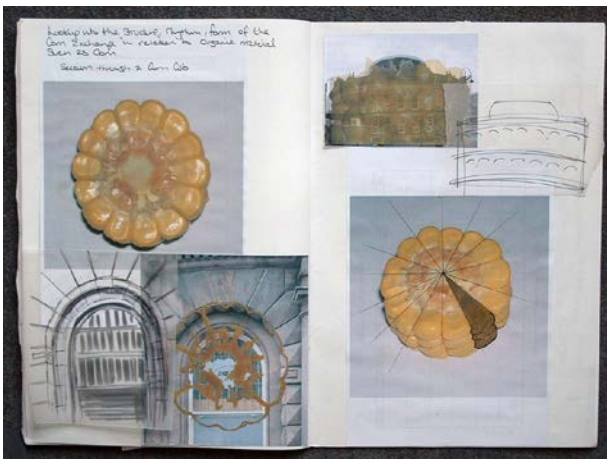

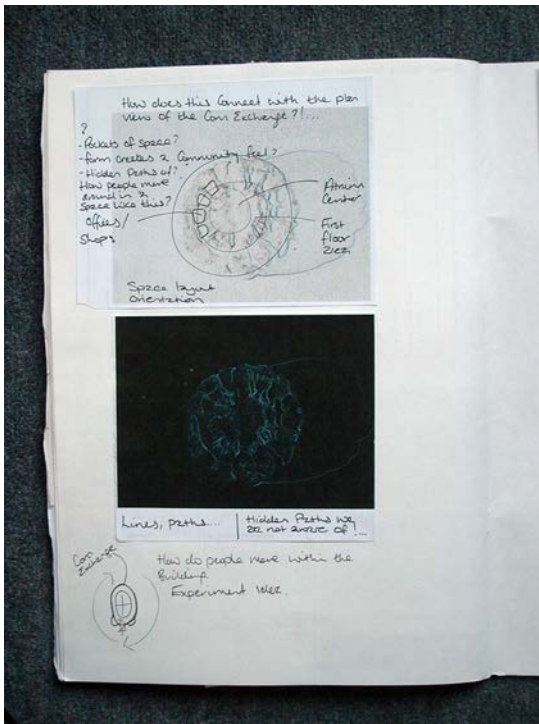Figure 4: Rebecca Weldon's student project: ideas development (2005-06)

Figure 5: Rebecca Weldon's student project: ideas development (2005-06)