Towards human-oriented design, architecture and urbanism: shifts in education and practice.

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Abstract

The scope of this piece of work is to reflect upon a series of past and recent publications as well as those in progress referring to innovations in architectural education which has already led and/or might lead to major shifts in future practices. This is an opportunity for the author to reflect on concepts and ideas for the future of architecture which is currently undergoing innovative developments by embracing new theories and enduring professional formation according to contemporary trends. This reflective work has been based on publication of research, including ongoing editorial work related to this topic.

The author's ideas and philosophy on human-oriented design and fractal patterns of social life has embraced dynamics of urban developments in modern and future cities. She has succeeded in considering, uniquely interpreting and further developing ideas and theories of established authors, such as Christopher Alexander's concepts on patterns and principles of design and Nikos Salingaros' thermodynamic models of the built environment.

The author was inspired by teachers and renowned scholars in history, philosophy and practices of architecture; her own teachers' experiences and their teaching had offered a singular momentum in her personal career path. This long process started when her teachers succeeded in placing urbanism and architecture side by side inside the Faculty of Architecture of Florence back in the 1970s. Hence the author reflects not only on recent publications, but also on others that have been published in the last decade or so. In this report it is evident that materials produced during these years have been essential

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1. Introduction

1.1 Background

Since July 2010, the author has been involved in Biourbanism by joining the International Society of Biourbanism (ISB). Hereafter she got the opportunity to engage in academic discussions and further research related to Biourbanism as a proposed new discipline worldwide by several international experts, such as Nikos Salingaros, University of Sant' Antonio, Texas, USA and Antonio Caperna, Università Tre, Rome, Italy. Soon the author was nominated a member of the Executive Committee of the International Society of Biourbanism (ISB); she reviewed and approved a manifesto on Biourbanism that was published in the web site of ISB.

In summer 2011, the author was nominated Editor in Chief of the Journal of Biourbanism, because of her significant contribution in the teaching and dissemination of the principles and practices of Biourbanism, and promoting research in the urban studies field in general. She was supported by excellent sub-editors and collaborators (plus peer reviewers) and was able to get five issues of the Journal of Biourbanism published until the end of 2014. (See link at: www.biourbanism.org to be directed to http://journalofbiourbanism.org/)

Biourbanism could be the solution for the future of our 'smart' cities; its principles encompass Deep Ecology, complex approaches in urban solutions, New Life Science, Morphogenetic Design Processes, Biopolitics, Green Policies & Bio-economy, Peer-to-peer Philosophy, Geometrical Coherence, Biophilic Design, Bio-Architecture, Biomimesis

and Generative Processes. Nevertheless in this critical appraisal the author will explain that her career as a professional educator has been strongly underpinned by long uninterrupted studies on theories and practices of architecture and urbanism. During four decades of research activities and in conjunction with her professional formation as an architect and urbanist, the author scrupulously dedicated time for critical review and analysis of invaluable data that she had collected and selected personally. She not only used this important information in her professional project work at that time, but was also stored it carefully in her personal archive to be ready for further inquiry and evaluation. Lately some authors, such as Jesse M. Keenan, argued that, recent climate change conditions should dictate new rules and regulations of dynamic changes in buildings; new integrated adaptation systems are consistent with the prevailing theory of Panarchy applied in social-ecological systems theory (Bessey, 2002; Keenan, 2014).

The same author mentioned above is currently proposing a 'Framework for Multiscalar Dynamic Adaptation of Buildings' based upon a 'realised adaptation cycle' of 'social/environmental/economic   stimuli'   combined   with   'intelligent   stimuli' (actions/strategies); the main aim is to provide support to cities worldwide in order to become resilient to rapid climate changes. Keenan intends to enquire more on theories and applications before being conclusive on a final adaptation framework. Hence, Keenan recognises that Nikos Salingaros, Michael Mehaffy and Eleni Tracada present the complexity in architecture in a different way than other followers of the Theory of Hierarchy. Thus, this author affirms that, according to the Theory of Hierarchy, 'influences outside of the hand of the architect are dictating aesthetic and programmatic gestures which dilute—or more formally limit—the creative capacities of architecture' (Keenan,

2014, p27). As a matter of fact, this new alternative theory endorsed by Salingaros, Mehaffy and Tracada is now deemed as 'a certain panarchy of influence between the ordered, random and chaotic gestures of architectural expression' (Keenan, 2014, p27). The recognition of the author of this critical appraisal as a theorist of Panarchy, which 'has been deemed, to be the Third Law of Structural Order' and the assumption that, 'this rhetorical tension is largely one of the aesthetics' (Keenan, 2014, p27) may provide clear evidence on the standing and originality of the theory itself, as we see further. As Keenan puts it 'analysis and expression [of theories of architecture] are process and outcome. ... An analytical theory of architecture ... acknowledges the practice as both an art and a science' (Keenan, 2014, p28).

It is good that new research discusses issues raised by the author of this critical appraisal in the last few years. Nevertheless, now the main aim of this endeavour is to review and critically evaluate a long career in architecture and architectural education with reference to her recent impact and outcomes in the theories of architecture and urbanism and her students' professional development as well. Thus, the author is going to refer to a special selection of publications; she reflects on innovative methods, which she has used or she is going to use in learning and teaching and the training of new generations of architects, urban designers and planners. She reflects on the 'big themes' that have signed her own intellectual development through ongoing studies in architecture and urbanism. Therefore she wishes to extend this critical appraisal to an intellectual biography rather than a simple narrative of her career.   Perhaps she is now able to distinguish at least three 'big themes' or stages of her own particular early professional formation, which have evidently stamped a new era in her recent educational endeavours as well. Noticeably

these big themes have always supported unremitting cutting-edge interdisciplinary interactions between architectural design and education outputs for several years in a row; they have been extremely prolific and inspirational drivers to the author's research activities and impact of recent years. However the selection of the publications has been arranged in a volume in which connections with the big themes may refer to a different chronological order. This happens because the materials selected during study and professional practice years from the 1970s to late 1990s were further exposed to new theories and practices, which emerged since the beginning of the 21st century. Then, a number of new connections with national and international field and educational research networks occurred, so that the author's specialist subject knowledge and research activities were to be exposed to larger audiences again; feedback from these events led to the re-examining of theories and their applications. As a matter of order, the author will refer to each publication by connecting it to one or more themes/research directions. New implications of older ideas, such as, for example, the influences from Christopher Alexander's pattern language and human behaviours were linked to newest theories on fractal structural sprawl of the cities and beyond. The author had to navigate from behavioural to cognitive psychology and combine science and empirical observation with empathy and psychology again in order to reach her latest educational activities and experiences of urban embodiment.

1.2 The 'big themes' and experiences from the 1970s until today

During the author's studies in the Faculty of Architecture of the University of Florence (between the academic years 1973-1974 and 1979-1980), the Institute of Urbanism had a prominent position in the Faculty's programmes of studies; it supported the internal divisions of Architectural Composition, Conservation and the Restoration of Buildings, including History and Theories of Architecture and Science of Construction, Applied Mathematics and Technology and Structures. At that time in the Faculties of Architecture in Italy the students pursued six years' programmes; the programme in architecture was completed with the final year project and the written thesis. During the final year studies the students were assessed as a team sharing responsibilities and specific skills which led to their professional formation. The programme of each student could be formed by fifteen core units, some of them biennial; the rest could be formed by fifteen more mainly optional units. The author had picked several optional units which supported her professional formation as an architect and urbanist. Therefore her professional career as a freelance architect was expanded by participating in a range of projects and research from design to masterplanning, from history and theories to professionalism and construction management, from applied technologies and preservation to social sciences.

During her studies in the late 1970s, the author had the opportunity to be taught by architects and urbanists, such as Giovanni Michelucci, Adolfo Natalini, Andrea Branzi, Christopher Alexander, Edoardo Detti, Renato Baldi and many others, who had a strong impact on her career and her latest development. Teachers and professionals, such as, for example, Giovanni Michelucci, supported research and professionals through their established foundations and attracted international scholars to work in important research

projects. Evidently this kind of valuable support treasured research into teaching and teaching into research; this was to be definitely the author's preferable professional approach during her teaching years as well. Reflective formation of the architects and teachers in architecture and urban studies was the main route followed by teachers and students sharing common research from the 1960s onwards in Italy. By pursuing studies in urbanism the students were often obliged to work in teams with their teachers; their reflective training coincided with new methods of teaching which made the students taking the initiative and lead at times in urban design projects. Hence, the research methodology adopted by teachers and students at that time was deemed as a set or system of methods, rules and principles used in architecture and urbanism for the first time; there was some kind of common agreement on pedagogics dealing with analysis and critical discussion on architectural research.

The author and fellow students not only participated in the writing of the briefs and subject content in specific units, but also frequently shared the delivery of large parts of their programmes of study, such as, for example, teaching to students at earlier stages methods of preliminary investigation and preparation of master plans, in progress in many towns and cities in Tuscany. Almost every project offered by the Institute of Urbanism in Florence as a biennial or triennial plan of study to staff and students belonged to a pool of new live regional initiatives of urban expansion. At times visiting international high profile experts were especially invited to participate in these projects and, as a consequence, the students were taught research methodology by carrying out independent investigation and assessing peers work in progress under the observation of their teachers/professional architects, urban designers and planners. For example,

when Christopher Alexander visited the Faculties of Architecture of Rome and Florence in the late 1970s, the author and fellow students were taught and applied his research methodology; they adopted interview techniques and analysis of data by following Alexander and his team's techniques used in the Oregon Campus project in USA in the 1970s (Pignatelli & Bonani, 1977; Alexander, 1977). As a result of these activities, the social morphology of the urban fabric of the area of Novoli, Florence (currently used as the new University Campus of Florence) was analysed according to Alexander's diagnostic model. Statistical data were put together and further analysed and discussed in teams formed by experts and students; the output of that investigation was to form a first detailed development plan of that area; this initial planning anticipated and proposed an hierarchical system of mobility and communication axes and paths through the area; only few changes were made later in the late 1990s to that initial plan to make it fit with the up-to-date status of its surroundings.

The external influences from visiting professors and scholars bonded very well with the students and teachers in the Faculty of Architecture of Florence from the 1960s and until the 1990s; most projects offered us the opportunity to contribute not only to the design of new master plans, but also to the developments of policies and urban design and planning frameworks at both local and national level. In fact the National Institute of Urbanism is still today a policy making organisation which is linked to most Universities' research departments and the central government in Italy. Discussions and policy making is a bottom-up process though that gets scholars and citizens involved into high standard and often extremely philosophical and political debates. These successful debates and projects were relentlessly supported by relevant Foundations founded by architects and

engineers in Tuscany and generally in Italy. The author had the opportunity to get involved with research promoted and supported by Giovanni Michelucci in person and his Foundation since her early years of studies and research in architecture. She has maintained her affection to the Giovanni Michelucci Foundation by cooperating with current researchers and directors of architectural and urbanism studies in it; she collaborated in international research bids and carried out research activities with important outputs and still affecting policy making not only in Tuscany, Italy, but also other European countries, including the UK.

For example, in the late 1990s the author participated in an intensive project with its main final output to be a 'Charter of Integration of migrants in Tuscany'; this was the first attempt of a Regional Council in Italy to adopt a Charter. Discussions on migrant populations' integration openly examined key issues on migrant movements in Europe and anticipated good practice solutions several years before the current international crisis. In 1999 and for approximately three months, a team of international researchers and policy makers (including the author) worked together in order to check facilities and projects in progress around Tuscany and followed migration paths by moving near and inside places dedicated as reception spaces for the migrants. The entire team of more than twenty experts/researchers not only used a sympathetic approach during policy proposals, but also experienced empathy. All experts showed full understanding of the needs of the migrant population and proposed mainly new accommodation solutions and development plans, which were to be implemented in a short period of time. The local and national governments welcomed the team's proposed amendments to their planning frameworks and also offered immediate financial support to their implementation.

Fig. 1: Introduction to the documentary *Elementi di Vita e di Città: Giovanni Michelucci* (= Records of Life and the City: Giovanni Michelucci)

Giovanni Michelucci and the teachers in the Faculty of Architecture who previously were his students (and the author's teachers) usually promoted community participation projects. During the study and development of these projects, the students/scholars and practicing architects/teachers demonstrated full engagement with specific social and political problems. For example, it was not considered as unusual practice of learning and training (by the author and other students) at that time to spend several hours per day inside seclusion spaces, such as mental health hospitals and prisons. Students pursuing studies in architecture were taught how they could interview prison inmates; they

were able to discuss with the managers and special guards openly changes to prison spaces and systems in order to be transformed in positive reformation places. Minutes from these meetings were sent regularly to the Ministry of Justice as well through specialist researchers working for some Foundations, such as the Giovanni Michelucci Foundation.

During the same period in 1976-1977 and for a whole month, the author had to spend two to three hours per day inside the S. Salvi Psychiatric Hospital of Florence (nowadays suppressed); she observed and talked to patients and hospital staff. At that time and during a longer period in the 1970s, she was also visiting some political prisoners/detained students of architecture; she was helping with their mentoring and tutorial support, whilst they were confined. These initiatives were organised and supported by relevant Foundations again and the Faculty of Architecture of Florence; particular attention was given by the educators to the induction of the author and other fellow students who took part into these undertakings. Evidence from these experiences was later transferred into academic papers and presentations of substantial materials in conferences; the same materials were also used by the author in the UK to teach students in Theories and History of Design and Architecture, in Studio Design activities at all levels and in Independent Study and Independent Scholarship modules at levels 6 and 7. During her initial visits to some seclusion spaces the author was accompanied by her tutors.

During those highly experiential activities and after the first one or two visits, the author was free to organise her own time independently, but, she had to report back to her teachers at least once a week. Notes were taken carefully and drawings were kept

confidentially due to the sensitive nature of these places. The copyright of the research materials collected was either kept by the University of Florence or by the associated Foundations. Thus, any publication (until today) has to be authorised by the same organisations and especially by their official archives. However, the most important thing emerging from all these events was the author's unique exposure to a different kind of creative and pioneering research. Somehow she had to experience seclusion and compare it to freedom; she trained herself as an architect and became an active researcher in a very unfamiliar way compared to that of most traditional researchers at that same period and in other Universities in Italy. The aforementioned learning processes were proved invaluable to her professional formation later. Her understanding of spaces and places for real people during these educational endeavours was revealed to be the real epistemology of architecture; it was not only an ontological model of philosophical meanings, but helped to appreciate the real identity of an architect and designer. As a matter of fact, the author had the opportunity to observe and engage in discussion with expert psychologists during her studies of seclusion and confinement spaces. However the most important mechanism to understand this kind of spaces and be able to conceive or propose alterations to their designs was to get familiar with them; 'a priori' knowledge acquired by lectures, etc. was consolidated into 'a posteriori' knowledge by experience. Lectures and projections of slides could only support intuition or rational insights.

Although we may recognise the importance of the rational structure of our empirical knowledge (Bonjour, 1985), we may be have an innate susceptibility for certain types of learning according to evolutionary psychology that takes a novel approach in the 1970s

and 1980s to the problem on how we could learn through experiential knowledge by exposing our brain to continuous and uncommon recordings (Wilson, 1975). The author believes that knowledge acquired is not only external by experiencing and feeling space; that means knowledge is not external to our psychological state when we are in the process of getting it. Conditions fulfilling knowledge are within the psychological state of us as learners who gain knowledge. However we may be not infallible, as we usually perceive whatever surrounds us – the external world – through our senses which are not infallible either, as declared by some philosophers (Descartes, 1985). We have to justify our knowledge and be sure that we are able to see things 'clearly and distinctly' (Descartes, 1985). This notion takes us to the hypothesis that we always strive to get a deep understanding through careful analysis and comparison of specific conditions. However, in architecture sometimes we may have to construct knowledge that floats amongst the empirical, the theoretical and the abstract; we become pragmatic when we rationally construct our knowledge.

It is still questionable though how we become, or better, when we are considered to be objective learners. What is the moment in which we feel fully satisfied by responses and solutions to problems? It may be no end in our learning processes, and perhaps this is something which makes us carry out more research evermore. As John Pollock (1975, p26) puts it '... for each justified belief there is an infinite regress of justification [the nebula theory]. On this theory there is no rock bottom of justification [which] just meanders in and out through our network of beliefs, stopping nowhere.' In fact we often reach some conclusions, but no argument or investigation has an abrupt end. We try to respond to problems by creating a chain of open elucidations, so that we could carry on with further

examination of certain facts in order to justify human diverse behaviours in a variety of urban and architectural spaces, as the author often does.

Thus, as early as in the 1970s, the author was not only acquainted with the basics of the architectural epistemology, but also with the philosophy of architecture itself. At times her teachers dedicated long hours to a general debate after their main lectures and workshops; the time was equally split between theoretical and practical sessions. The students were supported to think and get ideas, to create concepts which were apparently part of the human mind, as in Kant's theory of inspirational idealism, or they existed independently of the mind, as in Plato's theory of Forms.

Initially the author tried to decode signals of common people's minds in order to be able to bring philosophical ideal meanings closer to a model of viable truth, to a new paradigm, rather than the obvious reality of objectivity. Hence, as it often happened to most students at that time, her thinking process and acquired knowledge was based on human inter-subjectivity mainly (Jonassen, 1991). This particular training and professional development which she had followed was noticeably close to some very distinct behaviourism approaches; above all she was concerned with observable and measurable aspects of human behaviour. Then again, when she used to observe people in confinement spaces, for example, changes in her own behaviour occurred and became evident in her interpretations of theories of transformation of spaces. Her personal changes as a learner were caused by stimulus-response associations that she made whilst she was observing spaces or observees/users behaving in a different way inside the same environments.

The primary principle of behaviourism, as expressed in their writings by some authors, such as Skinner, is that psychology should concern itself with 'observable events' (Skinner, 1984). However the author never abided strictly to the principles of the methodological behaviourist school of thought which sustains that behaviours as such can be described scientifically without resource either to internal physiological events or to hypothetical constructs such as thoughts and beliefs (Baum, 1994). From the beginning of the psychology era, which began in the 19th century, the behaviourist school of thought shared interrelations with the psychoanalytic and Gestalt movements in psychology throughout the 20th century. However it also deferred from the philosophy of the Gestalt psychologists in critical ways, as some authors affirm (Staddon, 2001). On the other hand, the author appreciates the fact that behaviourism or applied behaviour is extremely relevant when it is employed in circumstances, such as organizational behaviour management, or to the treatment of mental disorders, such as autism. In fact in this critical appraisal we can find out that one of the author's students/participants designed a special educational space for autistic children by being stimulated by her own behaviours and experiences during the project Dance Architecture Spatiality 2012.

In the second half of the 20th century, behaviourism was eclipsed as a result of an important development in the cognitive psychology; that means when cognitive-behavioural therapy evolved. However the author recognises that both behaviourism and cognitive psychology have complemented each other in practical therapeutic applications. Both disciplines (and precisely their theories and practices) were based on behaviour analysis, which is very important also when a designer or an architect begins their research for a particular project with the intention to provide viable solutions of

human-oriented design. On the contrary the author can affirm that neither her teachers nor she ever considered a strict behaviourist view of learning in education. She never attempted to be the dominant teacher in a classroom; evaluation of learning should come from the learner, not the teacher. She always preferred to create innovative project-based learning environments for her students who were encouraged to engage with the learning processes and their peers individually or cooperating in teams. She preferred to have the role of a skilled facilitator, so that she could increase positive actions of engagement and could also get meaningful contributions from her students in return. When the author and her students shared international research experiences, such as the latest B.E.S.T. Leonardo Lifelong learning project (2011-2013), project-based learning processes (adopted in it) demonstrated that the students/participants acquired a greater depth of understanding of the concepts of self-organising communities, for example, and also improved communication and interpersonal/social skills. Several authors affirm that problem-based learning integrates knowing and doing. Students learn knowledge, but also apply what they know to solve authentic problems and produce results that matter; they are activated through experience (Dewey, 1938/1997; Sawyer, 2006; Markham, 2011).

As a student the author often had the opportunity to analyse and observe behaviours whilst she was trying to manage her problem-based learning as well; the responsibility of her learning resided mainly with her as an active learner. During her studies in architecture at the University of Florence, her teachers used and adapted some kind of social constructivism in their teaching at the beginning. In fact, social constructivism emphasises the importance of the learner being actively involved in the learning process;

the learners look for meaning and try to find regularity and order in the events even in the absence of full or complete information. Social constructivism scholars view learning as an active process; the reality is constructed by people's activities and people together and as members of a society formulate the properties of the world. Meaningful learning occurs when individuals are engaged in social activities. Thus, social constructivism often requires the occurrence of cognitive processes when learning is delivered either from the teacher to the learner or from learner to learner and also from the learner back to the teacher, for instance when research activities are shared.

During the two decades following the 1970s and precisely when the programme of architecture was recognised as a full set of studies leading to a final thesis and a special examination event, the learner had to combine everything they learnt in six years into a big meaningful project. A full committee of eleven professors/experts in architecture and urbanism had to assess all this amount of work in front of an audience. The viva was open to other learners and scholars and a full exhibition of sketches, drawings and models was to form the background of the oral presentation. The exhibition of these materials had to show important support to the projects and especially the materials that supported historical, theoretical and contextual analysis throughout the research activities. A lot of attention was paid to the methodology of these projects. Many teachers and examiners at that time supported ideas and concepts that showed motivation and processing of various theories. Either in architecture or in urbanism we could find teachers and learners following cognitive theories that grew out of Gestalt psychology, for example. Two main points stand out as dynamic support to the architectural learning until current times, as some authors affirm (Myers, 2008; deJong, 2010):

- As the word 'gestalt' is thought to be equivalent to configuration or arrangement, it emphasises the whole of the human experience (Yount, 1996), thus, it could help us to configure an all-inclusive project according to our personal and others' experiences (as it occurs during the formation of architectural or urban design projects).

- Gestalt psychologists provided demonstrations and described principles to explain the way we organise our sensations to perceptions (Myers, 2008), thus, data carefully selected during specific investigations could be critically analysed and synthesised into comprehensive project solutions to the problems related to real people' lives.

Several ideas from cognitivist theories have also influenced and supported the author's studies of architectural and urban spaces during the last fifteen years of her career in teaching. She recently applied her experiences from the early years of her studies and further materials which she developed in several shared research projects with her students in the last few years. She has often embraced Gestalt psychologists' points on how we can obtain knowledge from what is in front of us, as we usually learn by making sense of the relationship between what is new and old. Human beings have the ability to generate their own learning experiences and interpret information that may or may be not the same for someone else (Merriam, 2007). Thus, the author was convinced to look at patterns rather than isolated events of human behaviours; this is moreover evident in her works based on the 'Line Performance Act' early ideas and the recent conclusions on fractal patterns of life. Her confidence on what learning processes should encompass was further reinforced by Gestalt theories of learning as an internal mental process,

including understanding, information processing, memory and perception. Therefore, the individual learner is clearly more important than the environment.

Although during her early learning process the author was attracted by cognitive frameworks of learning that began to emerge from the 1970s to the 1990s, nowadays she follows with attention new topics of cognitive theories of information processing. Currently cognitive theory is used to explain new topics as social role acquisition, intelligence and memory related to age. According to some authors (Lampert, 1984; Bredo, 1994; Yount, 1996), a theory on 'situated cognition' that recognises the learning of individuals as primarily the transfer of decontextualized and formal knowledge can reinforce our strength as teachers as well. An individual learner's cognition is now considered as closely related with the context of social interactions and culturally constructed meaning (Yount, 1996; Bredo, 1994; Merriam, 2007).

As a matter of fact the author constructed her intellectual development through some specific development stages of evaluation and maturity and by following a series of stages related to her age at the time; she was able to form some kind of view of reality for a certain age period which was further advanced by returning back to earlier levels of her mental abilities to reconstruct concepts. This kind of process was obviously to be reinforced by her teachers' awareness of some logical models of intellectual development which were rediscovered and debated in the 1960s and beyond (Siegel, 1993), such as Jean Piaget's theories on the logical model of intellectual development (Piaget, 1953). Schemata (as Kantian structured clusters of concepts), such as behavioural (related to organised patterns of behaviour), symbolic (internal mental symbols) and operational (internal mental activity) should be supplemented by added experience, interactions and

maturity. At that point they become refined and more detailed and this could be only achieved in later years, not in early childhood and before the age of maturity (which could be as late as we live, perhaps an everlasting process). Some authors (Gallagher & Reid, 1981) affirm that making sense of the world from a child's perspective is a very complex and highly generalised process. The author agrees though with Piaget's decision to try new research methods besides traditional methods of data collection; new ways of researching and combining data, such as observation and psychometrics could assist research to produce more genuine results (Gallagher & Reid, 1981). In fact in some of her work the author not only described observation methods that she used whilst learners were experiencing uncommon environments of learning, but also led to outcomes that indicated the kind of changes that were necessary to be done in some taught modules (in order to embrace innovation in assessment methods as well), such as the insertion of international research projects in contextual studies. (See further DAS 2012 & DAS 2013)

Several Neo-Piagetian theories tried to explain why development from stage to stage occurs. Some theorists enhanced Piaget's theories by offering methods of examining the universal pattern of development. One model by Michael Commons, for example, was named as the model of hierarchical complexity and it suggested 'that task sequences of task behaviours form hierarchies that become increasingly complex' (Commons et al, 1998). Thus, dynamic systems theory suggests that, when multiple processes interact in complex ways, they very often appear to behave unsystematically and unpredictably. Dynamic systems theory can reveal and model the dynamic relationships amongst different processes and specify the forms of development that result from different types

of interaction among processes (Demetriou, 1998). The aim is to explain the order and systematicity that exist beneath a surface of apparent disorder or 'chaos'.

Several authors, such as Paul van Geert (van Geert, 1994) at first and several others thereafter (Case et al, 2001; Demetriou & Bakracevic, 2009; Demetriou et al, 2013) used dynamic systems modelling to investigate and explore the dynamic relations between cognitive processes during development. Individual differences in intellectual growth are related to both the ability to gain insight about mental processes and interaction with different specialised domains, such as spatial cognition, for example, as some authors affirmed very recently (Demetriou et al, 2013); it is exactly what happens to students of architecture and urbanism and exactly what has happened to the author at all stages and in both field or educational intellectual developments so far. Education and the psychology of cognitive development converge on a number of crucial assumptions, such as, for example, what kind of concepts can be constructed and what types of problems can be solved at different ages. Thus, an educator should know the students' level on a developmental sequence at all times during teaching, learning and assessment processes. This information can be used as a frame for organising the subject matter to be taught at different study levels. In addition to these notions sustained by Piaget on cognitive development, the Neo-Piagetian theorists, such as Demetriou (Demetriou et al, 2010), for example, show that speed of processing and working memory are excellent predictors of educational performance. Education capitalises on cognitive change. To capitalise on what Neo-Piagetian theorists affirm, we may have to ask ourselves, if we are able to use effective teaching methods to enable our students to move from a lower to a higher level of understanding. Are we able to support them to abandon less efficient

skills for more efficient ones? Do we participate actively in cognitive changes when we design new instructional interventions in our study programmes proposed to students? How frequently do we use the outcomes of research acquired from cognitive changes experienced by our students? Some educational models in the arts, design and architecture advanced to the point in which outcomes of psychoanalysis were integrated into changes and in the delivery of some theoretical components/units of entire programmes of study. The main aim of the teachers was to be able to understand the real motivation of the artist/actor/architect during the so-called Freudian 'aesthetic encounter'. As David Kemler suggests, Sigmund Freud's 'study of pathography' attempts to explore or assess artistic obsession and motivation through psychoanalysis. Kemler suggests that:

The development of pathography began with Freud employing an imaginary approach in his paper on Leonardo Da Vinci. ... Freud believed that the incentive bonus ... (motivation) for the artist was to release egoistic daydreams through artistic creations. Freud's second or documentary approach ... focused on the work of art as a manifestation of the autonomous self and internal construction of the artist. Finally, the third approach, the thematic approach concentrated on Freud's "beyond the pleasure principle" essay (Kemler, 2014, p225)

It is obvious that Freud had initiated an exploration process of the psyche of an artist/actor/architect and discussed these examples of behavioural analysis and personal experiences of highly motivated individuals, such as Leonardo Da Vinci and Michelangelo who were very remote cases of the past. However back in 1920, he made some very interesting assumptions about the 'artistic play and artistic imitation' (products of self-

awareness and creative motivation). According to Kemler, Freud's motivation is 'the combination of desires of the object ... and the drives (libidinal and aggressive) used for satisfying the desire for the object is a key component of Freud's structural model of the human psyche' (Kemler, 2014, p226).

The same aforementioned author also affirms that Freud's:

Primary process functioning is based on fantasy and is characterized by unconscious mental activities governed by highly mobile libidinal energy and occurs under stress and/or libidinal emotional arousal. The secondary process, guided by the reality principle, involves logical, rational thinking that allows interaction with the world. Libidinal energy is here expressed through symbolization, displacement, and/or condensation' (Kemler, 2014, p226).

By referring to another author's assumptions on Freud, Kemler states:

The movement between these two phases [primary and secondary] may be rapid, oscillating, or distributed over long periods of time. Creativity therefore lies along a continuum measured in the degree of intensity of primary process manifestation and in the amount of secondary process control required to integrate those manifestations into final product (Suler, 1980, p147 and now Kemler, 2014, p226).

It is obvious that in the early 1990s, Suler referred to Freudian definition of creativity by affirming that rational thinking [secondary process manifestation, thus constructivism] is always required to control the 'degree of intensity of primary process manifestation' [unconscious mental activities, thus, behaviours under stress and emotional energetic impulse]; the outcome is the final product, which could be art, architecture, manipulation

of human lives, behaviours and spaces. In fact this is perhaps an educator's main aim when s/he endeavours to influence learner's experiences in a creative way as well. As a result, an educator is directed towards highly motivated cognition of an individual learner's psychological functions at the same time when a learner becomes a creative mind, a thinker, who knows how to govern emotions and unconscious mobile libidinal energy in order to produce art/design/architecture or an inventor and perhaps a scientist.

The author should also like to refer briefly to some important points made by some authors who wrote and criticised Michel Foucault's 'systems of thought', and according to whom, 'the discipline of psychology is naively aligned to modern disciplinary power' (Twose, G. H. J., 2011, p262). Twose (2011, p262) states that, Hook (2010) in his first chapter discusses the 'well-known Foucauldian totalitarianism of 'disciplinarity', our culture of power that creates docile [not aggressive actors/artists as by Freud], productive individuals. Psychology, with its establishment and monitoring of 'normal' behaviour in all domains of life, is an integral form of power-knowledge; variation from an established psychological norm comes to be defined as deviance.'

Hook (2010) argues that 'it might be helpful to complement the constructivist ontology of disciplinarity with one of a more psychological nature' (Twose, 2011, p262). Hook also found that, in Foucault's discussion on power, 'we are inextricably enmeshed within societal discourses that create rules and procedures for speaking, acting, and creating. It is very difficult to think outside them; by definition, to be outside is to be insane, beyond reason' (Twose, 2011, p262). Hook 'argues that researchers must incorporate historical, social and political contexts in order to decenter and destabilize discourses, to challenge the seemingly unchallengeable coherence, unity and ahistorical nature.' (Twose, 2011,

pp262-263). Perhaps Foucault could be accepted as a social and political theorist in the 1970s and 1980s; his debate could be associated with decisions and policy making that governed ideas of master plans of cities at that time. It could be useful to a critical discussion and analysis on urban heterotopias, often identified as failures of urban design and planning.

Another important issue, raised by Foucault in one of his essays with the homonymous title: 'What is an author?' is also discussed by Hanchett Hanson (2013) who affirmed that:

Foucault expanded on an idea he had described earlier ... (1970/1972). He proposed that the author function ... is not a way of designating a generative font of almost limitless potential, as is often supposed. Furthermore, the author's name does not designate the individual who wrote. Instead, it is a means of classifying, limiting and controlling the circulation of ideas (Hanchett Hanson, 2013, p22).

In that essay, Foucault limited his direct analysis to literature, but also recognised that authorship exists 'in arts and in sciences, although differently for different disciplines and historic periods (Hanchett Hanson, 2013, p22).

The author of this critical appraisal finds that, Foucault's differentiation on the definition of an author simply shows that, what it has been discussed until now on different psychologies and educational/training systems should not be limited to be deemed as finalised notions, but as ongoing development subjected to social, political and technological changes.

In fact Hanchett Hanson (2013) affirmed that [Foucault]:

Near the end of his life [he analysed the 'author function' from the early to the late 1990s] turned his attention to the construction and care of the self and the history of "technologies of the self" by stating that these practices:

... permit individuals to affect by their own means, or with the help of others, a certain number of operations on their own bodies and souls [psyche], thought, conduct, and way of being [for example, in our case, an educator and field expert], so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality (Hanchett Hanson, 2013, p25)

The author thinks that it is too early to talk about perfection or immortality, but, as in this critical appraisal her main aim is to discuss achievements and endeavours as an intellectual biography, she might be able to list her publications and refer to them according to her big moments of happiness or even stress, purity of thinking (or originality sometimes), wisdom acquired in cooperation with other researchers and learners sharing the same experiences and values; she is determined to reach stability along her career path rather than perfection. She would like to leave immortality of her ideas and endeavours to be a continuous search that could finally benefit her learners, but again these would be possibly common efforts with them in the years to come.

Thus, the author has already passed through the following stages and experiences, such as developments by following and challenging notions of behavioural psychology (in the 1970s) and cognitive and empirical psychology, plus Foucauldian philosophy (in the 1980s and in the 1990s). Then, from the end of the 20th century onwards, she initiated new developments by blending empirical observation and empathy status with sciences

and disciplines, such as Biourbanism; sciences and education associated with Biourbanism and Biophilia are currently operating in peer-to-peer practices and helping communities in need of growth and development.

2. Links of the publications with the 'big themes' of an intellectual journey

2.1 Publication of materials contributing to innovative behavioural and cognitive processes of learning

The most challenging discussions and interviews took place just a few years before leaving Italy in 1993 in order to pursue a Master of Arts degree at Manchester Metropolitan University (1993-1996). The author was supervised by the late Prof. John Bailey-Parkinson with whom she had the opportunity to discuss her MA thesis on a very original topic; the thesis generated a series of important papers subsequently since then. The topic discussed was the 'Line performance act', which was to be further expanded in thought-provoking presentations and papers related to current issues on modern urban sprawl and the future of urban design and planning worldwide. This section comprises the author's publications that promoted theories supporting her educational practice as well. Three publications emerged in 2006; the author explains and discusses their meanings and objectives by 'interweaving' their progress as they materialised contemporaneously.

In her MA dissertation in 1996, the author had inserted ideas and theories on pattern language and discussed them during international debates with other experts in the history and the theories of the arts, design and architecture. In this publication the author affirms that lines and paths embedded into historical urban fabric and traced by everlasting human energetic activity are capable of re-emerging and giving new life to the urban fabric, even if efforts could be made to suppress them.

In the chapter 'The Procession of Maria's Servants and a huge proliferation of art and architecture in the Santa Maria Nuova Hospital in Florence' (Tracada, 2003) and in the collection of papers with the title *Art-Ritual-Religion*, edited by Peter Martyn, Piotr Paszkiewicz and Francis Ames-Lewis, the author presented and wrote about an important case study situated in the historical centre of Florence, where pathlines were traced by people started using them not only as the usual roads for trading, but also as cultural and religious axes upon which the most important cultural and hospital/hospitality architectures later emerged. The author focuses specifically on a path that is still 'hidden' and incorporated in the built environment in such a unique way that people continue to have a preference about it all through everyday ritual of urban acts and for a long time in history. This area also contains such a powerful system of pathlines that very old traditions of culture and religion have been often revived there. Thus, behaviours and preferential movement of people had an important outcome in the development of the whole city of Florence.
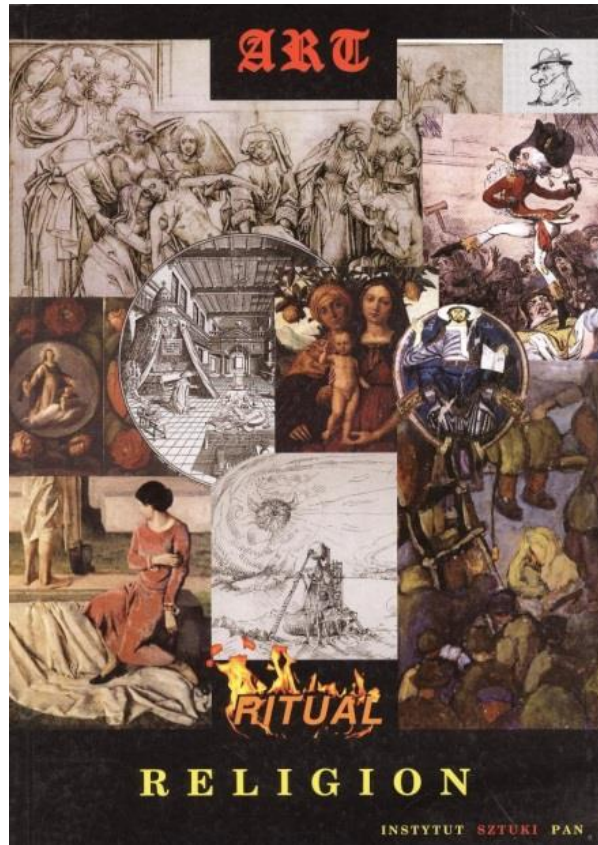
Fig. 2: Front cover of Art-Ritual-Religion, as conceived by Peter Martyn; courtesy and © Dr. Peter Martyn.

In his 'Artistic creativity as part of ritual practice and/or the search for spiritual fulfilment', the editor Peter Martyn (Martyn, 2003) affirms that 'Eleni Tracada analyses the way religious procession routes influenced the urban expansion of Florence, treating them as funnels of human activity that evolved from 13th century onwards into growth axes' (Martyn, 2003, p26). The author had studied and considered Giovanni Fannelli's maps and the urban geographical development of Florence since she was a student. The illustration below was created by the author upon a copy from an original map, now the property of the Museum 'Firenze com'era' and it was inserted in her 'Line performance act' dissertation in 1996. The red line shows exactly where the pathline runs through the

urban fabric which comprises some of the most important historical buildings of Florence, such as Santissima Annunziata Church, Filippo Brunelleschi's portico along the front of the Innocenti Hospital. The Santissima Annunziata square is considered the most attractive urban space in Florence and is used every so often for important cultural events and performances.
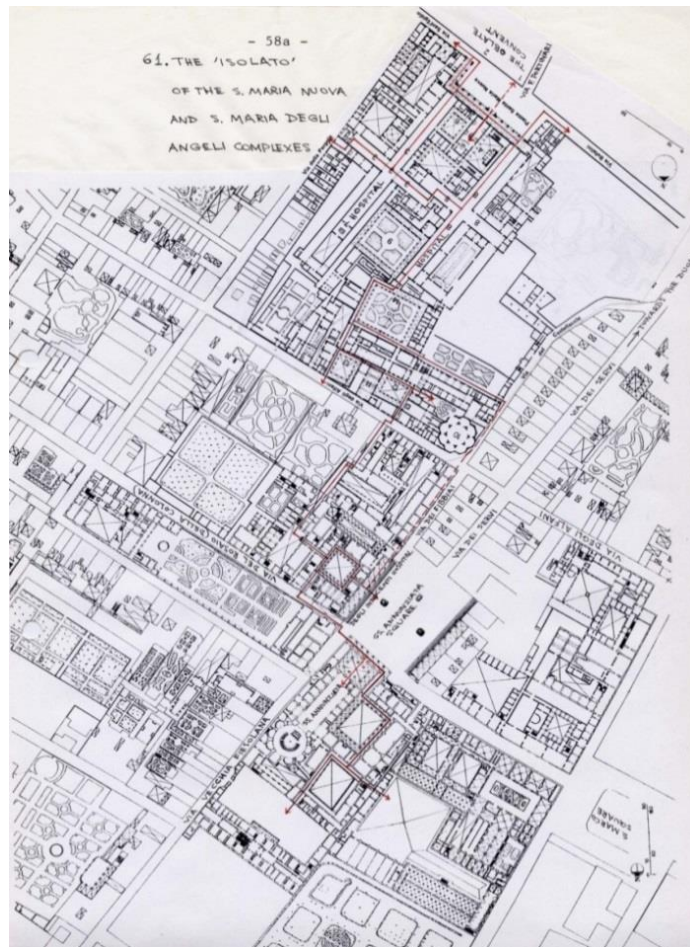

Fig. 3: Piazza Santissima Annunziata in Florence: A 'hidden path' by the lost riverside; © (1996 and ongoing) of the original drawing by the author (Eleni Tracada)
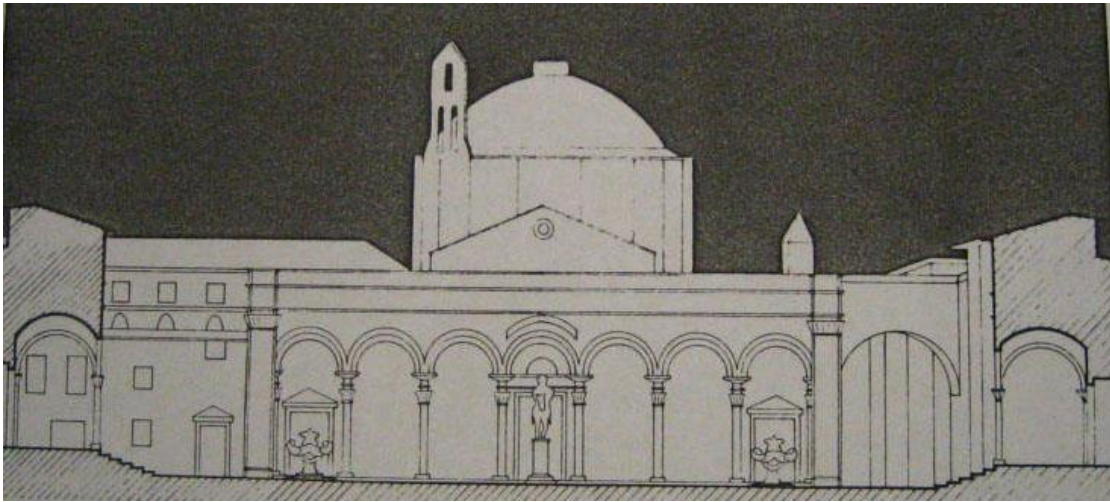
Fig. 4: The Santissima Annunziata square in Florence – Cross section drawn by the author in 1996 for her exhibition of Master of Arts in Interior Design. (Source: the author's archive of her personal drawings; © (1996 and ongoing) the author (Eleni Tracada)

Between 2001 and 2007 whilst teaching Design Innovations and Cultural Studies in Interior Design at the Leeds College of Art & Design, the author had the opportunity to intensify her research activities by being involved in pedagogical research in learning teaching and assessment with researchers from the University of Leeds. At that time, all BA (Hons) courses in the Leeds College of Art & Design were validated by the University of Leeds and, as a result, the author was invited by professors in mathematics, physics, cultural studies and arts to take part in specific research meetings and clusters, by sharing the activities with her 2nd and 3rd year students from the College. The cluster initiatives, such as the 'Designing for the 21st Century', produced a book with the title *Explorations in Spatiality* (Stell et al, 2006 a).
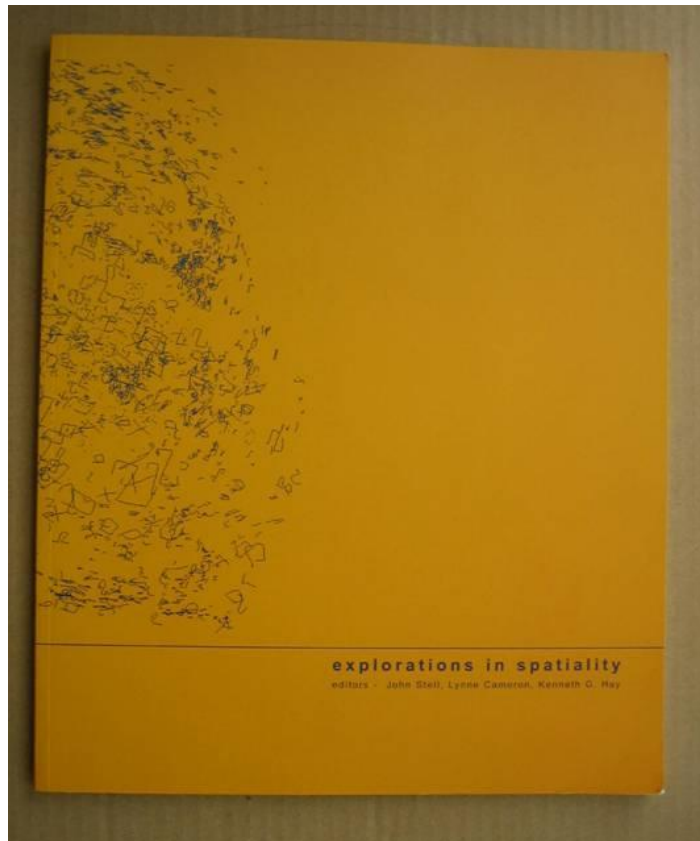
Fig. 5: Photo by the author (Eleni Tracada) of the front cover of Explorations in Spatiality showing a fragment of drawing created by Hammett's system; courtesy and © Claude Heath (2005).

The individual authors and the editors of the book emphasise that spatial cognition has nowadays changed and that drawing is a collective function and stimulating interaction between the arts and sciences. In fact, stimulation for design, according to the author's experience came from Prof. Tom McLeish's presentation on 'High dimensional spatiality and design in molecular biology' during which microscopic spatiality was shown in enlarged forms and patterns; it was created by imagery of polymers and proteins and by artists' representation. Nature itself was conceived as a system of design forms in their most infinitesimal occurrence. The author agreed with Prof. McLeish, from the School of Physics and Astronomy at the University of Leeds to run a special workshop during which

students in Interior Design had to choose one microcosmic 'protein environment' from the ones presented by Prof. McLeish. Therefore, students had to adopt new design forms and adapt them to design places for specific purposes and activities. They brainstormed and produced sketches of their initial concepts very diligently by considering the proteins as the innermost part of own bodies.

During the main research cluster meetings at the University of Leeds, the author and her students also had a unique opportunity to experiment with a new 3D drawing system implemented by Ben Hammett as his final year undergraduate project in 2004/2005 at the School of Computing, University of Leeds. In Fig. 5, we can see a set-up of this system that uses a 'Flock of Birds' magnetic tracking system from Ascension Technology. The user/designer designs a space by using a drawing instrument with various buttons linked by a cable to a tracking system; the volume available for one person to work was at that time a 2m cube volume. A three-dimensional illusion was visible via stereo glasses; the stereo effect could be disabled to see two-dimensional renderings on models in virtual space. The models could also be rotated in virtual space about a vertical axis. This experience was unique for the students and their teacher; a new cognition of spatiality was carried out through creativity and production of meaningful space modelling.

During special cluster meetings and experimentation events, the teacher and her students were made aware that lines moving in three-dimensional virtual spaces could perform as visible tracks, 'made by walking' (Stell, 2006 a, p13) or, impressions according to the situationists' notion of pathlines; these latter occur at the same time as people are wandering through cities [and follow] routes dictated by instinct' (Stell, 2006 a, p13). The situationists explore drifts, which are drawings of lines moving, as people also move in

urban space, but leaving no visible physical mark. However later all these movements become visible as: '… new mappings of the city in terms of psychogeographic intensity' (Stell, 2006 a, p13). This is a creative conceptual process during which: 'the [urban] fabric would be continually changing' (McDonough, 2001, p99 and now in Stell, 2006 a, p13).

In fact the author of this critical appraisal managed to link psychosomatic human behaviours with drawing techniques, such as the ones mentioned above and in such ways that student designs of innovative interior spaces were enabled and enhanced by 'contingent' spatial patterns. Finally these patterns formed designs of buildings which were stirred by laws of nature and fractal growth. Whereas John Stell (2006 a) was trying to define visible 'marks' in the built environment as clear references to designs, as an addition to this, the author tried to visualise, or better, to capture continuous movements of manmade 'marks' forming fractal geometries of uninterrupted city fabric. Because of her discussions with John Stell, the author was particularly impressed and inspired by the Bio Mapping which had been enabled by scientists such as Christian Nold. If a moving body, even by rotating, can define forms and geometries around it, then many more bodies moving, acting and interacting between them can generate complexity, which can be captured and measured nowadays.

In 2005, the author was given the task of writing a new brief with the title 'Reading buildings and translating places: a place to …' for the module Design Competition (Level 6); this was related to the international project GIDE (see information further below). During discussions with a colleague helping with the delivery of the module, the author proposed 'reading of buildings' as an: 'exploration or translation … according to pre-established codes of universal language in arts, design, architecture and beyond'

(Tracada, 2006 a, p43). Therefore, the author invited Prof. McLeish and other scientists to share lectures and seminars on this module; she also introduced Christopher Alexander's theories and pattern language to students and other tutors sharing this module. Human bodies define spaces by rituals and repeated actions and performances, thus, design patterns appear as two and three-dimensional codified memories and experiences. According to some authors, such as Edward De Bono (1970, p48 and now Tracada, 2006 a, p45): a 'pattern is a repeatable concept, idea, thought, image … A pattern may also refer to an arrangement of other patterns which together make up an approach to a problem, a point of view, a way of looking things'. Thus, students had to explore design language and conceptualise their ideas by using the lines as performing elements. The patterns and natural forms were also explained by sketches, photographs, rubbings, carvings and models. The natural folding and unfolding of forms was explored with all kinds of media, and at the end shortlisted ideas were shown in an international exhibition in Breda in the Netherlands in 2005. The students participating in this challenge worked either in teams or individually and showed a preference social interaction influences to their designs.

As mentioned before the designs produced were assessed and selected according to the GIDE Design Competition requirements and criteria and the shortlisted projects were exhibited in the Breda Public Library in spring 2006. GIDE (Group for International Design Education) consists of partner Colleges in Belgium, Germany, Italy, Switzerland and the Netherlands. In 2006, the author took part in all preparations and the delivery of workshops in Netherlands; she was asked to write a chapter to explain her teaching methods and the projects of her students.   A book with the title *Books – The future of*

reading? was published in September 2006 several months after the book *Explorations in Spatiality* published in March 2006. (See Volume of Published Works, p9)
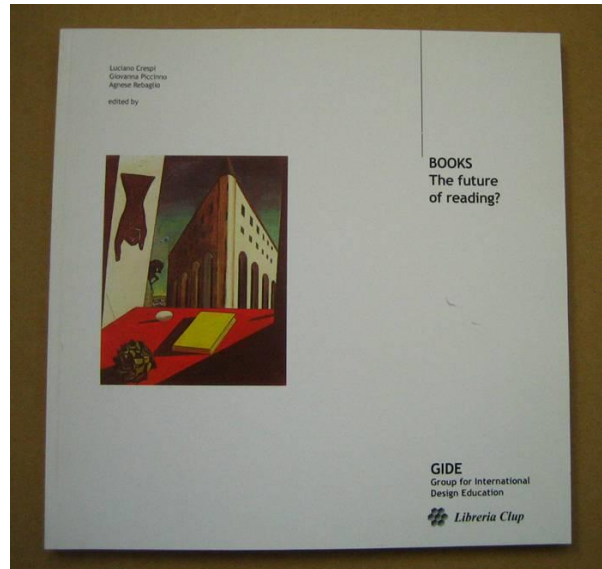
Fig. 6: Front cover of *Books – The future of reading?*; photo by the author (Eleni Tracada) of the front cover of the book: Crespi, L., Piccinno, G. & Rebaglio, A. (ed.s) (2006) Books-The future of reading? Milan: GIDE & Libreria Clup; courtesy and © GIDE & Libreria Clup, Milan.
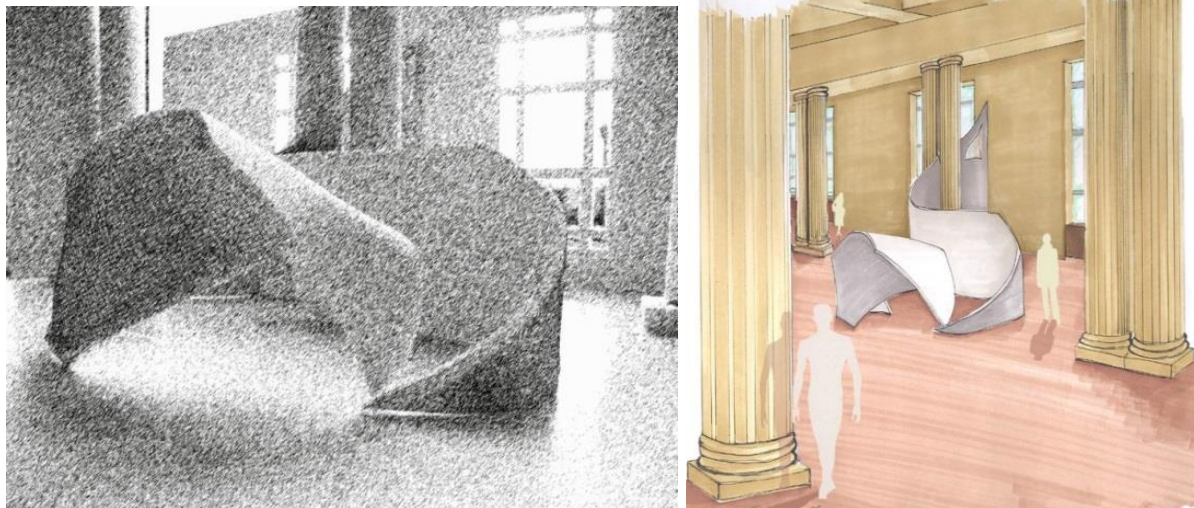
Fig.s 7 & 8: 'Peeling off' surfaces of columns to design a 'place to escape'; photos by the author (Eleni Tracada); now courtesy and © Catherine Harrison-Ripley.

Fig. 9: The suspended 'place to escape' as shown in *Explorations in Spatiality*; photo by the author (Eleni Tracada) of a drawing created by Fleure Lambrette and now courtesy and © Fleure Lambrette.

During the GIDE workshops in 2005-2006 in Breda, the author and her students had the opportunity to have talks with Francis Smets, design philosopher and tutor at several design education institutes in Belgium. Francis Smets argued that, during design processes designers should re-consider their judgment that by 'making things better', they would be able to make life better. Smets raised the issue that: '… the more, the unhappier. The more progress, the less happiness' (Smets, 2006, p17). To Smets's insistence that happiness is not measurable, the author added that in the built environment feelings could be measured and proved by statistics and interviews carried out in so-called deprived neighbourhoods; in the simplest built environment, people felt free and happier (as is evident in 'urban acupuncture' and/or Biourbanism interventions nowadays).

The author of this critical appraisal might suggest that through her experiences and those of her students (in research activities and creative design by using tools such as

Hummett's system), she was able to understand some interesting facts. Virtual reality can be anticipated and governed by laws of nature when human bodies perform in plain freedom and with intellect participating actively during the entire process of design, from conception to full implementation. In fact careful readings of the developments of cities can be through human bodies interacting with their surroundings by capturing messages via the senses; the spatiality of various spaces of the built environment is more complex than the physical construction of it.

One of the most important qualities of the creative thinkers, artists and/or architects, is their particular 'body and mind' interaction with either the natural or the built environment at any time; this is triggered by feelings and emotions. And we often find out that not only happy memories, but also discontent and restriction may possibly initiate the powerful human performance, as Freud affirmed in many occasions. At this point the author wishes to make reference to another important publication in Italian of a chapter with the title 'Le architetture scultoree e sacre di Giovanni Michelucci come consacrazione della Madre Terra Etrusca' (= Giovanni Michelucci's sculptural and sacred architecture venerating the Etruscan Mother Earth). (See Volume of Published Works, p9)

In this publication the author makes reference to exceptional influences of the natural environment to the works and the practice of important artists and architects in Tuscany, Italy. In her chapter 'Vivarelli e Michelucci: scultura e architettura a confronto nella Chiesa dell' Autostrada del Sole' (= Vivarelli and Michelucci: Sculpture and Architecture challenging each other in the Church on the 'Sole' Motorway), she also explained how other artists known to Vivarelli, such as Henry Moore were influenced by ancient ritual landscapes of Tuscany. A number of facts and activities paved the way for this book that

came out in addition to other research engagements and publications of the author between 2005 and 2006 (as mentioned above). At the beginning of the academic year 2005/2006, the author set a brief for a live project for students at level 5; this brief was linked to another important project carried out by the University of Leeds and culminated in a series of important events and exhibitions throughout 2005/2006. The research for this project focused on archived information about the Holocaust survivors in Great Britain and particularly in Yorkshire.

At that time the author was also engaging in research activities in history and the theory of architecture in connection with urban spaces and architecture with the Centre CATH (Cultural Analysis, Theory & History) at the University of Leeds. In September 2005, the author was asked by colleagues in the Centre CATH, if she was interested in setting a brief for her undergraduate students to link to the Holocaust Archive project; that brief given to students with the title 'Never again genocide' produced really stunning results. An exhibition of student designs for a Centre of the Holocaust and Genocide Awareness was held by the Leeds College of Art and Design in early spring 2005. Between her teaching materials, the author had included a film documentary on Jorio Vivarelli, the Tuscan sculptor, who often collaborated with the architect Giovanni Michelucci in projects of churches as special places for remembrance and contemplation. The script was prepared by the author focusing on Jorio Vivarelli's *Christ on the Cross* sculptural interpretations, being created for a couple of Churches designed by Giovanni Michelucci. All students thought that they had found a perfect concept for one project by attempting to 'break the silence' via that soundless scream of *Christ on the Cross* (Tracada, 2006 c,

p23). The empathy about human suffering was to blend with religious rituals and worshipping spaces; spirituality met art and design in different creative way.
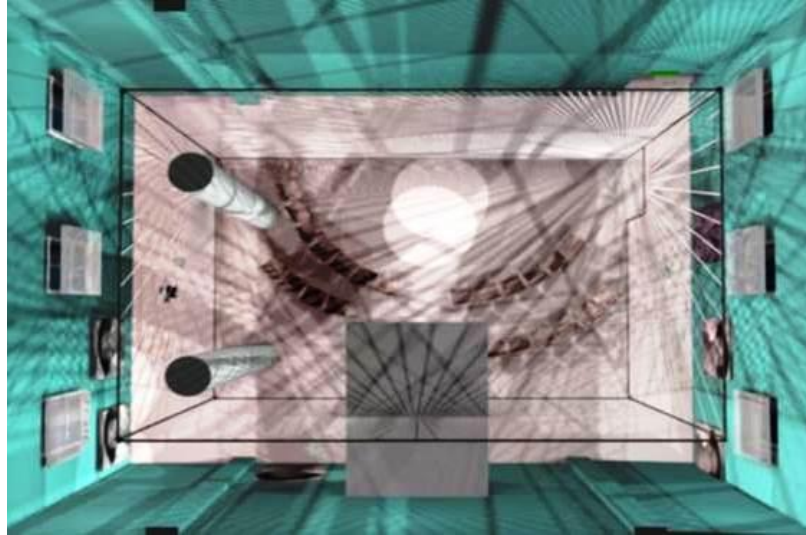

Fig. 10: The 'cube' of Awareness seen from above; photo by the author (Eleni Tracada) of a drawing created © Lynn Hanson (her student) in 2005-2006; now courtesy and © Lynn Hanson.
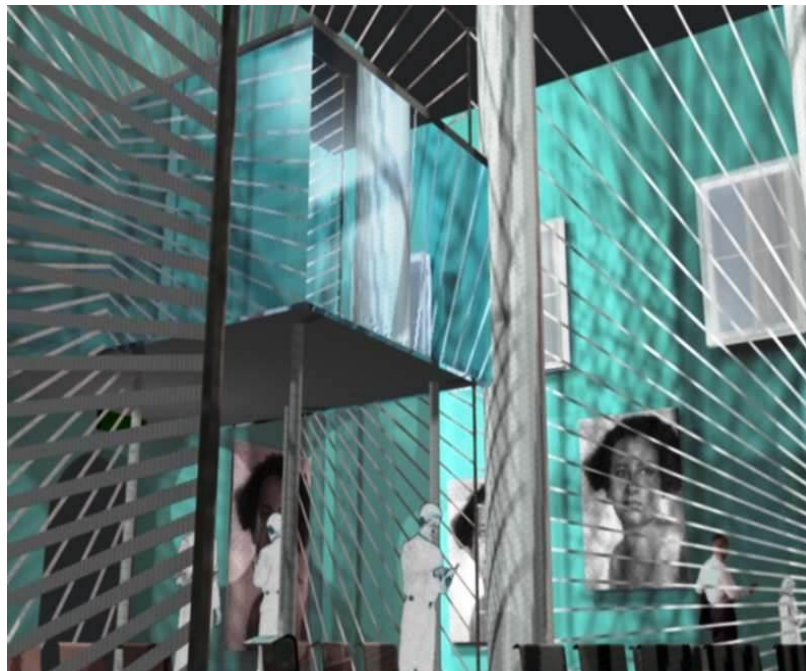

Fig. 11: View from inside the 'cube' of Awareness; photo by the author (Eleni Tracada) of a drawing created by Lynn Hanson in 2005-2006; now courtesy and © Lynn Hanson.

Jorio Vivarelli often created magnificent pieces of work in which he incorporated his own and others' suffering in concentration camps; he had survived and escaped to return back to Pistoia, his native place, where he lived until his death. His house and studio became the Vivarelli Foundation headquarters; the author had the opportunity to meet the artist several times and talk about his collective work with Michelucci. With her contribution to the book, the author highlighted again pre-existing positive or negative environments might affect the proliferation of arts, design and architecture (Tracada, 2006 c).
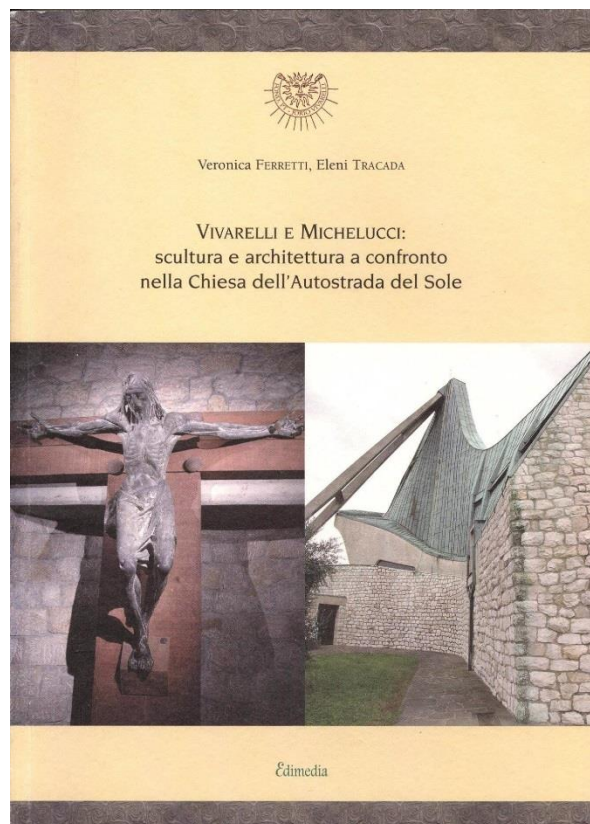

Fig. 12: Front cover referring to Vivarelli and Michelucci; photo of the cover of the book by the author (Eleni Tracada); courtesy and © Fondazione Jorio Vivarelli & Fondazione Giovanni Michelucci.

The Jorio Vivarelli Foundation had contacted the author in early 2005 and asked her to participate in an important symposium with the same title as the book above; this was

organised by them and held in their premises on 1st May 2005. The author had met previously Jorio Vivarelli and Veronica Ferretti, Curator of the Foundation, in early 2005; they had discussed about the effects of Vivarelli and Michelucci's works on students' work (Tracada, 2006 c, p23). On that occasion Vivarelli referred to his strong relationship to the Intrarrealist Movement in the 1960s and 1970s, and especially his links to Oscar Storonov, American architect, and Henry Moore, British sculptor. The author made acquaintances with the Intrarrealist movement and their work that was heavily influenced by ancient landscapes of Tuscany; her findings were transferred in her teaching and prompted further research (cognition of spatiality).
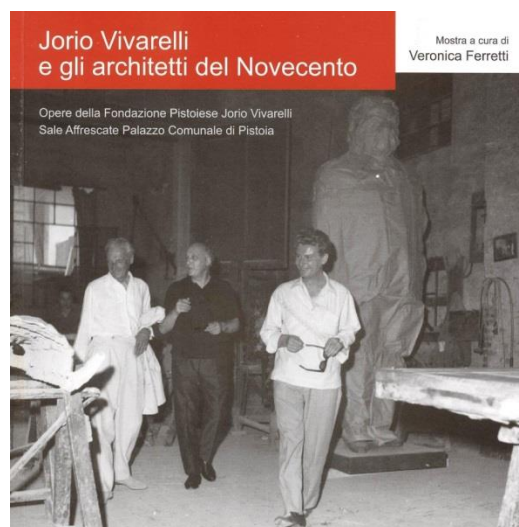
Fig. 13: Front cover of a recent catalogue with Giovanni Michelucci, Oscar Storonov and Jorio Vivarelli in his studio; courtesy and © Fondazione Jorio Vivarelli.

In the introduction of the book *Vivarelli e Michelucci: scultura e architettura a confronto nella Chiesa dell'Autostrada del Sole*, Gualberto Del Roco, the Executive Director of Jorio Vivarelli Foundation, mentioned that the author was well known in academia for her research and knowledge on Giovanni Michelucci's work and thus, she was 'the most

appropriate person to elucidate on this very successful 'marriage' between Vivarelli's art and Michelucci's architecture, both united in this superb building' (Del Roso, 2006, p7).

The experiences and designs of the students were also included in the Jorio Vivarelli Exhibition Catalogue on the occasion of a commemorative event held in the Palazzo Vecchio in Florence in January 2009 (Tracada, 2009). (See Volume of Published Works, p8) The author's paper was selected by the Jorio Foundation Committee, because of its important educational content and reference to both Vivarelli and Michelucci's undeniable impact on design students and their projects. The paper was presented for the first time during a special commemorative Mass in the Church on the Motorway on 1st October 2008; the author was especially invited to that ceremony which closed with a projection of works by the two maestros together with her students' works inspired by them on a big screen directly above the main altar and facing Vivarelli's famous Crucifix.

Fig. 14 (on the left)**:** Poster for the commemorative ceremony three months after Vivarelli's death (Vivarelli with Christ on the Cross for the Church on the 'Sole' motorway in 1963); courtesy and © Fondazione Jorio Vivarelli.

Fig. 15 (on the right)**:** Giovanni Michelucci – sculpture by Jorio Vivarelli; courtesy and © Fondazione Jorio Vivarelli.

Fig. 16: Front cover of the catalogue for the Jorio Vivarelli *Matter of Life* exhibition in Palazzo Vecchio in Florence; courtesy and © Fondazione Jorio Vivarelli.
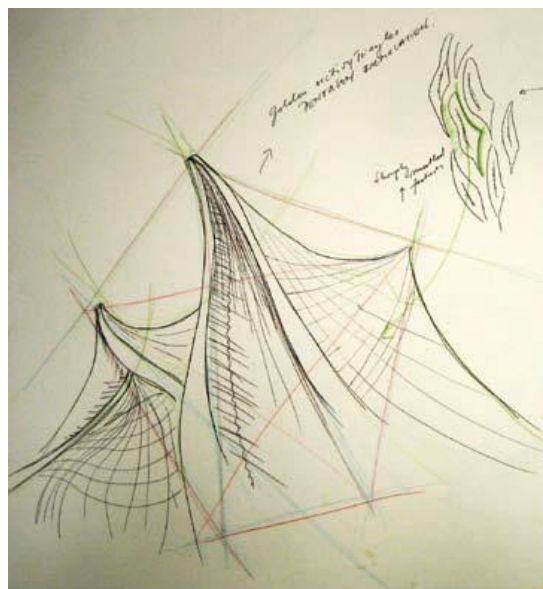

Figs 17 & 18: Photos by the author (Eleni Tracada) of drawings created by Erica Bitto in 2007-2008 and 2008-2009; now courtesy and © Erica Bitto & Fondazione Jorio Vivarelli.

2.2 Publication of materials on architecture and urbanism with reference to social and scientific frameworks

In the following years after 2006 and because of the expanded networking and collaborations with national and international centres and institutes, the author was asked and was sent special invitations to important events. IS PAN managed to organise two more conferences in Warsaw in 2002 and Warsaw & Cracow in September 2004; the author gave her initial paper at *The City in Art* conference. The author explained how the Florentine administration and a long series of competitions did the opposite instead of protecting architecture after the destruction of the centre of the City in 1944. 'Bogus' architecture was proved to be made of unfriendly places for the locals to live and work in. Back in the UK, this paper was presented to the author's undergraduate students and raised several issues that were discussed, very close to what the original call for papers had prompted: 'What would the city be without the constant efforts and ambitions of its inhabitants through the ages … to enhance its appearance, status etc. with multifarious kinds of 'beauty'?' (Martyn, 2007 b, pIX) (See Volume of Published Works, p10)
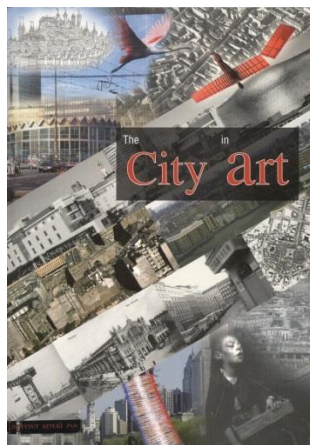

Fig. 19: Front cover of *The City in Art* as conceived by Peter Martyn; courtesy and © Dr. Peter Martyn.

The author discussed the fact that bureaucracy and extremely traditionalist planning laws do not help with the continuity of life in cities [political power against real urban growth]. As to whether or not one should answer 'fill' or 'not fill' destruction sites should be given directly to ordinary inhabitants who wish to live back there, to work, to create. And when historical buildings become dust, why should we have to re-build them as dreadful counterfeits? Nevertheless architecture should be different and should blend with the 'newly acquired' undulating landscapes formed by the ruins, for example in Florence in the 1940s, instead of removing them.

The chapter flows as an influential piece of work and is based upon research on unpublished materials from private archives of architects and writers. The author criticised the planning laws vigorously and agreed with what Michelucci defined as 'agnosticism' in architecture, 'in terms of no existing coherent and updated programme in the various architectural schools' [at that time after WW2] (Tracada, 2007, p86).

The following publication reinforces again the fact that nowadays educators in design and architecture frequently follow innovative methods in Design Practice and Pedagogy. In her 'Chapter 5: Design Codes and Design Language' (Tracada, 2008), the author referred to her recent teaching experience as a trajectory which started with her own teachers' experiences since the 1970s and is still going on. (See Volume of Published Works, p11). The chapter makes reference to most philosophical points examined in the introduction of this critical appraisal.
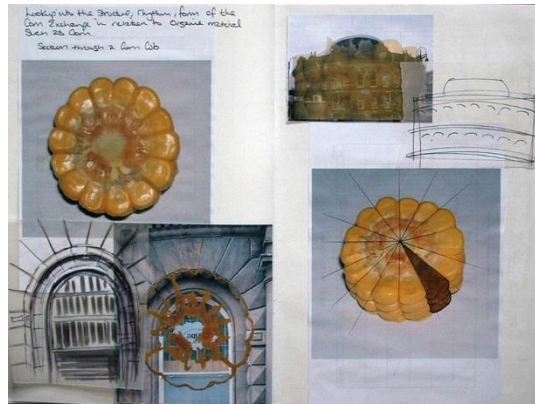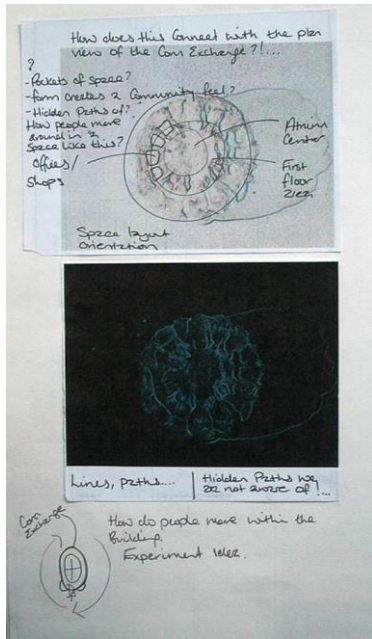
Fig.s 20 & 21: Student work investigating on 'hidden' paths and lines generated by the flows of people in the built environment (2005/2006); photos created by the author (Eleni Tracada); now courtesy and © Rebecca Weldon-Farthing & courtesy and © Dr. Kate Hatton.

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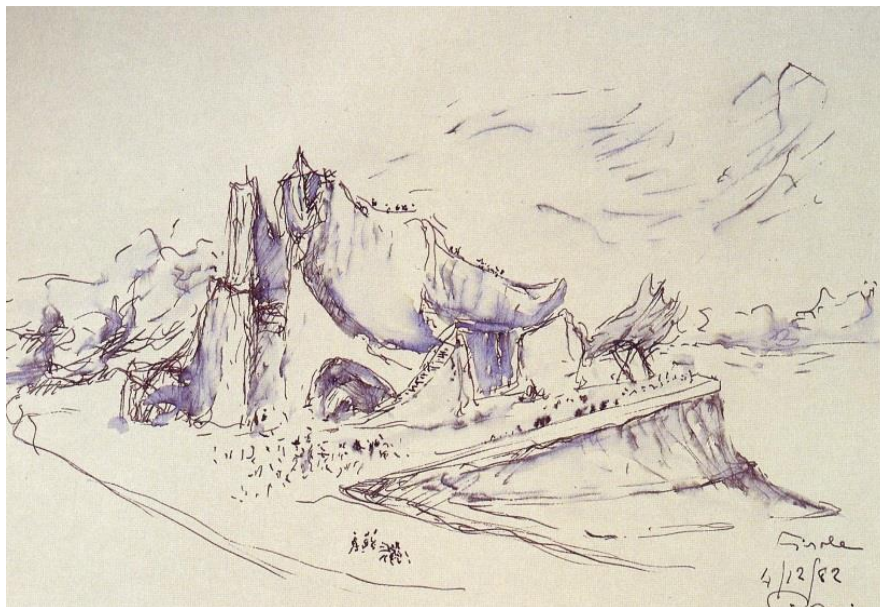
Fig. 22: Giovanni Michelucci: a drawing for the project of San Francesco a Guri church (1982) – courtesy and © Fondazione Giovanni Michelucci & courtesy and © Dr. Kate Hatton.

The author recently reflected and reviewed concepts, processes and practices in extremely challenging projects run by the Giovanni Michelucci Foundation towards the end of his life; some projects were completed several years after his death because of either bureaucracy or their very sensitive nature, such as the Sollicciano Prison project. In her article 'Reformation Place and the use of Senses in their Design: Seclusion Spaces and Heightened Sensory Awareness/Responsiveness' (Tracada, 2011), the author reflects and expresses visibly her thoughts about the freedom of human senses in secluded places. (See Volume of Published Works, p12). Here, human behaviours in secluded spaces have been observed and analysed during the author's student years, as we saw in the introduction of this critical appraisal.

Fig. 23: Drawings of the interior gardens in the Sollicciano Prison; courtesy and © of the Giovanni Michelucci Foundation in Fiesole, Florence.

Fig.s 24 & 25: The Garden of Reunion: the view from the internal balcony (indoors) and the view towards the pond and the glazed façade (outdoors); courtesy and © Fondazione Giovanni Michelucci.

Since 2010 and as Head of the Built Environment Research Group - B.E.R.G. established at the School of Engineering and Technology, the author has produced publications focusing on topics combining the history and philosophy of architecture with current scientific developments of the built environment. During the analysis and discussion of data either selected some year before or in the course of recent elucidations, interviews and workshops, the author had the opportunity again to reflect intensely on educational and field research. Hence, she explored and originated new ideas as well as outcomes and presented to audiences of scholars worldwide. She was invited to various conferences and research projects and became a member of important national and international networks and societies, such as the East Midlands Philosophy and History of Architecture Research Network, the Athens Institute for Education and Research and the International Society of Biourbanism.

Quite a few significant publications materialised after important international conferences, such as the Conferences *Theoretical Currents I* (13th-15th September 2010) on

'Architecture, Design, and the Nation' and the *Theoretical Currents II* (4th-5th April 2012) on 'Architecture and its Geographic Horizons'; both conferences were organised by the East Midlands Philosophy and History of Architecture Research Network.

On 10th February 2011, the Giovanni Michelucci Foundation (as the main co-ordinating organisation) submitted a joint application with partners from other European countries for the European Lifelong Learning Programme of Leonardo partnerships; they succeeded in obtaining mobility funds for all international partners from Italy, France and Belgium and the UK (University of Derby). The author acted as the main contact and holder of the grants allocated to the University of Derby. The research project's title was confirmed as the 'Best practices in European Selfbuild Training' (B.E.S.T.); the project mainly focused on 'Selfbuild' training and qualifications for young vulnerable people from local communities seeking to solve their problems of unemployment and lack of housing. The mobility between partner organisations and institutions was very successful and the project was officially completed for the University of Derby on 3rd October 2013; the feedback given by the assessors for this effort praised the innovation in learning and teaching and active participation of the students throughout the project duration. The author was able to organise a final international symposium on Thursday, 19th June 2014 (from 9.00 to 17.00 in the University of Derby) with participants and experts from Italy, Belgium and the UK, and of course with the active participation of the authors' students at Level 6 and 7. The title of the one day conference/symposium was 'Self-Build Processes and Self-Organising Communities – Reflections after a year since the completion of B.E.S.T. Leonardo Partnership Project'. The day ended with a documentary on Giovanni Michelucci's life which was attended by students and guests; this film was

shown in the UK for the first time after its official launch in MAXXI Gallery of Rome in May 2012.
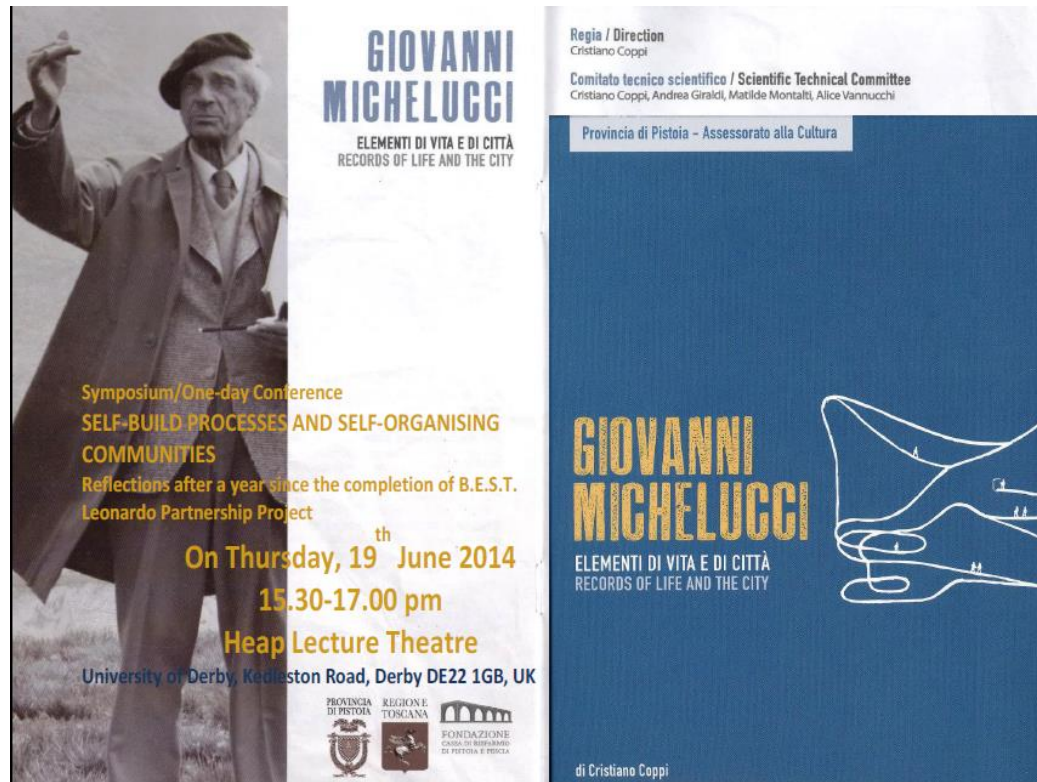
Fig. 26: The poster produced by the author (Eleni Tracada) on the Giovanni Michelucci film shown on the occasion of the 'Self-build processes and self-organising communities' symposium on 19th June 2014; courtesy and © Fondazione Giovanni Michelucci and the author.

Due to the importance of the project above, the author decided to disseminate its development to audiences at important symposia and conferences, such as the 1st Annual International Conference on Construction, 20th-23rd June 2011, Athens, Greece, which was organised by the Athens Institute for Education and Research (ATINER). The title of the paper was 'Self-build Design and Construction Processes and the Future of Sustainable Design Education' (Tracada, 2012) and consequently was published as a

chapter in the book *Construction Essays on Architectural History, Theory & Technology*. (See Volume of Published Works, pp13-14).
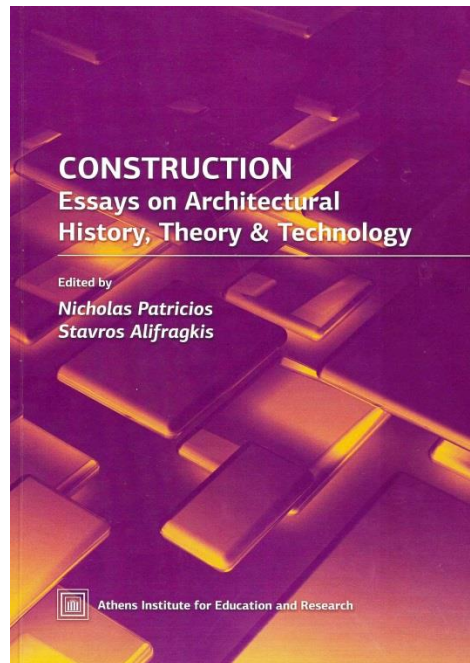
Fig. 27: Front cover of *Construction – Essays on Architectural History, Theory & Technology*; courtesy and © the Athens Institute for Education and Research (ATINER).

Stavros Alifragkis, one of the main founding members of ATINER and lecturer at the National Technical University of Athens, Greece, affirmed that: 'Tracada draws from valuable experience with the School of Technology at the University of Derby … and the Giovanni Michelucci Foundation in Tuscany, Italy to report on the outcome of the School's initiative to provide high standard training on the extremely topical subject of self-build design' (Alifragkis, 2012, pp7-8).

In this article the author also highlighted the theoretical background of the B.E.S.T. project with reference to Nikos Salingaros and Christopher Alexander's theories on self-build and self-organisation of communities in contemporary urban design and planning; a self-

organised community not only plans and builds, but also decides about the rules and regulations to be implemented. Self-organised communities can be powerful associations of people of any age, culture and background, who wish to improve theirs and other people's conditions of life; they have the power to become creative authors of new built environment.

Fig. 28: Workshop organised by the Faculty of Architecture, University of Florence, Italy about the *case* (=houses) of the Luzzi ex-Hospital (Self build in Tuscany). (<u>Source:</u> Archive of the Giovanni Michelucci Foundation; courtesy and © Fondazione Giovanni Michelucci)

The significance of this project was that the learners/participants had to evaluate several self-build projects in different countries, to discuss them with local communities and professionals and finally decide about their own role as professionals and participants in the future.

The following publication was published in late spring 2013; it was developed, written and edited in the months that followed the first workshop of the International Project *Dance Architecture Spatiality* in Athens from 1st to 15th July 2012. The author's chapter (Tracada, 2013) and two short reports by her two students/participants were inserted in the book

with the title *Dance Architecture Spatiality-Athens 2012.* (See Volume of Published Works, pp21-22).
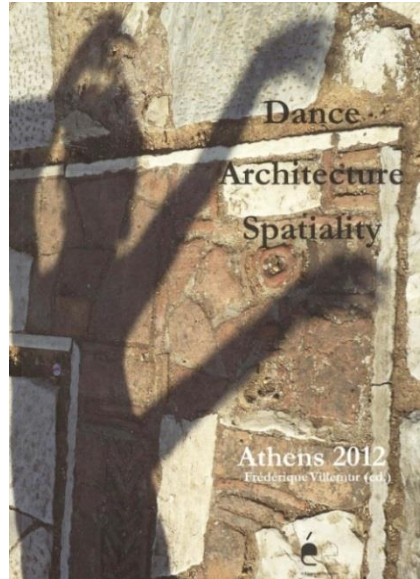
Fig. 29: Front cover of *Dance Architecture Spatiality 2012*; courtesy and © Frédérique Villemur.

The main teaching objective of this three year project is to perceive the structure and the rhythm of architecture by the body in movement, to investigate places by experimental uses and, finally, work on the limits and the 'porosity' of the body and architecture. The main themes of the three fifteen days' workshops were set as:

- Greece: the temple and the 'dancing' column and the suspension of the force of gravity;

- Italy: the 'villa' and the modern scenery as historical action; the freedom of the body following the architectural act;

- France: the cloister as the space of inner resonance and the denial of the expression of the ego.

Fig. 30: The students acting as 'dancing' columns and/or bodies seeking equilibrium in the middle of geometries set by natural and manmade landscape.

(Source: The author's (Eleni Tracada) personal archive of photographs taken during the workshops of the Project Dance Architecture Spatiality (DAS) in 2012).

The students had the opportunity to find out their individual 'ritual' spaces via interactions with their surroundings; they performed as a group to re-discover ancient traces of geometries and modern interpretations linked together, as that of the architect Dimitris Pikionis in the 1960s [a new method of creating through spatiality cognition].

Fig.s 31 & 32: A human body 'engraves' its presence on the paved geometries of Dimitris Pikionis's paths and open spaces; using talc powder to mark body acts upon the ground. (Source: The author's (Eleni Tracada) personal archive of photographs taken during the workshops of the Project Dance Architecture Spatiality (DAS) in 2012).

In her chapter 'Harmonious architecture and kinetic linear energy' (Tracada, 2013) in *Dance Architecture Spatiality 2012*, the author affirms that eternal plays of lines may enable 'bio-rituals of the human bodies inscribing exceptional paths' and she also refers to her own personal and professional experiences again.

The author expressed clearly her philosophy about the power of geometries that are stimulated by human energetic kinesis and synergy inside the natural and the built environments. Her theories as applied ideas and concepts were made evident in her participating students' work, such as Natalie North's 'Guided Navigation and its Application in Special Needs Schools'
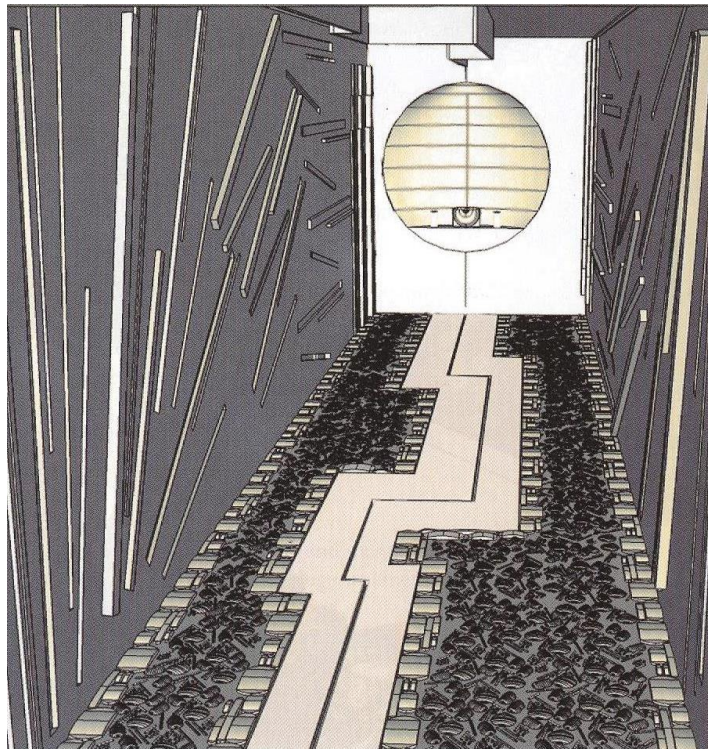

Fig. 33: Textures and materials disposed according to geometries directing visual and tactile navigation inside a meditation space for children with special needs; courtesy and © Natalie North; a student project created for the Project Dance Architecture Spatiality (DAS) in 2012 and supervised by the author (Eleni Tracada).

In 'Harmonious architecture and kinetic linear energy', the author referred to Nikos Salingaros' axioms on the development of the urban space and revealed the complexity of these processes of design and development by explaining how the theories on Thermodynamics of the natural and manmade environments could be seen in 'rituals' of everyday life human behaviours and actions.

The author made clear connections with Nikos Salingaros' theories and scientific formulas; she had tried and tested them on specific urban areas of both social and historical importance, and also used these case studies to be taught to students at levels 6 and 7 in the modules Designing Environments and Independent Scholarship. The most important formulas tested and discussed by undergraduate and postgraduate students were those referring to architectural life and complexity in urban arrangements.

The author discussed these scientific formulas and also pushed the interdisciplinary pedagogical boundaries further by teaching and testing particular advanced patterns of fractal growth of cities, which had been governed by Laws of Nature, Mathematics and Physics. The author affirmed: 'Bodies simply follow preferential lines along which spirituality and spatiality manage to blend in an eternal drama of actions and interactions between human beings and surrounding environments in evolution' (Tracada, 2013, p128).

Since spring 2012 the author began a fruitful collaboration with the President of the International Society of Biourbanism (ISB) Dr. Antonio Caperna by co-authoring important papers and texts for either international events and conferences or educational materials to be used during summer schools (starting from July 2012 and ongoing) and seminars

at the University Tre in Rome and the University of Derby. Established experts, such as, for example, Nikos Salingaros, have been in favour of this collaboration mainly aiming at carrying out advanced research in Urbanism in order to indorse frameworks capable to support the growth of healthy cities and societies for the future.

Several invitations and announcements for conferences have made it clear that Urbanism is of a great interest to many areas today, from the sciences and maths to the social sciences, the arts, design and architecture, and not excluding the policy making administration. Both Antonio Caperna and the author thought that a joint consistent production of papers and articles on the principles and practices of Biourbanism would be useful in many aspects to professional and non-expert audiences at the same time, such as the town planners and the general public self-builders, for example. And of course, both authors co-operated to promote and campaign for the design of healthy cities for the present and future times of the humankind.

With their joint 50/50 per cent publication 'Biourbanism for a Healthy City: Biophilia and Sustainable Urban Theories and Practices' (Tracada & Caperna, 2012), Antonio Caperna and the author consolidated their cooperation by setting clearly the principles on Biourbanism at all levels of teaching and practice, and especially by combining urban theories with current research and policies on public health in modern cities worldwide. The paper was presented as audio over the author's slides at the prestigious Bannari Amman Institute of Technology, Erode District, Tamil Nadu, India. (See Volume of Published Works, pp15-17).

In Biourbanism, we attempt to find a way in which not only early diagnosis can take place in malignant fractal growth of the cities, but also new methods of care and restoration to health may succeed to establish wellbeing in both cities and surrounding landscapes. Biourbanism attempts to re-establish lost values and balance, not only in urban fabric, but also in reinforcing human-oriented design principles in either micro or macro scale (Tracada & Caperna, 2012, pFT-01).

Fig. 34: 'Fractal natural form and harmonious natural randomness' (Tracada & Caperna, 2012, pFT-07); photo by the author (Eleni Tracada) taken in Athens, in June 2012.

Also the publication 'A New Paradigm for Deep Sustainability: Biourbanism' was a joint co-authorship by the author and Antonio Caperna. (See Volume of Published Works, pp18-19). The authors' main aim was to introduce Biourbanism as a key player for the 21st century to bring together experts from all kinds of areas and sectors, such as scientists, engineers, financial consultants, manufacturers, town planners and architects.

The author agrees with the following: 'Design is a universal phenomenon in nature. It is physics. It happens naturally when something is flowing and it is free to morph. Design unites the animate with the inanimate' (Bejan & Lorente, 2013, p3 and now in Tracada & Caperna, 2013, p368).
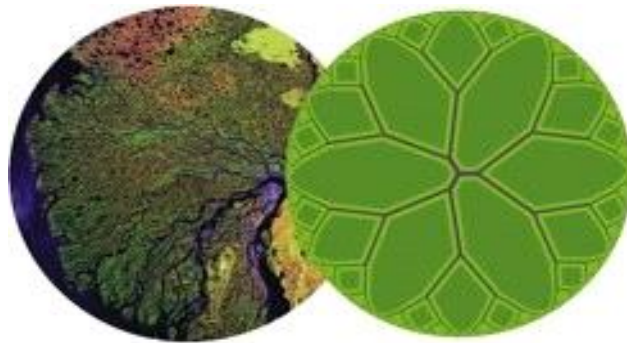
Fig. 35: Tree-shaped architectures: 'Constructal invasion of a conducting tree into a conducting body' (Bejan & Lorente, 2013, p. 3); courtesy and © www.costructal.org

In the map below (inserted in this paper), we can easily distinguish the characteristics of Constructal Law invasion of architecture (buildings) that occurred to the Artena hill.

Fig. 36: Artena village structure: flow space is evident into available pathways ©yulia-link.com and now courtesy and © the International Society of Biourbanism.

In this paper the author inserted her own diagram that was conceived, presented and inserted in her Masters Dissertation and exhibition *Line Performance Act* in 1996.
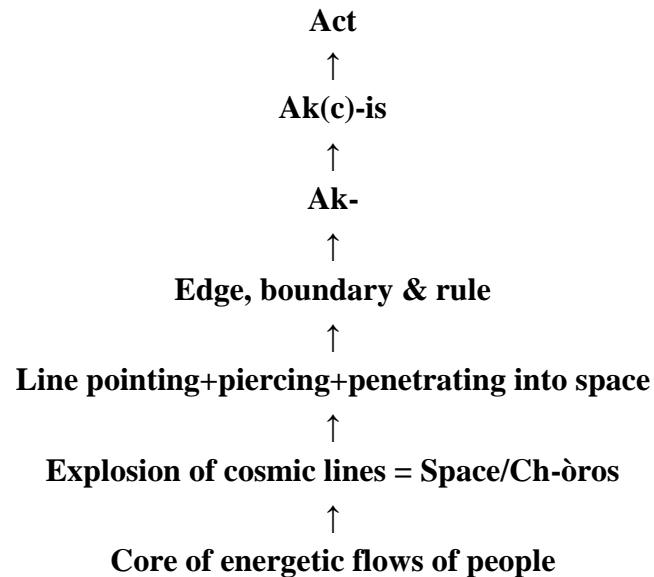
Act
↑
Ak(c)-is
↑
Ak-
↑
Edge, boundary & rule
↑
Line pointing+piercing+penetrating into space
↑
Explosion of cosmic lines = Space/Ch-òros
↑
Core of energetic flows of people

Fig. 37: The author's own diagram inserted in materials taught to students at Level 6 and 7 in Higher Education and related to history and theory of architecture and Urbanism; © the author (Eleni Tracada).

At this point the author should like to close this section with another important publication on Biourbanism principles. The title of this article is 'The Fractal Urban Coherence in Biourbanism - The Factual Elements of Urban Fabric' (Tracada, 2013). (See Volume of Published Works, pp20-21). Just from the beginning of this article and in the abstract, the author clarified that the emphasis would be on Neuroergonomics in modern cities.

Fig. 38: Model of Mauritius Island by Madhoor Bissonauth Pritz for the module Designing Environments, taught by the author in autumn 2011; photo courtesy and now © Madhoor Bissonauth Pritz.

3. Recent editorial work and research – Future opportunities

The author should like to make a brief reference on recent editorial work and research still in progress. Inside the Journal of Biourbanism issues, you are able to read her editorial comments on distinguished authors' works, and also on new scholars and PhD students' work; new scholars submitted current research findings on issues related to urban space and architecture in several countries and regions in Europe, America, Africa, Asia, and very recently in Australia.

Fig.s 39 & 40: Front covers of the first Issue of the Journal of Biourbanism and the latest main double Issue 1 & 2 of 2013; courtesy and © the International Society of Biourbanism. (Sources: Front covers available at: http://www.biourbanism.org/journal-of-biourbanism-n-12011/ and at: http://journalofbiourbanism.org/category/jbu-iii-2013-1-2/; © the International Society of Biourbanism).

The author has also included her latest publication 'Performing in Corso Pallladio' in the book *Dance Architecture Spatiality – Vicence 2013*; most of the activities were inspired by Andrea Palladio's architectural and urban spaces in Vicenza and Venice, whilst the main influence to students came from the performance spaces and actions inside and outside Palladio's most important buildings.

4. Conclusions

The author should like to conclude this critical appraisal by stating that her contribution to conclusive shifts in education and practice aiming at considerable improvements modern

cities is still ongoing and robust. She believes that she is currently working and is being supported by valuable colleagues as well as students at all levels who are eager to learn about all the latest theories and practices in order to be able to face their future developments of their careers with confidence. At the same time the author sees that most students nowadays feel extremely gratified when they are able to share learning and research with their teachers; the entire process of professional formation of architects and urbanists has been proved to be a reflective one. By cherishing Biourbanism in education and practice the author foresees a better future for the humankind; Biophilia is innate in people's bodies and minds, and it should be the driving force for younger generations of scholars to whom the author is greatly indebted.
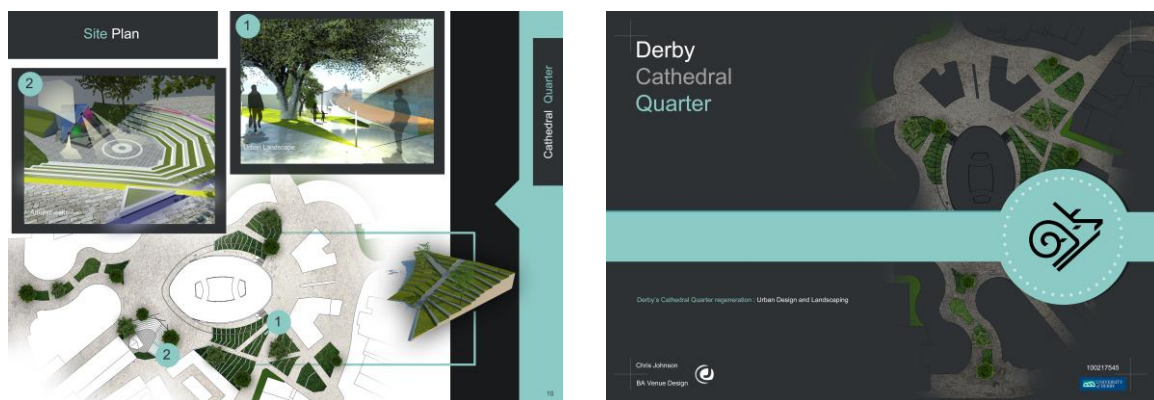

Fig.s 41 & 42: Recent student work in Urban Design (2013-2014); courtesy and © Christopher Johnson and Promogiovani 2014.

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The Journal of Biourbanism (JBU): the International Society of Biourbanism (ISB) publishes a bi-annual peer-reviewed journal which is available (Open Access) at www.journalofbiourbanism.org

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http://www.biourbanism.org/journal-of-biourbanism-n-12011/

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A submission in partial fulfilment of the requirements of the University of Derby for the

award of the degree of Doctor of Philosophy or Master of Philosophy based upon

Published Works

ANNEX

Intellectual and written contribution –

Status and referee arrangements

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LIST OF PUBLICATIONS by Eleni Tracada

(PLEASE NOTE: For copyright reasons only publications submitted and accepted in UDORA could be found as preprints via provided links below. All others are omitted. Therefore, the Volume of Published Works has been redacted. You should find the links to the Journal of Biourbanism (JBU) for the Editorials; JBU is an Open Access Journal).

5. Tracada, E. (2007) 'Florence: the city that signed the genesis and death of architecture' in Martyn, P. (ed.) The City in Art, Warszawa: Instytut Sztuki PAN, pp71-87.

   pp10-11.

6. Tracada, E. (2008) 'Design Codes and Design Language' in Hatton, K. (ed.) <u>Design-Pedagogy-Research-Leeds 2007</u>, Huddersfield: Jeremy Mills Publishing on behalf of Leeds College of Art and Design, pp37-49.

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7. Tracada, E. (2011) 'Reformation Places and the use of Senses in their Design: Seclusion Spaces and Heightened Sensory Awareness/Responsiveness' in *The International Journal of Interdisciplinary Social Sciences*, Vol. 5, Nr 10, Illinois, USA: Common Ground Publishing, pp355-370.

   pp12-13. (URI: <u>http://hdl.handle.net/10545/294070</u> Type: Preprint)

8. Tracada, E. (2012) 'Self Build Design and Construction Processes and the Future of Sustainable Design Education' in Patricios, N. & Alifragkis, S. (ed.s) <u>Construction Essays on Architectural History, Theory & Technology</u>, Athens: ATINER, pp157-172.

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9. Tracada, E. & Caperna, A. (2012) 'Biourbanism for a Healthy City: Biophilia and Sustainable Urban Theories and Practices' in the <u>Proceedings Vol.4: Biotechnology/Textile Technology/Fashion Technology of the International Convention on Innovations in Engineering and Technology for Sustainable Development (IETSD)</u>, 3-5 September 2012, in Bannari Amman Institute of Technology, Erode District, Tamil Nadu, India, ppFT- 01 to FT- 09.

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10. Tracada, E. & Caperna, A. (2013) 'A New Paradigm for Deep Sustainability: Biourbanism' in <u>Application of Efficient & Renewable Energy Technologies in Low Cost Buildings and Construction Conference Proceedings, International Conference & Exhibition</u>, 16-18 September 2013, Ankara-Turkey, Gazi University & University of South Wales, pp367-381.

    pp18-19. (URI: <u>http://hdl.handle.net/10545/302061</u> Type: Article)

11. Tracada, E. (2013) 'The Fractal Urban Coherence in Biourbanism: The Factual Elements of Urban Fabric' in The International Journal of Architectonic, Spatial, and Environmental Design, Volume 7, Issue 1, pp1-17.

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12. Tracada, E. (2013) 'Harmonious architecture and kinetic linear energy' in Villemur, F. (ed.) in Dance Architecture Spatiality-Athens 2012, Montpellier: Éditions de l'Espérou.

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13. Tracada, E. (2014) 'Performing in Corso Palladio' in Villemur, F. (ed.) in Dance Architecture Spatiality-Vicence 2013, Montpellier: Éditions de l'Espérou, pp146-167.

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14. JBU Journal of Biourbanism, December 2011, Nr 01

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16. JBU Journal of Biourbanism, 2012, # 02

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17. JBU Journal of Biourbanism, 2013, # 01 & 02

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    From 14 to 17: p24.

Intellectual and written contribution – Status and referee arrangements

1. **Tracada, E. (2003) 'The Procession of Maria's Servants and a huge proliferation of art and architecture in the Santa Maria Nuova Hospital in Florence' in Martyn, P., Paszkiewicz, P. and Ames-Lewis F. (ed.s) <u>Art-Ritual-Religion</u>, Warszawa: Instytut Sztuki PAN, pp255-266.**

   Art-Ritual-Religion is a very important collection of articles from valuable and important authors; they were selected after having submitted abstracts and papers for peer review. The selected authors gave their papers during the Fifth Joint Conference of Art Historians from Britain and Poland in Warsaw from 7th to 9th June 2000. However, because of the tragic death of Piotr Paszkiewicz, Vice-Director of the Institute of Art of the Polish Academy (IS PAN) in 2002, Prof. Francis Ames-Lewis became chief co-ordinator of all selected authors from Great Britain, whilst Dr Peter Martyn dealt with IS PAN authors and edited the entire book. All chapters were peer reviewed by the participants of the conference acting as associate editors. Eleni Tracada reviewed three papers/chapters and her chapter was reviewed by other participants/authors.

2. **(a) Tracada, E. (2006 c) 'Le architetture scultoree e sacre di Giovanni Michelucci come consacrazione della Madre Terra Etrusca' (= Giovanni Michelucci's sculptural and sacred architecture venerating the Etruscan Mother Earth) in Ferretti, V. & Tracada, E., <u>Vivarelli e Michelucci: scultura e architettura a confronto nella Chiesa dell' Autostrada del Sole</u>, Pescia, Pistoia: Edimedia, pp21-30.**

At the time during which this publication was produced, the author was engaging in research activities in history and the theory of architecture in connection with urban spaces and architecture with the Centre CATH (Cultural Analysis, Theory & History) at the University of Leeds. As a result, she also engaged in producing written work inspired by arts, design and architecture and related to both theories and practices. Eleni Tracada had been several times invited by Griselda Pollock, Professor of Social and Critical Histories of Art and the director of Centre CATH, to present a series of papers at several conferences and symposia since July 2004. In July 2004, the author gave a paper for the Conference 'The architecture of Philosophy/The Philosophy of Architecture'; she continued taking part in Centre CATH organised events until July 2005 and for the first time had the opportunity to present to a large academic international audience her theories on lines and virtual scales with the paper 'Hidden path lines and virtual scales in art and architecture as urban indexes of human behaviour'. She not only discussed indexes and embodied sensory reality and the effects of energetic human movements in the natural and built environments, but also the social and cultural developments of parts of cities, where clusters of dynamic individuals related to arts, design and architecture join forces to improve public life simultaneously. She often included Jorio Vivarelli and Giovanni Michelucci's work in her discussions as well as her research findings on contemporary art, design and architecture in Europe in general. This booklet was created by the curator of the Vivarelli Foundation and Eleni Tracada who were jointly collaborating to organise several events related to both Vivarelli and Michelucci at the time; the book was reviewed by Jorio Vivarelli

and the directors of Giovanni Miche lucci Foundation before final editing. The publication is in Italian. However Eleni Tracada based her text on her teaching materials at that time (as for the following publication below) and her findings on the Intrarrealist Movement by researching in the Jorio Vivarelli Foundation archive and especially by her talks with Jorio Vivarelli in person. The booklet was published as a limited number of copies and the profits helped with the repairs of some rooms in the Jorio Vivarelli Foundation building. It has been considered as collectable nowadays.

(b) Tracada, E. (2009) 'La Chiesa sull'Autostrada di Giovanni Michelucci e Jorio Vivarelli' in Ferretti, V. (ed.) <u>Jorio Vivarelli – La Materia della Vita, Catalogue of the exhibition</u>, Sala d'Arme Palazzo Vecchio – Firenze (15 January-8 February 2009), Verona: Edizioni d'Arte Ghelfi, pp55-58.

Eleni Tracada contributed by inserting her experiences from the brief given to her students and related to the Holocaust sufferers (as Vivarelli had suffered for several years inside a concentration camp in WWII. The book was edited jointly by Veronica Ferretti and Eleni Tracada and is in Italian. A presentation of Eleni Tracada during a special commemorative Mass for Jorio Vivarelli and Giovanni Michelucci in the Church on the Motorway on 1st October 2008 has been inserted in this catalogue; it was especially requested by the President of the Council of Pistoia and the Councillor of Culture of the Commune of Florence; the author received a special invite for the opening of the exhibition. In 2008 she was invited by the Council of Pistoia and the Bishop of Florence.

3. **Tracada, E. & Paget, B. (2006) 'Reading buildings and translating places: a place to …' in Crespi, L., Piccinno, G. & Rebaglio, A. (ed.s) (2006)** <u>**Books - The future of reading?**</u> **Milan: GIDE & Libreria Clup, pp117-125.**

All text was mainly written by Eleni Tracada and reviewed by the Programme Leader and her mentor at Leeds College of Art and Design at that time. The chapter was related to student projects; it was also discussed with the author's students before submission. Bruce Paget helped with the editing of the illustrations of the projects. The entire book was edited by skilled editors of the Faculty of Arts and Design, the Polytechnic of Milan at the Bovisa Campus. This book showcased all the initiatives by GIDE in 2005-2006. Eleni Tracada was inspired by some important authors and designers, such as the design philosopher Francis Smets. As a result, she further carried out research in the following years which helped her to write more extensive chapters and articles (as you can see below).

4. **Tracada, E. (2006 a) 'Chapter 3 - Reading buildings and translating places: a place to …' in Stell, J., Cameron, L. & Hay, K.G. (ed.s)** <u>**Explorations in Spatiality**</u>**, Leeds: Regent Print in Huddersfield for the University of Leeds, pp41-51.**

During cluster activities between 2002 and 2005 of a multidisciplinary nature, the author was able to implement innovative methods of teaching. Thus, she was asked to participate in important initiatives such as the Designing for the 21st Century initiative and related workshops; this project was supported by EPSRC/AHRC grants and coordinated by the University of Leeds. The cluster initiatives and selected researchers' contributions were published in a book with the title *Explorations in Spatiality*, which was edited by Dr. John Stell,

mathematician and geographer, Prof. Lynne Cameron, Professor in Applied Linguistics and Kenneth G. Hay, Chair of Contemporary Art Practice in the School of Design, at the University of Leeds. The author's chapter was peer reviewed by her mentor and one more colleague at Leeds College of Art and Design before submitting it to the Scientific Committee of the cluster (formed by experts in design and architectural engineering at the University of Leeds)

5. **Tracada, E. (2007) 'Florence: the city that signed the genesis and death of architecture' in Martyn, P. (ed.) The City in Art, Warszawa: Instytut Sztuki PAN, pp71-87.**

The Selection Committee for the conference with the same title, formed by historians and architects from IS PAN and the Institute of Art History of the Jagiellonian University (HIS UJ), advised Eleni Tracada to give a paper within the theme (now Part Two of the book) *Urban identity and architecture in the industrial and 'post-modern' eras*. Her paper 'Florence: the city that signed the genesis and death of architecture' was selected as a chapter in The City in Art. This very controversial title had created a lot of interest amongst a number of postgraduate students in the Jagiellonian University, where it was given after the Warsaw presentation. The author explained that she wished to promote debate about which type of planning regulations should have been adopted to command the identity of Florence as an everlasting 'monument of the arts', each and every time that art and architecture suddenly vanished (something usual in war zones and deadly devastations, such as earthquakes or floods). Dr Peter Martyn edited the entire book and as usual the chapters were peer reviewed by the participants of

the conference acting as associate editors. Eleni Tracada reviewed three papers/chapters and her chapter was reviewed by other participants/authors.

6. **Tracada, E. (2008) 'Design Codes and Design Language' in Hatton, K. (ed.)** <u>**Design-Pedagogy-Research-Leeds 2007**</u>**, Huddersfield: Jeremy Mills Publishing on behalf of Leeds College of Art and Design, pp37-49.**

The entire book in which the chapter was inserted after careful selection and editing is a publication that came after a conference on the theme *Design-Pedagogy-Research-Leeds 2007*. The conference was jointly funded by the Design History Society, Leeds Metropolitan University and Leeds College of Art and Design. Between 2004 and 2007, Dr Kate Hatton (formerly the Programme Leader in Critical and Contextual Studies at the Leeds College of Art and Design and now the Head of Research in Contextual Studies and Education at the University of Arts in London) worked together with the author in order to create a women's research group at the Leeds College of Art and Design; this was plainly achieved after the success of the conference mentioned above and the publication of the book.

Kate Hatton affirmed that the conference attracted many experts, such as design theorists, historians and design researchers in education who originated ideas from their own practice. The book was edited by Kate Hatton and all authors participated in peer reviews of all chapters selected; comments were sent to Kate Hatton and the author of each article. Kate Hatton personally reviewed Eleni Tracada's chapter and Eleni reviewed two other authors' work. She had also

helped with the organisation of the *Design-Pedagogy-Research-Leeds 2007* Conference on 16th March 2007.

7. **Tracada, E. (2011) 'Reformation Place and the use of Senses in their Design: Seclusion Spaces and Heightened Sensory Awareness/Responsiveness' in *The International Journal of Interdisciplinary Social Sciences*, Vol. 5, Nr 10, Illinois, USA: Common Ground Publishing, pp355-370.**

The paper was presented at the 5th International Conference on Interdisciplinary Social Sciences in the University of Cambridge, UK, 2-5 August 2010. This paper selected to be published in the International Journal of Interdisciplinary Social Sciences, because of Eleni Tracada's discussion overpassing disciplinary boundaries; it was accepted with only few minor corrections and went through double blind peer review. The author was also nominated associate editor for *The International Journal of Interdisciplinary Social Sciences*, Volumes 3 & 4.

In this publication the author not only embraced broader views about the designs of secluded spaces, but also examined the innovation in materials, their textures, colour patterns and moreover their smells. The combination between hard construction materials of the supporting structure of the main hall, the so-called indoors 'Garden of Reunion', and the outdoors real garden which was created and maintained by inmates had an immediate effect on prisoners' lives and behaviours. The records kept for the Giovanni Michelucci Foundation as well as the direct contact and discussions with political prisoners/architects at the time of the concept generation helped Eleni Tracada to appreciate the importance of this project, and

especially its impact on people's reformation. Several disciplines, such as the arts, biophilic architecture and behavioural psychology contributed to the success of this particular environment of human healing and heightened experiences.

In the same paper the author furthermore compares the Sollicciano prison situated in the periphery of Florence with the older prison of the 'Murate' (= Walled nuns) in the Santa Croce Quarter of the City.   After several years of clashes of the residents living close to the 'Murate' and supported by human rights organisations against the public administration, the infamous 'Murate' prison was suppressed. Recently the entire complex was totally redeveloped to include low cost housing, a number of departments of the University of Florence, museums and galleries. The 'Murate' prison had the bad reputation of a depressing place; several riots had occurred from the 1960s until its suppression, and every so often a lot of young people (men and women) committed suicide by jumping from the higher internal balconies and died along the main ground floor corridor. The senses and feelings were separated from human life and behaviours and finally defeated by such an unbearable environment. After the severe floods of Florence in 1966, Giovanni Michelucci insisted that it was time to take action against that horrendous complex; he affirmed that all people living around and inside the prison had the right to ask to be treated as human beings, thus the 'Murate' ought to be redeveloped for other uses.

8. **Tracada, E. (2012) 'Self Build Design and Construction Processes and the Future of Sustainable Design Education' in Patricios, N. & Alifragkis, S. (ed.s)**

<u>Construction Essays on Architectural History, Theory & Technology</u>, Athens: ATINER, pp157-172.

In March 2011, the author sent an abstract to the Athens Institute for Education and Research (ATINER) with the title 'Self-build Design and Construction Processes and the Future of Sustainable Design Education' to be considered for the 1st Annual International Conference on Construction, 20th-23rd June 2011, Athens, Greece. The abstract was peer reviewed and accepted; the author had to write and submit again a paper to be refereed in May 2011. Then, the paper was accepted to be presented on 20th June 2011 at the conference and furthermore it was edited and finally published as a chapter in June 2012 in *Construction Essays on Architectural History, Theory & Technology*, edited by Nicholas Patricios and Stavros Alifragkis Athens for ATINER. The paper was inserted as Chapter 11 in Part B: Design Approaches and Methodologies. The editors had passed all authors' work to blind and independent peer reviewers before deciding which chapters should be inserted as chapters in the book. The studies/chapters that constituted the final selection were 'grouped into four distinct but interconnected categories according to the main research questions that they raise in their respective fields: 'Histories of Other Spaces', 'Design Approaches and Methodologies', 'Sustainable Design: Advances and Case Studies' and 'Novel Building Practices and Construction Techniques'. (Patricios, 2012, pxi)

9. **Tracada, E. & Caperna, A. (2012) 'Biourbanism for a Healthy City: Biophilia and Sustainable Urban Theories and Practices' in the <u>Proceedings Vol.4: Biotechnology/Textile Technology/Fashion Technology of the International Convention on Innovations in Engineering and Technology for Sustainable Development (IETSD)</u>, 3-5 September 2012, in Bannari Amman Institute of Technology, Erode District, Tamil Nadu, India, ppFT- 01 to FT- 09.**

A series of very important papers and presentations preceded this one mentioned above, and in which the author had more than 50/50 per cent participation in activities and writing processes; she had also submitted the abstracts and/or proposals for peer review and finalised the editing of all documents. The most important papers are described briefly below as follows:

- 'Complexity and Biourbanism: Thermodynamical Architectural and Urban Models Integrated in Modern Geographic Mapping', co-authored as 70% by the author and 30% by Dr Caperna. This paper was initially inserted in the online Proceedings of the *Theoretical Currents II: Architecture and its Geographic Horizons* Conference in Lincoln, UK, 4th-5th April 2012. On 5th April 2012 the author presented the paper together with Madhoor Bissonauth Pritz, one of her students in Designing Environments in the Master of Science in Sustainable Architecture and Healthy Buildings at the University of Derby. The paper was initially inserted into the University of Lincoln Conference Documents Store, which expired some year ago. Hence it has now been published in www.biourbanism.org (official site of the International Society of Biourbanism).

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- 'Biourbanism and self-organised built environment and sustainable communities during times of socio-political and economic turmoil', written and presented by the author after consultation with Dr Caperna.   The author was invited by the Athens Institute for Education and Research (ATINER) to discuss her progress with the Leonardo European project on 'Best practices in European Selfbuild Training' (B.E.S.T.) one year after it was originated; she received very useful feedback which was implemented into the learning and teaching activities for students (studying at the University of Derby at that time) and staff in mobility in order to accomplish the objectives of the B.E.S.T. The paper was presented on 18th June 2012 at the 2nd Annual International Conference on Construction, 18th-20th June 2012, Athens, Greece.

The paper 'Biourbanism for a Healthy City: Biophilia and Sustainable Urban Theories and Practices' was submitted for blind double peer review to the prestigious Bannari Amman Institute of Technology, Erode District, Tamil Nadu, India. The Head of the School of Technology at the University of Derby, Ms Angela Dean was contacted by the Bannari Amman institute of Technology (affiliated to the Anna University of Chennai) in spring 2012; she was asked to be one of the Chairs for the joint conference with the title International Convention on Innovations in Engineering and Technology for Sustainable Development (from 3rd to 5th September 2012) at the Bannari Amman Institute of Technology. Ms Dean asked the researchers from her School of Technology to submit a series of relevant papers related to a series of broad themes; the author and Dr Caperna wrote the paper mentioned above which was peer reviewed and accepted on 16th

July 2012. However due to delays with visas, the author was unable to present the paper at the conference; she had instead prepared a video which was played at the set date and time at the Bannari Amman Institute of Technology. The author was also nominated as one of the organising secretaries for this Conference.

The authors defined and discussed on sustainable development and city wellbeing by referring to very important documents and reports, such as the World Conservation Strategy in 1980, Our Common Future (also known as Brundtland Report) by the United Nations World Commission on Environment and Development published in 1987, and most importantly to the World Health Organisation (WHO) Expert Committee on Environmental Health in Urban Development statements in 1991. The authors also referred to the second UCL-Lancet Commission on Healthy Cities latest publication with the title 'Shaping Cities for Health: Complexity and the Planning of Urban Environments in the 21st Century' which was published quite recently. They had the opportunity to discuss on the principles of Biourbanism and decide about a final table which sets clearly the aim and objectives of Biourbanism. Some comments by Eleni Tracada were mainly based upon her observations during the workshops and urban performances of the students in July 2012 and during *Dance Architecture Spatiality – Athens 2012*.

10. **Tracada, E. & Caperna, A. (2013) 'A New Paradigm for Deep Sustainability: Biourbanism' in <u>Application of Efficient & Renewable Energy Technologies in Low Cost Buildings and Construction Conference Proceedings, International Conference & Exhibition</u>, 16-18 September 2013, Ankara-Turkey, Gazi University & University of South Wales, pp367-381.**

The publication mentioned above was a joint co-authorship of 70% by the author and 30% by Dr Caperna; the abstract was peer reviewed and accepted in February 2013. The full paper was subsequently peer reviewed and accepted in July 2013. The RENEWBUILD 2013 brought together academics and industrialists across the world and endorsed the following theme: *Application of Efficient & Renewable Energy Technologies in Low Cost Buildings and Construction*; it was held in Ankara, Turkey, 16th-18th September 2013, and it was organised as a joint conference & exhibition by the Gazi University of Ankara and the University of South Wales, UK.

The paper was presented by the author on 17th September 2013 in the Gazi University and was published in the book of the Proceedings related to these events. The author thought that it was very important to talk about some of the most important interventions by the International Society of Biourbanism (ISB, such as service design for urban and social change by implementing Biourbanism principles in the Artena, Segni SEED and LEPUS projects in Italy and in higher education learning and teaching at various levels at the University Tre (Rome, Italy), the University of Sant' Antonio (Texas, USA) and the University of Derby (Derbyshire, United Kingdom).

The authors explained the definition of Biourbanism by considering links with the Laws of Form and Self-organisation in Evolution, Epigenetics, Systems Biology and the Constructal Law (as it was introduced by Adrian Bejan).   Eleni Tracada mainly focused on connections between the Laws of Form and the Constructal Law, and discussed on urban design based upon these particular laws and theories as well.   She made connections between Biourbanism principles and Nikos Salingaros' axioms; she also referred to the International Society of Biourbanism (ISB) involvements into recent projects related to 'service design' for urban and social change by implementing the Biourbanism principles and practices. Mostly all recent ISB summerschools took place in Artena, for example. Artena was chosen by ISB, because of its particular urban and life characteristics as the main place to run specialist summerschools, during which scholars from around the globe meet, study, argue and design according to the Biourbanism principles.   Fluid and human-oriented design is clear in the maps of Artena throughout the historical developments of this village; this process respected and favoured positive human emotions and behaviours. For example, during the workshops of 'Neuroergonomics of urban space' (Artena Summerschool 2012), the scholars had the opportunity to study Mimesis and Environment, Design and Neurological Patterns, Algorithmic Sustainable Design (cutting-edge mathematical techniques for a Biophilic architectural and urban design), Body Consciousness and Neuroergonomics Space Analysis and Practice Drawing.

11. Tracada, E. (2013) 'The Fractal Urban Coherence in Biourbanism: The Factual Elements of Urban Fabric' in <u>The International Journal of Architectonic, Spatial, and Environmental Design</u>, Volume 7, Issue 1, pp1-17.

This publication was preceded by others, although it started being developed perhaps a year or so before them. 'The Fractal Urban Coherence in Biourbanism - The Factual Elements of Urban Fabric' was published towards the end of 2013, although it was presented on 22nd January 2012 in Los Angeles, USA at the University of California on the occasion of the *Sixth International Conference on Design Principles and Practices*. The delay of this publication was due to the fact that Common Ground publishing changed arrangements for their publications and increased the number of their journals not only according to the theme of a conference, but also according to the disciplines and professional areas. The paper 'The Fractal Urban Coherence in Biourbanism - The Factual Elements of Urban Fabric' was blind peer reviewed by two reviewers and had a very high score of 85% and 90 % respectively. This is the first article in Volume 7 of Issue 1 of the Journal of Architectonic, Spatial, and Environmental Design. The Editorial Advisory Board of the journal included renowned experts in architecture and urbanism; the author acted as associate editor for Volume 7 as well.

The author had previously taught students in Designing Environments about fractal patterns and Interfaces in Architectural Life, Harmony and Complexity. As a result of this, several projects and theoretical analysis of student work was based upon these teaching materials. During special seminar sessions, students at Level 7 discussed and presented their work to peers inside the studio space, whilst some

students from Levels 4, 5 & 6 could be present and able to attend. All of them discussed and agreed with the opinions of several authors talking about fractal urban coherence.

12. **Tracada, E. (2013) 'Harmonious architecture and kinetic linear energy' in Villemur, F. (ed.) in <u>Dance Architecture Spatiality-Athens 2012</u>, Montpellier: Éditions de l'Espérou.**

The author's involvement in this project has started because of common research interests with some members of staff of the George and Eleni Vakalò School of Arts and Design (Vakalò School) in Athens, Greece. As a moderator of the architectural design courses of this School, the author discovered common interests in research with teachers and professionals engaging in theatrical theories and practices, interior design, landscape architecture and urban studies. Since 2010-2011 strong scholarly relations were developed between the author and some teachers in the Master of Arts in Interior Design and Stage Design. As a result, collaborative research has created opportunities to participate in a series of joint international research programmes, such as the international projects and workshops Dance Architecture Spatiality 2012 & 2013 (DAS 2012 & 2013) and very recently in DAS 2014.

In early March 2011, colleagues from the Vakalò School and the author were invited by the School of Architecture of Montpellier and the Institute of Architecture of Venice to take part in the Dance Architecture and Spatiality (DAS) project for the duration of three years. This project mainly explores human spatiality and kinesis (or kinaesthesia) inside historical architectural contexts. All partners made

a joint application to get Erasmus funds and support, and the positive outcome of the application was announced in July 2011.   The funds granted had to be spent on fifteen days' workshops once a year and in a different country each year.   Staff met in Athens a couple times before the running of the first workshop always there in July 2012. From 2nd to 15th July preparations took place near the Efesteion Temple in Athens and along the architect Dimitrios Pikionis's ritual modern path which runs up to the top of a hill situated opposite to the Acropolis of Athens. During the preparations and seminars all partners (staff and students) had the opportunity to use the facilities of the Isadora Duncan Dance School in Athens. The first series of the workshops which were dedicated to Ancient Greece and Athens ended with the live performance 'Now or Never 2012' along Pikionis's ritual path and received a lot of attention by both the Press and the general public. A book explaining the aim and objectives of these events was published in June 2013. All tutors contributed by writing one specific chapter in *Dance Architecture Spatiality - Athens 2012*, edited by Frédérique Villemur, the Head of Research in the Montpellier School of Architecture.   A second series of fifteen days of workshops took place in Vicenza (and Venice) in July 2013 and another book was published very recently in June 2014 with the title *Dance Architecture Spatiality – Vicence 2013* (see the publication Nr 13 below). The chapters were discussed and moderated by the editor Frédérique Villemur and all authors edited their students' work.

13. Tracada, E. (2014) 'Performing in Corso Palladio' in Villemur, F. (ed.) in <u>Dance Architecture Spatiality-Vicence 2013</u>, Montpellier: Éditions de l'Espérou, pp146-167.

Henry Bauchau's novel *Oedipus on the road* (1990) is a modern interpretation of the tragedies of Sophocles *Oedipus the King* and *Oedipus at Colonus* 'in a contemporary style which confronts us with the power of the myth; Henry Bauchau paves the way for an initiatory journey that calls in turn on singing, dancing, and dream as a means of releasing his hero. (Villemur, 2014, p11)

The second part of Dance Architecture Spatiality project in Vicenza included a performance inspired by *Oedipus on the road* along Corso Palladio; the public was enthusiastic about it and the Press dedicated a special article on it. A second book with contributions by staff and students was published very recently.   The third and final part that ran this year in France from 7th to 21st July will end with a third book to be published in spring 2015.

JBU Journal of Biourbanism:

The co-editors of the JBU and the members of the advisory board have been always very supportive to the author's efforts at all times, and especially Dr. Stefano Serafini, the current Director of Studies and Research in the ISB, who had supported immensely the Editor in Chief work during the last, but very important stage of importing all materials ready for final publication.   The author not only supports the Journal of Biourbanism as editor in Chief, but also acts as mentor to younger generation scholars, such as the authors of some articles with fresh ideas or co-editors

with ambition to become skilled editors and academics in the near future. The following issues have been already published (and further work is currently carried out for 2014 JBU issues):

14. **JBU Journal of Biourbanism, December 2011, Nr 01**

15. **JBU Journal of Biourbanism, November 2012, # 01**

16. **JBU Journal of Biourbanism, 2012, # 02**

17. **JBU Journal of Biourbanism, 2013, # 01 & 02**