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QUESTIONS 2013

Special Issue
QUESTIONS 2013 - Interferences in architecture and urban planning - architectural teaching and research

FORWORD

The present volume includes papers presented at the Second International Workshop in Architecture and Urban Planning, organized by the Faculty of Architecture and Urban Planning of the Technical University of Cluj-Napoca. Occasioned by the diploma-project sessions of the Faculty, this workshop was organized in Cluj-Napoca (Romania) between 14th and 16th of July 2013 and was entitled "QUESTIONS - Interferences in architecture and urban planning - architectural teaching and research".

The conferences was organised in the form of a round table on educational issues and several sessions dedicated to research on the theme "Expressions - Behaviours - Communities". The education-focused debates addressed aspects concerning concepts, processes and learning systems in architectural education. The participants reflected on the responses given by the architectural higher education - both on the theoretical and practical levels - to the current challenges raised by the built environment and the professional realm. The research papers tackled objects, subjects and methods in architectural and urban planning research, in the frame of doctoral and/or other research programs and contexts. These papers also explored the potential sources that provide landmarks and identify opportunities, which shape a symbolic dimension of the space in which we live, searching the significant spaces of the past and present communities, in a debate on the interferences and implications in architecture and / or urban planning.

The event brought together international professionals and scholars, active in architectural higher education, research, design and other related areas, sharing and discussing a wide range of experiences. The Workshop started with the opening of the diploma-project exhibition, this year enjoying also the presence of diploma projects by students from Ecole Nationale Supérieure d'Architecture de Grenoble, brought to Cluj-Napoca through the kindness of Professors Françoise Véry and Patrick Thépot.

The papers belonged to several thematic categories, according to which the present volume is structured:

1. education issues
2. architectural heritage
3. housing issues
4. urban planning and landscape
5. forms and expressions
6. identities and behaviors.

During the workshop, students, teaching staff, researchers and other professional community members had the opportunity to attend keynote lectures held by professors from universities involved in Erasmus programs with our faculty: Prof. Françoise Véry, Ecole Nationale Supérieure d'Architecture de Grenoble, France, Prof. Vasáros Zsolt, Budapest University of Technology and Economics, Hungary, Prof. Frédéric Bertrand, ENSA de Paris Belleville, France, Prof. Szabó Levente, Budapest University of Technology and Economics, Hungary, Prof. Patrick Thépot, Ecole Nationale Supérieure d'Architecture de Grenoble, France. The contributors came from Hafencity University/ Hamburg, UAUIM/ Bucuresti, UP/ Timisoara, UT/ Cluj-Napoca, individual architecture offices.

We are very grateful to Prof. PhD Eng. Aurel Vlaicu, Rector of the Technical University of Cluj-Napoca and to Prof. PhD Eng. Vasile Dadarlat, Head of the International Office of T.U. Cluj-Napoca, who encouraged and supported this workshop and to our Dean, Assoc. Prof.PhD Arch. Romulus Zamfir.

The editors appreciate all authors' effort in their valuable contributions and the colleagues' help in reviewing the papers published in this book.

We must mention the importance of material support constantly assured by our colleagues lect. Serban Tigănas and lect. Dana Opincariu. Thanks for the administrative and organizational skills to assist. Ionut Julean, lect. Cristina Purcar, jr. assist. Dana Pop, assist. Mihai Racu, assist. Paul Mihai Moldovan and for the important help in organizing the social events to techn. Cristina Miclea.

Organizer and Editor,

Assoc. Prof. PhD Arch. Mihaela Ioana Agachi
Head of Department of Urban Planning
Faculty of Architecture and Urban Planning TUCN

Cluj-Napoca, December 2013

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URBAN DESIGN – Methodology of a Project

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Abstract

The Urban Design Project represents the last specialized project in the field of urbanism in the curricula of the Faculty of Architecture and Urban Planning of the Technical University of Cluj-Napoca and it is the one students in Architecture realize during the first semester in the fifth year of study. The project objectives are diverse, from reconsidering spatial issues in heterogeneous zones to the establishment of social coherence and creation of a new urban polarity at a global or local level.. Depending on conclusions deducted from complex analyses of the site, the project focuses on reflecting specific aspects of urban development, of changes in political attitudes (shared or private land property), collectivity and privacy, hierarchy of spaces from public to private and semipublic. The proposed sites, located in destructured areas of Cluj-Napoca, have common aspects regarding lack of cultural and social amenities, low construction density or inadequacy as functions and, at the same time, are important nodes in the urban structure of the town and have known identities(landmarks) even if today considered, from different reasons, inappropriate. The needs are similar, to develop an area at contemporary level with the missing amenities. Differences arise from the way of evaluating the reality and its significance. The project is done in groups and favor professional debate and dialogues. The paper describes the specific stages in the evolution of the urban design project and propose methodologies to deepen the environment knowledge as bases for designing a coherent urban development.

Rezumat

Proiectul de design urban realizat in cadrul proiectarii specializate de urbanism din primul semestru al anului cinci de studiu reprezinta ultimul proiect de urbanism din curricula. Facultatii de Arhitectura si Urbanism din Universitatea Tehnica din Cluj-Napoca. Obiectivele principale ale proiectului sunt reconsiderarea coerentei spatiale si sociale in zone urbane eterogene si crearea unor noi poli urbani, semnificativi atat la nivel global cat si local. In functie de concluziile analizelor complexe ale sit-ului , proiectul urmareste aspecte specifice dezvoltarii urbanistice, implicatiile schimbarilor politice (proprietate privata sau publica asupra terenurilor), diferenta dintre colectiv si privat, ierarhizarea spatiilor de la public la privat si semipublic. Sit-urile alese se afla in zone destructurate ale orasului Cluj-Napoca si prezinta caracteristici comune : cvasi-absenta dotarilor cultural - sociale, neadecvare functionala si constructiva (slaba densitate a constructiilor) si in acelasi timp sunt noduri importante in structura orasului, au o identitate cunoscuta datorita unor repere existente – desi unele din ele astazi sunt considerate nepotrivite. Problemele acestor zone sunt similare, ele trebuie sa fie adecvate nevoilor prezentului, atat din punct de vedere al dotarilor lipsa cat si al semnificatiei spatiului, diferentele apar din modul de apreciere al situatiei existente. Proiectul se realizeaza in echipa si favorizeaza dialoguri si dezbateri profesionale. Articolul descrie etapele de realizare a proiectului de design urban si propune metodologii de aprofundare a cunoasterii unei zone in scopul gasirii unor solutii optime care sa asigure coerenta dezvoltarii urbane.

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Keywords: urban design, heterogeneous zones, social coherence, morphological approach, cultural and social amenities.

1. Introduction

The Urban Design Project is the last specialized project in the field of urbanism in the curricula of the Faculty of Architecture and Urban Planning of the Technical University of Cluj-Napoca. It is completed in the first semester of the fifth year of study and close two consecutive years of practical exercises in the field of urbanism, represented by projects make students approach - at different scale of interventions - the complex problem of „making a city", from dwellings, to rehabilitation of industrial areas.

The project main objectives are to reconsider spatial issues in heterogeneous areas, to establish the social coherence and to create a new urban polarity through a financial center in Cluj-Napoca . We proposed this design subject for the reason that, in order to consolidate the status of the second financial center of Romania, Cluj-Napoca should initiate arrangements for creatinga business center. Currently there is a significant pressure on the town's historic center, tending to occupy with banks and offices representative places here and the immediate consequence of this situation would be the area's depopulation after closing time of banks and offices, as well as alteration of the historical heritage as long as there are not revealed attitudes towards protecting it.

The designing process is organized in three stages: complex analyses (SWOT) of the existing situation of zone - richly illustrated by photos - archiving the most relevant aspects of it, completed by the appropriate documentation on type of similar intervention (from point of view of relief, clima and proper scale) and a brief sociological survey; various alternative proposals for the reorganization of the area, the proposals - project made at different scales, specific in urban design (Fig.1), experimenting from connection and articulation at global level - the entire city, to the local insertion in the district where is located the area of study and then to detail [1].

The project is done in groups of four students, solution that stimulates professional debates between students and fruitful dialogues.

Figure 1 – The scales of urban design: zoom in city plans (Cluj-Napoca).

2. Sites

Students could choose between three areas of intervention (Fig.2) whose general characteristics are similar: destructured urban tissue, particularly natural potential – easily identifiable relief, position of major joint element in the urban context, lack of social and cultural amenities , low construction density or inadequacy as functions, different land property (shared or private), have known landmarks - even if today considered from different reasons inadequate and their neighborhoods are quite definitively established and have a heterogeneous population- generally aged.

Figure 2. The proposed locations in Cluj-Napoca: 1- Colina, 2- Abator, 3- Expo Transilvania.

In the recent years, these areas were subjected to a strong pressure from private investors and chaotic buildings were erected in the absence of any overall vision to establish strategies appropriate to each zone .

Figure 3. Colina

The images above and below are conclusive (Fig.3.,Fig.4. , Fig.5.): in the satellite views from 2003 to 2009 and 2012 of each site, dwellings of different standards, improvised stores ,warehouses, and parking lots are realized in a total indifference towards sites.

Figure 4. Abator

The lack of interest from the part of local administration for the management of these areas, gave us a better reason to direct our attention in study them and earned the interest of students.

Figure 5. Expo Transilvania

3. Elements and objectives of project's theme

The functional components to be grouped here are financial, administrative, complemented with both high level and popular accommodations. According to the chosen location, students will search for the achievement of maximum constructed surfaces: offices, administration, banks ,

commerce, leisure, hotels, cultural and sport equipment, completed with the necessary parking areas, new housing and green spaces (50% of the studied surface).

For guidance, the following values are proposed: Business Centre (offices, administration, banking, commerce, leisure, hotel) about 50 000 sq.m developed area; between 250-300 apartments; parking over and underground for 1,000 cars. Theme data are informative, they are going to be agreed in teams of students, according to the conclusions reached in the analysis of the complex characteristics of each site. The necessary requirements related to structural characteristics of a financial center [2] were established: accessibility, highest concentration of tallest buildings, heavy pedestrian and auto traffic, highest concentration of business throughout the region and the mixture of all ethnic groups and all social classes, the amount of ground. There were decided the following major objectives of the project:
- the establishment of an adequate urban space, by reconsidering the traditional values of the European city: public square, street space, functional mix and complexity of the urban pattern;
- proportioning and setting up a public space - consistent with the intrinsic character of the site and conferring a marked individuality;
- natural connections with neighborhoods by providing functional and spatial coherence, articulation and continuity of space and architecture, creation of urban coherence by rebuilding the urban tissue;
- the search of a specific identity;
- valuation of the natural environment;
- fluidity in auto and pedestrian circulation;
- the right hierarchy of spaces, from public to private, from exclusive areas at popular places.

4. Analysis components

Once students have chosen the working team and the site, they start the documenting in situ to perform the analysis of the existing situation of zone, the first stage of the project - the basis for understanding and taking decision about what will be the financial center. The urban analysis (Fig.6) targets two groups of criteria: quantitative and qualitative. The quantitative criteria include the aspects referring to: building height and function, the land use, natural features (wooded area, water elements, soil nature, topography: maximum and minimum heights /dimensions of the land, the slope of the land, etc.), physical status of buildings, car and pedestrian traffic. It is required a short sociological inquiry-questionnaires that familiarize students with the "dialogic" dimension of their profession.

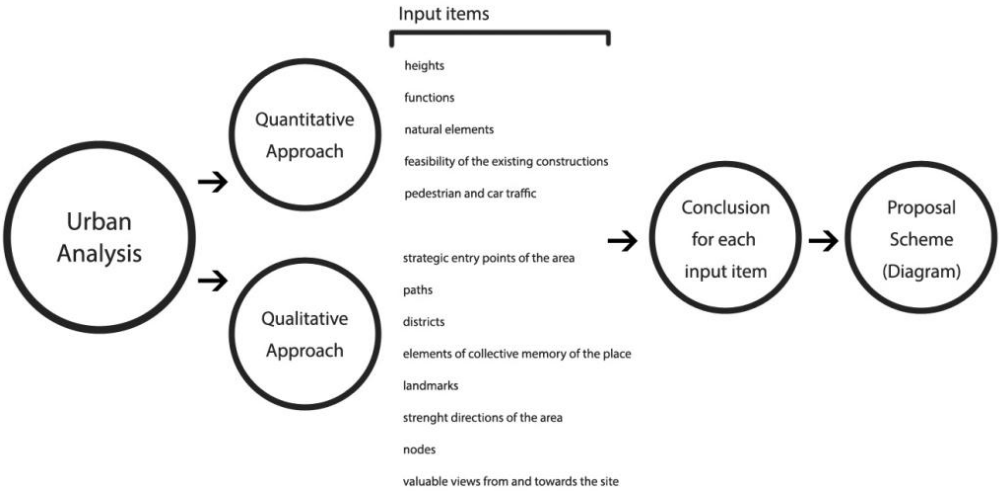

Figure 6. Urban analysis

The qualitative criteria aimed at deepening understanding the significance of the physical space by specific methods of the morphological approach of the visible field [3]. These include paths, landmarks, nodes (specific areas - constructed or green spaces or areas with significant ad- hoc usage or behavior), edges [4], valuable views from and toward the area, the possibility of urban linkage to the overall landmarks of the city and the city's skyline, the identification and configuration of different districts (study of coherence of urban tissue, of town planning procedures and building regulations illustrated by urban form and urban structure) in the studied area, looking for specific prints, traditions in the way of use public or semipublic space, symbolic significance, specific appropriation of buildings/open spaces, the logic entrance points to the analyzed area [5], logical directions for the movement of pedestrians and cars.

Sequential analysis [6] was recommended for the study of specific displacements in the area and the perception of space in movement, as a method of supplementing the qualitative perception of space. Many students preferred instead of sequential analysis only external perspectives to/from the neighborhoods or to/from the central area of the city.

Conclusions for each input item, the sociological survey and the appropriate documentation establish directions for the first proposal for the financial center, at a small scale, each student team proposing two variants of development of the zone, two diagrams for the distribution of functions , circulations, green areas and significant public spaces.
In the design workshop individual corrections are made for each team of students by teachers (one for 12-16 students), and rendition of this first stage means oral presentation and the exposure to the panel of the project. The direct supervisor gives a mark to each team for the activity during this stage, so students can appreciate the value of their work so far and can correct any deficiencies until final handover of the project (the three phases).

5. General proposal – the project itself

The second stage of the project starts from the conclusions of the analysis (Fig.7) and the assumed initial decisions of the first proposals. After correcting deficiencies highlighted by sustaining the first phase of project to the panel, teams must develop the project itself at an average scale, 1:1000.

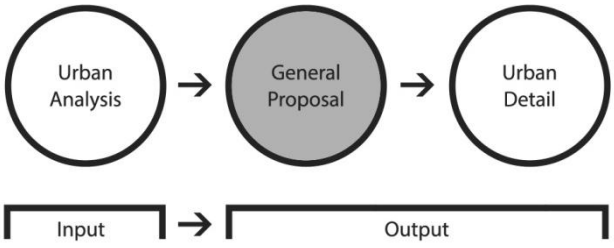

Figure 7. Structure of the urban design project – the second stage in grey.

The main difficulty of this stage (although guidance is given concerning the values for the built areas) is to choose the right scale of proposed buildings, in accordance with their functions and significance, their relation with the open space, public places, streets, inner courtyards, or private, and with the neighborhoods characterized by heterogeneous use of land, random architecture of residential areas located at the edge of town and mixed society. Student teams must find a good balance in mixing the required amenities, specific for an important new urban pole - the financial

center - with social, cultural and sport facilities which improve the quality of life for the residents of surrounding areas, in a friendly urban attitude. Spatial coherence must ensure at the same time continuity and natural connection with existing buildings and public spaces specifics to the area and on the other hand, a natural transition for exceptional spaces of an important financial center, at Cluj-Napoca's level and needs.

Another requirement of the design theme is to find "the name" of their project, in order to summarize the concept of the design, both in terms of social and expected urban image.
Students are encouraged to name their proposals at both levels, global (the entire assembly according to the approach, intent and the degree of intervention in the area), and local (part of the whole, fragments in conformity with usages, images, expected behaviors, neighborhoods).
A major challenge is to choose the specific attitude of achieving urban form.

In the project proposals two approaches, specific to urban design, occurred: the coherent aggregation of open spaces of the type of streets, squares, public or private courtyards, parvius, profiled on the built environment, or compact buildings, realised detached and independent of any idea of collectivity, surrounded by the so called interstitial spaces without identity or with hard to establish identity, conception specific to the modern movement of the 1930's. [7]
We consider typical for European countries [8] the street, like a major representative space, the urban space to which we belong is embodied by streets and squares which can integrate a great sum of functions, adding value to the wellbeing and social life of a city. Because all sites studied in this project have important parts of them the constructed in the times of „denying space street", is a real challenge for restructure the town in its natural coherence.

It is said that "urban design means designing places for people. It is one of the important elements for urban planning. It concerns about the total visual effects of building masses, connections with people and places, creation of spaces for movements, urban amenities and public realm, and the process for improving the overall townscape." (Urban Design Study 2003).
The problem of how use the public space stirs up the most of debates between the students of a team and also between students and teachers. Long debates are occasioned by the difference in the appreciation of the public space, of collectivity, of social and cultural life, depending on the cultural background of interlocutors, of their life experience, preconceptions, education and expectations, of their professional experience and culture. For this reason, sometimes it happens that teams break-ups, each student wanting to experiment his "right" and different urban attitude, mainly occasioned by a too great confidence in summary convictions, assuming consequently a higher volume of work and implicitly a surface treatment of the design.

All attitudes are possible if students have a good reason for that, students being encouraged to take risks in order to gain a valuable experience. Because one of the goal of the urban design project is also to achieve the teamwork experience, like working in multidisciplinary teams involved in urban design and spatial planning, is preferable for teams to arrive at a consensus, and if this conclusion belongs to them, the resulting project is always of high quality.
The urban image proposed by the students is inherently very diverse, the preference for a given architecture and different interpretation of site specific impacts, produce a broad range of "representative" financial centers for the same location.

Students are familiarized, with the occasion of this project, with the huge diversity of "all good ideas" which characterize the conceptions of urban planning, and with the limits resulting in the scientific appreciation of a site, of a standard, of norms. The city, like a living organism, has diverse possibilities/solutions to solve its problems, depending on actors involved in the action.
The requirements for this second stage of the project are described in drawings, model and a short written report. The necessary drawings are: plan at scale 1/1000, including proposals for

multifunctional buildings, public spaces, the organization of traffic, indications for urban regulations, proposed alignments, general improvement of the land, the height, architectural image; plan to phase the project, two or three characteristic sections, facades at 1/500, top perspectives – resuming aggregation of buildings and "at the eye of pedestrian" perspective, restoring the expected atmosphere of proposed places. Models realized at the scale of the plan detail the proposed built volumes in the context of neighborhoods.

The written report synthesizes the evaluation of built surfaces, the relationship between areas assigned for the different functions, the ground occupancy, ratio of public and private space, the coefficient of land occupation, green areas. Along this stage, each team of students has two individual corrections by the direct supervisor teacher and one general correction, with the entire team of teachers involved in the guidance of the specialized project. The rendition of this stage means oral presentation and the exposure to panel of the project. Each team receives a mark, necessary to rate activity, and also receives general appreciations and indications for the detailed design phase, for the last stage.

6. Urban detail

The third stage means individual work (Fig.8). Each student chooses a fragment from the general team proposal. The content of the project consists in the following drawings: detailed plan at 1/500 including specification of materials used, landscaping (paving, landscaping, street furniture), of organizing spatial-architectural features of buildings, benchmarks, two characteristic sections at 1:200 and perspectives describing places, a specific atmosphere.

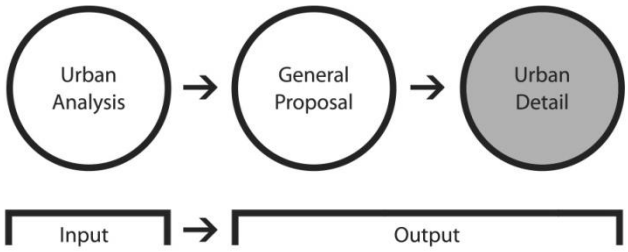

Figure 8. Structure of the urban design project – the third stage in grey.

Students are encouraged to make comparative perspectives, existent and proposed, in order to highlight important changes or the development of a hidden identity – specific to an existing place. We can say this stage illustrate the fact the product of urban design is often heterogeneous function or design, but a sum of multiple individual projects in the form of buildings and open spaces, each having a precise role in constructing an overall image of the place coming into being.
The project ends with the final rendition (oral presentation and exposure of the project to panel) summing all stages. The direct supervisor rates the project, and the best and the worst of projects are then evaluated by the entire team of teachers involved in the project guidance.

7. Conclusion

Specialized urban design is a mandatory exercise for understanding the interdependence between buildings - architectural objects and space surrounding urban context (buildings, landscape, society) and to detect social and cultural impact of the whole set at global and local level.

This project has as objective to identify, define and describe the qualitative and quantitative analyzes of categories of urban areas, a fragment of the city, establishing and detecting malfunctions and trends needed to ensure coherence in the urban context and sustainable development.

Depending on conclusions deducted from complex analyses of the site, the project focuses on reflecting specific aspects of urban development, of changes in urban planning attitudes, collectivity and privacy, hierarchy of spaces from public to private.

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STUFO – Creative Behavior and Architectural Design

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Abstract

STUFO - Form Studies *is an experimental studio at the Faculty of Architecture and Urban Planning, within the Technical University of Cluj Napoca, that focuses on studying forms through innovative Architectural Design Methods. The aim of the discipline, which is both practical and experimental, is to make the transition from any creative behaviour to one specific for architectural design combining different methods. We believe that linking the theoretical, experimental and practical disciplines of the school by visual representations can build a coherent, fluent and efficient education method in the field of Architecture. The quality and complexity of architectural representation as a concept of communication through projects should be an important aim in Architectural Education. The paper accordingly proposes a summary of a series of in-studio experiments presenting thus the evolution of a didactical process meant to stimulate creativity and to optimise communication by design.*

Rezumat

STUFO - Studiul formei *este un atelier experimental al Facultăţii de Arhitectură şi Urbanism din cadrul Universităţii Tehnice din Cluj Napoca axat pe studierea formelor prin metode de proiectare ahitecturale inovative. Scopul disciplinei, care este practică şi experimentală, este de a face traziţia de la tipare folosite anterior spre creativitatea specifică proiectării de arhitectură, combinând mai multe metode. Credem că prin stabilirea unei legături între disciplinele teoretice, experimentale şi practice cu reprezentarea vizuală se poate edifica o metodă de educaţie in arhitectură care să fie coerentă, fluidă şi eficientă. Calitatea şi complexitatea reprezentărilor arhitecturale, ca sumă de concepte de comunicare prin proiecte, trebuie să fie un scop important al educaţiei de arhitectură. Acest articol propune un sumar al unei serii de experimente de atelier, arătând totodată evoluţia unui proces didactic menit să stimuleze creativitatea şi să optimizeze comunicarea prin proiecte.*

Keywords : Architectural education, Experimental education, Teamwork in designing, Study of Forms.

1. The Concept of Shape and the Context of Nowadays Architecture

The concept of shape designates an assembly of elements to delimitate and define any visible presence in space. This concept represents the exterior layer of a physical presence, its outline or its profile. Shapes of human environment are natural, as from biological system or artificial, as technical, conceptual, economic, social etc. Different types of shapes are classified after their characteristics, divided in families of shapes.

Many studies have been written in order to understand and classify shapes. They have been divided in categories as natural shapes and artificial shapes, still shapes and dynamic shapes, two dimensional and tridimensional shapes, artistic and industrial shapes, functional shapes and non-functional shapes.

Henri Focillon analyses the life of shapes starting from space, matter, thought, time, "reshapes" the concept of shape in art. About architecture as a shape in space, Focillon write in his book "Life of shapes" [1]: "this art manifests itself in real space, the same space our body lives in"[1]. These three dimensions of the architectural space are a frame for proper proportions, for a right balance between weights.

In architecture it is vital "to master the space as an object as well as an hollow matrix determined by certain values in all three dimensions"[2]. Focillon thinks that architecture creates space in a peculiar way, due to internal mass involved in the creation of its universe. He says: "the unique privilege of architecture among other arts is not preservation of a convenient void surrounded by guarantees but building an inner world which calculates its own light and space by laws of geometry, mechanical and optical science, with natural aims, but not used by nature"[3].
The main role of architecture in history was the aesthetic part of building process, the architectural shapes were set by architects who had a complex understanding of space, following the principles and composition rules shared with other arts.

The building, as a complex organism that bears within its genetic code, the famous Vitruvian triad "firmitas, utilitas, venustas", evolved conditioned by the social, economic and historical context.
From an aesthetic point of view, since XX Century architecture tends to be associated more and more with Function, not just in an utilitarian way but as a whole that responds to all needs. Architecture is considered a synthesis discipline that organize space considering all the aspects of function as utilitarian, expressive, structural and informational.

Nathan Knobler speaks about three important functions of architectural space: environmental, operational and expressive function. One of these is dominating the other two in a certain stylistic phase. The environmental function refers to texture, color, light, space configuration, having a strong effect upon physical and psychological reaction to the architectural context.

The expressive and symbolic function offer architecture the capacity to generate aesthetic reactions through contemplation. In his book "Complexity and Contradiction in Architecture", Robert Venturi [2] is pleading against Mies van der Rohe's concept about an architecture resumed in his words to "less is more", about refining and distillation of the essential character of architecture. Therefore, Venturi says: "In architecture, I like complexity and contradiction. I don't like the coherence and the arbitrary of incompetent architecture, neither the precious complications of picturesque and expressionism. I plead instead for a complex and contradictory architecture based on richness and ambiguity of modern experience, including the art experience... Architects can't afford to be intimidated by the puritan moral language of the modern orthodox architecture. I like more hybrid elements than the pure ones, distortional than rectilinear, equivocal than articulated, pervert than impersonal, boring than interesting, better the conventional than projected, the accommodated than exclusivist, redundant than simple, the vestigial and innovative, inconstant and equivocal better than direct and clear"[4].

These affirmations offer an image of the aesthetic character of nowadays architecture, a changing attitude toward the aesthetic aspect in architecture.

The aesthetic role of architecture is outlined in contemporary tendencies in which expression is opposed to function, just like art. The visual, in case of expressionist architecture, assumes the

irrational, creates a performance. The visual dialog between the architecture and the viewer searches for the significance and meaning of shape. Latest studies insisted upon the difference between expressive shapes and expressionless shapes. [3].

Dana Vais, in her book "Expressionist character in contemporary architecture", [4] defines expressionism like a sphere of characters and their cohesion is based on certain density, having no precise boundaries. This sphere is divided into three arias: 1. Aria of extra-architectural significance, referring to large, general concepts (spiritual, irrational, getting back to the origins); 2. The zone of architectural significance regarding general concepts too, but particularly reflexive towards architecture (organic, national, utopia, synthesis etc); 3. The zone of architectural expression, characteristics of certain architectural means (sculptural image, symbols, dematerializing etc.).

Originality is a key for expressivity, a condition of originality, is the unmistakable character of shapes and the way to expressivity is guaranteed by a visual dialog, by emphasis on aesthetic feelings, by the performance "played" by shapes.

Lack of expressivity is to be found on the standard level of shapes that cannot be distinguished. The main characteristic of any standard is repetition, concurrent existence. Featureless shapes, even if they are not standard, are not capable to make themselves visible in a certain context. This type of shapes can be found in architecture, as a part of industrialization phenomenon, or singular, as a result of a way of thinking about architectural product from the point of view of efficiency, utility, stability rather that architectural expressivity. Architecture that lacks expressivity is current, its characteristics can be found in many examples. If an architectural product is expressive - original, the eventual multiplications or replicas are bound to be unexpressive - standard. The original preserves its qualities, only the replicas are unexpressive. The principle of "déjà-vu" is the cause of architectural lack of expressivity, also the imitation diminishes qualitative aspects compared to the original and it is not appropriate in its context, is not socially integrated due to economical, traditional, environmental reasons.

During the Modern Movement attitude towards expressivity in architecture is collateral, as an effect of certainty of a particular historical moment that utters, as Siegfred Giedion says, "plagues of suffering and sorrowful humanity"[5].

Attitude in favor or against expressivity of architecture changes in time and space, as a result of society dynamics. The specialists in aesthetics, sociology, architecture and engineering join research, theory and practice in search for solutions and answers to the complexity of aesthetic issues in architecture.

The Digital age in architecture uses computers to generate architectural shapes. It evolves fast, due to productivity and data exchanges on the internet and architectural shapes creation capabilities. Performances in the field of computer modeling and visual representations permit creation of advanced architecture as structural quality, as building materials used and shape-structure relationship. Dedicated software is getting more and more accessible and is on better and better performance. Designing becomes, in shape generating phase, a virtual tridimensional molding, resembling analytic sculpture, with facile possibility of volume reshaping and modifying. As a result shapes are released from traditional and classical descriptive geometry source.

New digital generated shapes are economical, even if they are not standard, as it used to be in order to reduce costs. Shapes diversity, electronically managed, calculated and compared, doesn't involve cost raising, even cheaper solutions are found. Sophisticated shapes are, therefore, affordable, and so the super unique buildings with different geometry and innovative shapes, concepts and structure

appear. The use of new materials or the use of materials in new ways becomes possible. Architecture generates details and structural solutions dedicated to peculiar projects, and not using a combination from already known solutions. The concept of advanced architecture is the result of joining concepts of architects and theoreticians who marked a new stage of contemporary architectural phenomenon studying cities, technology and society issues in new era of information. A definition of advanced architecture is in fact a definition of the architecture of a near future that is already visible, with actual manifestations that announce his presence. Advanced architecture is dynamic, as operating with dynamic geometry and dynamic structure. It is closer to a fractal order then to the absolute, Euclidian one. Advanced architecture evolves between intuition and investigation, accepting the information revolution. Digital culture is the one who helps finding answers to old questions and also address new questions. Advanced architecture actions locally and globally in the same time, being an architecture of exchange, of movement and modifying capacity, developing evolutionary and dynamic processes.

2. Creativity and Education in Architecture

We are going to start making our point by quoting Joshua Prince Ramus [5] who said that 'Over the last 50 years the design and construction industry has gotten much more *complex* and has gotten much more litigious'. This is a very intriguing statement in itself so, naturally, we wanted to dig a little deeper into the subject and try to find an approach that would allow us, on the one hand, to observe the development, over time, of both education and profession and on the other to emphasize the *complexification* of the discipline. This came form overlapping Bernard Tschumi's theory of the *three dissociations* [6] with Francoise Choay's *theory of the socio-cultural revolutions*. [7] This allows us to postulate that every major socio-cultural revolution triggered major dissociations within the discipline of architecture as follows: the Renaissance led to the dissociation of practice and theory, the Industrial revolution led to the dissociation o practice and the building process as well as to the birh of the Ecole Polytechnique and thus of building engineerings and the events form 1968 to the dissociation of practical practice and theoretical practice and the dissociation of interior architecture and urbanism from architecture as course of studies within the university system. One can visualize on our graph (Fig. 1) how the development of the society influenced, thus, architecture and its education both of which have gotten much more complex over time to the point where, in the present, they reached an all time maximum.

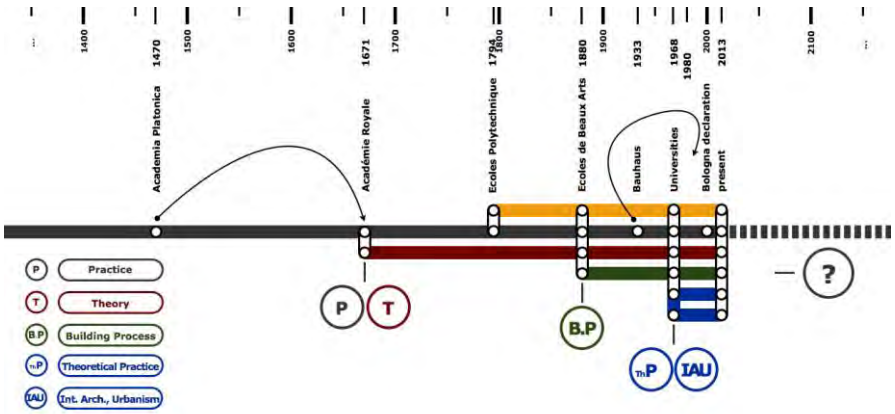

Figure 1

Figure 2

This can also be traced within the same manner (Fig. 2) in architectural history, architectural theory, architectural creativity as well as in the theory of forms... all of whom have gotten much more *complex* to the point where, up until now, they reached an all time maximum.

So the question we raised for ourselves is: how can our studio, a practical, applied discipline whose purpose is that of stimulating creativity using different and diverse techniques specific to the field of visual arts, do just that? How can creativity be taught to students who, as Ken Robinson puts it, come from a 'current system of education that was designed and conceived and structured for a different age. [...] Modeled in the interest of industrialism and in the image of it... I'll give you a couple of examples: schools are pretty much still organized into factory lines: ringing bells, separate facilities, specialized into separate subjects, we still educate children by batches... you know, we put them through the system by age group...' A system that is about standardization, an *informative* education system if you will... They are 'being told there's one answer that's at the back, and don't look! And don't copy, because that's called cheating! I mean, outside schools that's called collaboration.' [8].

We somewhat felt the same way. But, after having it confirmed by a world-renowned education expert we decided to conduct a survey designed by Dana Opincariu and Șerban Țigănaș whose purpose was to get to know better our students, where they come from and what they think about architects and architecture. The survey focused on 1st, 2nd, 3rd and 4th year students. 75% of the *bachelor* students in our school who does a 6 year course of study that raises another debate... but it is not the time nor the place for that now. (Fig. 3).

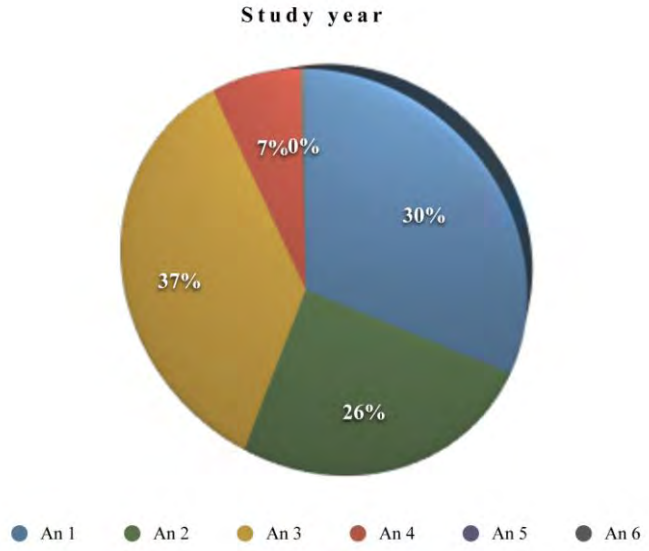

Figure 3

The second question of our survey focused on the profile of their high school education in order to find out if they had any creative background. One can observe that 74% of our students have no creative education whatsoever... not even optional! While the rest come from art and architecture high schools. (Fig. 4).

The third question revealed us that we work with really good high school students since their Baccalaureate averages are really high! Romania is on a 1 to 10 grading scale. (Fig. 5).

The forth questions unveiled their reasons for choosing architecture, such as passion for drawing and passion for architecture, architecture magazines, buildings and so on ranked first... 3rd and 4th admitted being influenced by parents and considering the field to ensure a prosperous future. We do think that here they deluded themselves in answering this question since, at least in Romania, architecture schools don't market themselves very well, if at all, to high-school students. (Fig. 6).

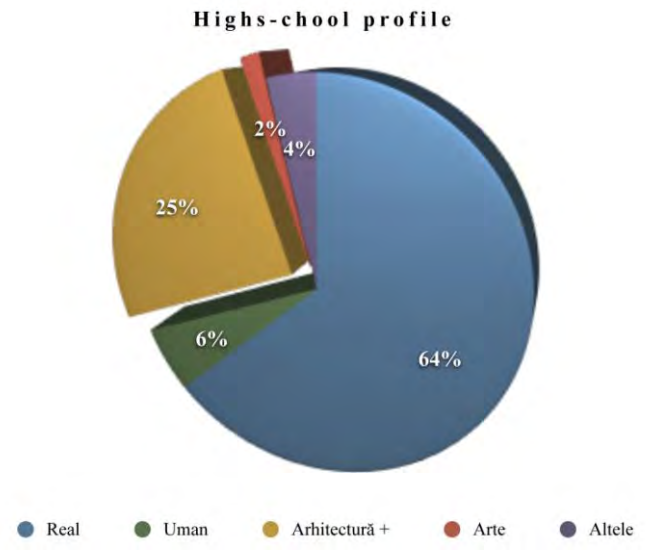

Figure 4

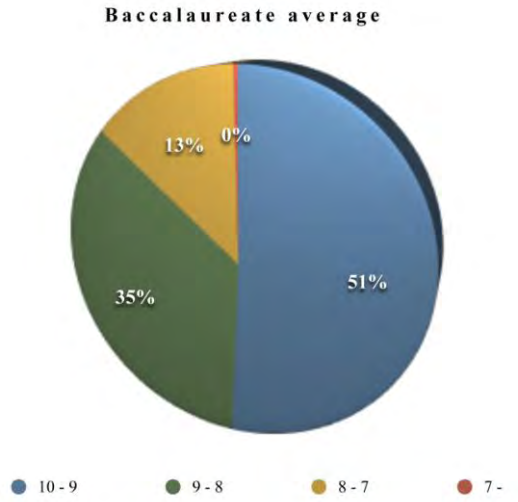

Figure 5

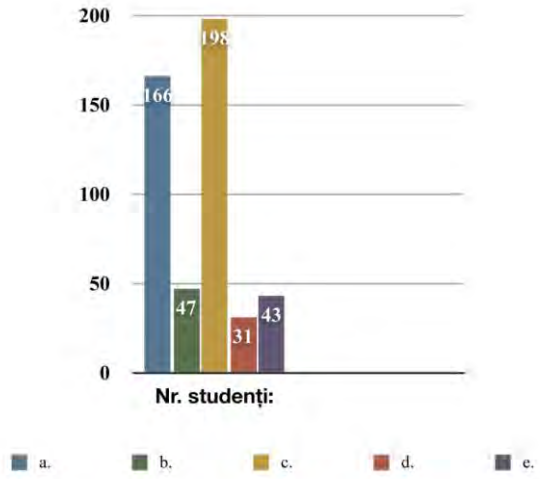

Figure 6

Fifth: we wanted to see how many times (or to how many schools of architecture) they had to pass the examination process before getting in architecture studies. This question unveiled the fact that most of our student wanted to be in our Faculty. (Fig. 7).

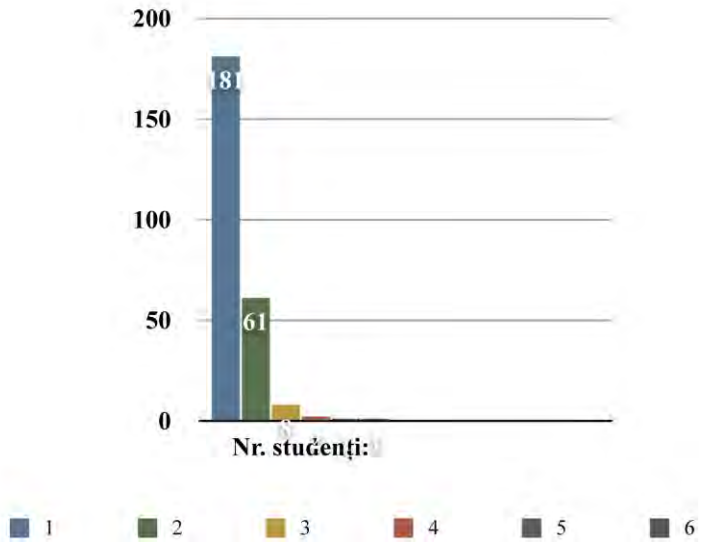

Figure 7

In our las question we asked them to choose 3, out of 15 proposed qualities, that are vital to an architect. Creativity, ingenuity and logics/rationality ranked first but also adaptability, communication skills, high endurance to physical and intellectual stress and conviction power... last ranking were charisma, personal image, individuality and managerial skills.

So one of the most important challenges of our studio, the one that justifies experimentation, is connected to developing students' capacity to pass from an education based on memorization, stocking information and synthesis of cumulated knowledge, an informative education as we've earlier mentioned, to an education based on experiences and objectives in an creative environment specific to academic education in architecture. In other words, students could, and should, achieve a new way of thinking and be more creative, particularly in the field of architecture.

Form Studies and Visual Representations is a practical discipline. On the objectives of our studio is to stimulate creativity in search of special shapes through an artistic approach, using techniques and representation methods specific to the field of visual arts. The study of environmental shapes, as compared to artificial shapes, observing and drawing them is a second objective of this discipline. Also, a third, of equal importance, objective is to search the compositional structure of natural shapes and their *plastic* qualities (eg. shape, color, texture) compared to their structural system.

3. Didactic Experiments - STUFO

The first two academic years, considered as years of achieving the basic instruments in analyzing the architectural space was integrated into an interdisciplinary study initiated by the Form Studies discipline few years ago, as a response to new characteristics of contemporary architecture. Disciplines from the first years of study has been accounted from the point of view of notions achieved by students. Some key words like "shape", "geometry", "structure", "representation" were used to filter disciplines involved in research program. Disciplines identified as important in correlation of activities were: Form Studies and Visual Representations, Descriptive Geometry, Elements of Buildings and Architectural Design.

The main objective of didactic experiment was to obtain complex projects, creative through correlation between practical and theoretical activities during a year of study, as a response to themes with complementary content. Didactic staff taking part in this experiment enounced the themes of this study, organized and correlated activities of this applications. Architects' education involves "project based learning" supposed to be personal, individual or team based unique answers to a theme, through a creative process, with didactic guidance.

The plan of activities was: enouncing generic theme along with precise objectives, tasks explaining and timetable; individual research, under guidance and bibliography offered by didactic staff; conceiving the answer to theme through sketches, models in several stages, debating the subject with colleagues and teachers; intermediate evaluation and comparisons; students' presentation in front of a class of their own solutions; final evaluation of works, exposed in group exhibitions, comments and conclusions.

The study had 4 experimental levels:
Geometric-Abstract Level of describing and analyzing shapes in space from a structural and geometrical point of view, virtual shapes.
Plastic-Real Level of shapes as compared to real objects and their qualities: color, texture, spatial composition.
Material-Structural Level of understanding and building shapes in space based on the principles of statics and association between materials and structural typologies.

Programmatic-Creative Level of synthesis based on previous levels, experimenting within an architectural project.

3.1 Geometric-Abstract Level

It refers to analyzing and understanding shapes in space through complementary exercises. Geometric study through projective drawing and the model of a polyhedron are the first steps in understanding structural shapes. Following steps are the anamorphosis in perspective representation, distorting and reshaping the objects. So the abstract volumes are related (polyhedrons, spatial structures, planes, domes, surfaces) to matter and its characteristics. A bound is made between abstract geometrical shapes from theory and natural organic shapes from reality (Fig. 8). Study of shapes in space with descriptive geometry and projective geometry is necessary as basic knowledge for future architects. Modeling and building using different materials of this basic geometrical shapes help to understand the relationship between shape and structure and the role of structure in building.

Figure 8

3.2 Plastic-Real Level

These themes are aimed to: find a connection between art, architecture, engineering, in disciplines studied in the first two years; creating a base for disciplines from following years of study, developing knowledge in the three connected domains, art-architecture-engineering.

Two types of subjects were experimented: relation between shape- structure-matter in the case of shapes in space; spatial interpretation (3D) of a plane image (2D) from visual arts. Themes are: **Organic-Geometric, Abstract Space and Spatial Experiments, Op Art (Virtual-Real)** and **Object-Architecture/Architecture-Object** (Fig. 9) (Fig. 10).

Figure 9

Figure 10

Weekly rhythm of intermediate phases stimulates the project development. Studio meetings lead to communication, comparison and keep a schedule of solutions development. Students found useful the work upon study models.

In order to become creative architects, with skills in a new and complex architectural language, it is important for students to correlate didactical, theoretical, practical or synthesis activities. Information from educational system needs to be continuous and correlated, capable of innovation and creativity in order to achieve performances in preparation of future architects.

Education in architecture needs a scheme and a schedule of didactic activities in the teaching plan using types of relationships like interdisciplinary or practical-theoretical approach, in a specific

discipline, relationship between related disciplines as practice in architecture, engineering, visual arts and design, research activities, cultural and artistic activities and communication.

3.3 Material-Constructive Level

The discipline *Building Elements* is a technical subject having the role of introducing elements of the general behavior of the buildings, the physics of the building, details of usual and special buildings. Students get familiar to the subject in the second year of study, after they get basic knowledge of Building materials, taught in the first year. This subject combines theoretical knowledge of different elements of constructive composition, with elements of practice in building and representation. Its basic role is to deepen the knowledge about configuring, building and behavior of different types of structures, of different materials.

The students had to make a model that reproduced a certain type of structure, to represent an essential or archetypal composition previously studied in theory, with references in architectural works or civil engineering as specific documentation. This training has two stages: the first one, of documentation and model making, an explanatory statement to describe in technical terms the type of structure, composing elements, methods to ensure stability, the work of architecture that inspired the study; the second stage means a drawing study, representing an important detail involved in the chosen structure.

Gaining the elementary knowledge of stabile systems and recognizing the structural systems used in architecture. Physical experimentation and understanding stability concepts, resistant form, joint, fitting, bracing, anchoring etc. All these notions are related to the basic categories of forces, strains and deformations.

Making models after real architectural themes and specific structural typology deepens the understanding of the constructive system of architecture. Spatial representation through models of different types of structure creates a link between form, structure and matter and consolidates the knowledge gained before, explaining them technically and scientifically (Fig. 11) .

Realizing spatial models taking into account the problems of stability, resistance, strains and deformations, emphasis the importance of structures in construction and underlines their role in architectural aesthetics.

3.4 Programmatic-Creative Level

Architectural Design is the synthesis study discipline that provides continuity, coherence and progress of study up to the last academical term. This object is structured on practical workshops, with constant duration, with weekly frequency (five hours/workshop). Theoretical and practical subjects are linked horizontally in this discipline of study and it marks the level of knowledge used in practice in every stage of the students' learning process, gradually increasing the complexity and diversity of visions upon the subject. The last stage of gaining knowledge, the graduating dissertation gathers the complex of theoretical and practice abilities of the graduate. In fact, Architectural Designing simulates the conditions of standard professional practice of the architects. Students' results in this discipline of study offer a clear image of the general knowledge level and of the way of integration of all types of specialized information in applied formula.

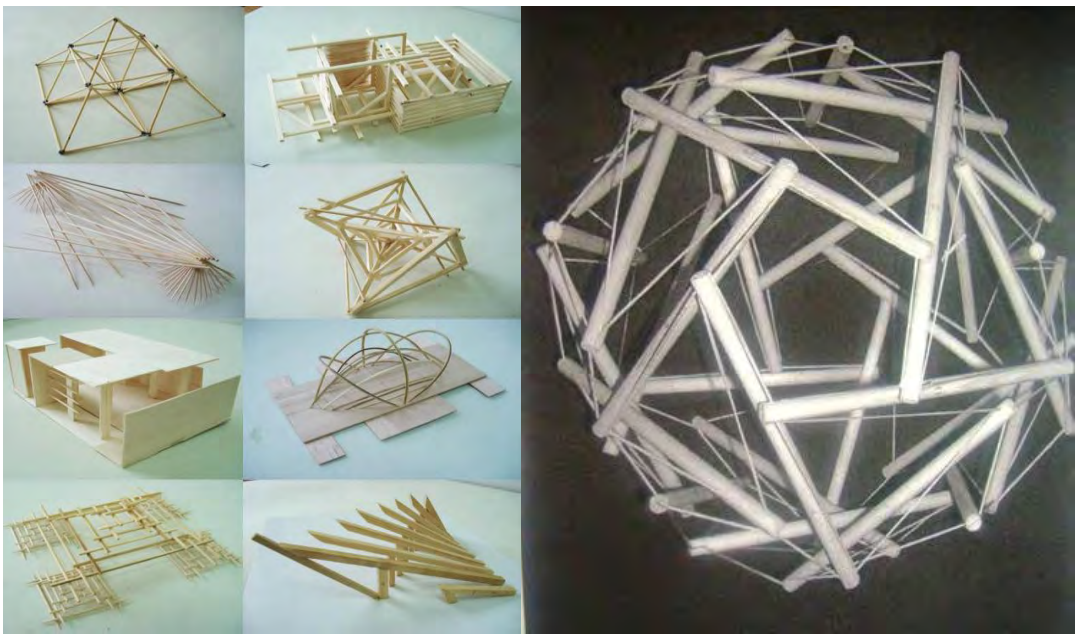

Figure 11

The 2nd Workshop - refers to the 3rd and 4th terms of study and has several aims during the progressive learning process. These aims respect the four principles of sustainability: social, economical, environmental and cultural. These principles are both the theme terms and the evaluation criteria for each architectural project. Generally speaking the Architectural Design proposes for the 2nd Workshop two different but emergent projects, one for each term. The students are working individually and in two students teams. They also experiment abstract approaches and practical ones, as related to a real, visible urban environment. The students test formula for temporary buildings and permanent buildings as well. Social, emergency, projects are proposed for study and even projects for the wealthy class, in an attempt to cover all situations. Experiments are made on well known themes, widespread, as inhabiting or on exceptional themes like pavilions for occasional activities in urban spaces (Fig. 12).

This experiments were not repetitive but unique and innovative, aimed to stimulate creativity, and in this complex process a great variety of conceptual and representational solutions were considered. Exercises were not aimed to a single „right" solution, receipts and precedent examples were avoided, responses being creative and intuitive. This exercises from first years of study challenge the habits of an education based on memorization and stocking information, synthesis of cumulated knowledge, specific of undergraduate education and show a new way of education, based on experiences and objectives in a creative environment, specific to academic architectural education. In other words, students are able to achieve new systems of thinking and creation, distinctive for the architectural field.

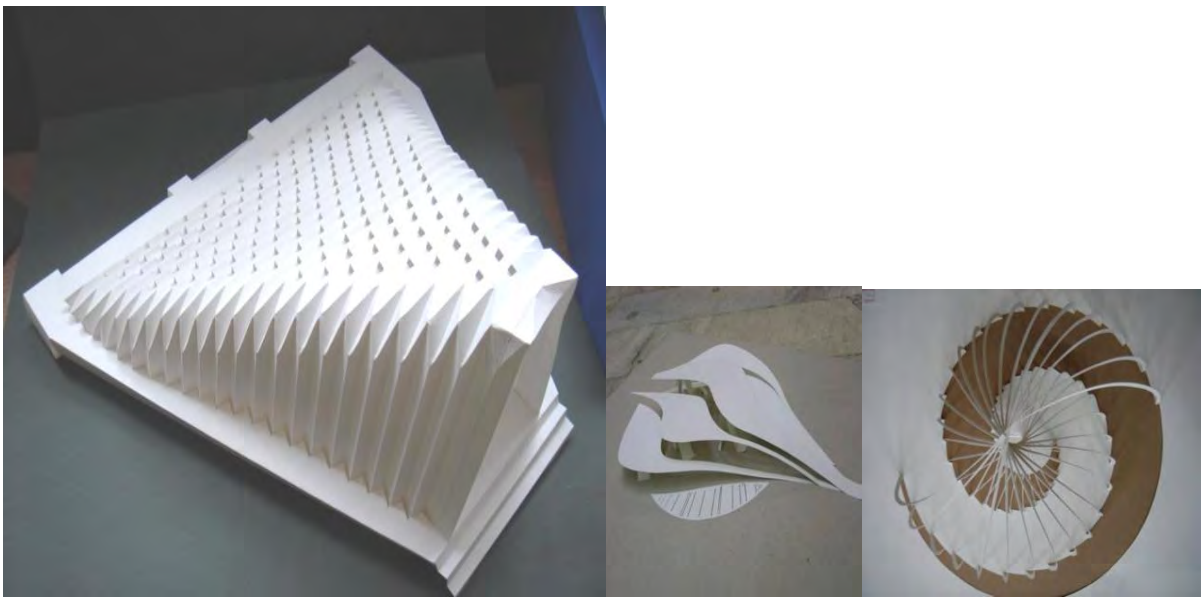

Figure 12

4. Notes

1. Focillon defines architecture as a formal special frame of life
2. Focillon observes architecture as shape-object and as void-space
3. Very interesting observation of Focillon that architecture uses natural principles that nature don't use
4. Venturi anticipates contemporary architecture directions and post-modern mutation trough its own options
5. Giedion rejects the idea of stress on the expressive part of architecture.

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Architecture as the Site of (Contemporary) Art
Reflexions on Teaching and Research

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Abstract

This paper explores present-day creative practices that bring together visual art and architecture. Currently, disciplinary borders are increasingly fluid: artists actively engage with architecture while architects appropriate artistic tactics. Less frequently, art is 'programmed' in the design brief, and the 'work' is created by a team of architects and artists. After briefly reviewing the 'integrals and differentials' according to which the two fields have been positioned by different authors, the paper suggests that there are three roles that the study of art history can perform with regard to our profession: art may be architect's muse, critic and/or partner. The examples include recent national and international works, as well as proposals from the 5th year students of the Faculty of Architecture and Urban Planning, which have been asked to meaningfully integrate existing pieces of contemporary art into their own architectural projects, as part of the assessment for the discipline Contemporary Art History. The paper advocates an applied approach to the teaching and research of modern and contemporary art history in the field of higher education in architecture, an approach that (re)positions architecture as the physical and/or the conceptual site of art.

Rezumat

Această lucrare abordează practicile creative actuale care asociază arta şi arhitectura. În prezent, frontierele disciplinelor sunt fluide: artiştii se implică activ în arhitectură, în timp ce arhitecţii apropriază tactici artistice. Mai puţin frecvent, arta e 'programată' în tema de proiectare iar 'lucrarea' e creaţia unei echipe formate din arhitecţi şi artişti. După o sumară trecere în revistă a 'integralelor şi diferenţialelor' cu ajutorul cărora diverşi autori încearcă să definească cele două domenii, lucrarea sugerează că există trei roluri pe care studiul istorie artei le poate juca în raport cu profesia noastră: arta poate fi pentru arhitect o muză, un critic şi/sau un partener. Exemplele abordate includ lucrări recente din contextele naţional şi internaţional, precum şi propuneri ale studenţilor la arhitectură din anul V, cărora li s-a cerut să integreze într-un mod cât mai semnificativ lucrări de artă contemporană în propriile proiecte architecturale, ca parte a evaluării la disciplina Istoria artei contemporane. Lucrarea susţine o abordare aplicativă a predării şi a cercetării istoriei artei moderne şi contemporane în domeniul învăţământului superior de arhitectură, o abordare care (re)poziţionează arhitectura ca sit fizic şi /sau conceptual al artei.

Keywords: ar(t)chitecture, site-specific contemporary art, architect-artist partnerships.

1. Architecture as art: integrals and differentials

This paper presents a set of reflexions triggered by the author's teaching and research

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preoccupations as responsible, since 2009, of the optional course "History of modern and contemporary art", taught during two semesters to the 5th-year students of the Faculty of Architecture and Urban Planning of the Technical University of Cluj-Napoca. The paper explores present-day creative practices that bring together visual arts and architecture in at least three different ways. Our main concern is the wish to advocate the importance, and to question the methods, of art historical studies in our own field, the field of architectural education.

During time, many writers have been concerned by the relationship between art and architecture, attempting to establish or to clarify disciplinary essences or disciplinary boundaries. This may be a lifetime research topic and this paragraph therefore can offer at most 'a first reconnaissance flight.' To concisely explore this topic, an excellent collection of famous citations is provided by Gh. Săsărman's 1979 work *Funcțiune, spațiu, arhitectură*.[1] The addenda of the book contains, in alphabetical order, no less than 187 citations of authors who, throughout history, have attempted to define architecture and/or explain its essence. Hereunder is a selection of quotes that reffer precisely to the relationship between architecture and art, grouped according to the three main attitudes that we could notice: (a) some authors see architecture as one among the other (visual) arts, and emphasize its peculiarities; (b) other authors assign architecture the privileged position among the other visual arts, as their matrix, their origin; (c) still other authors insist on the fact that architecture is only partly an art, and still place it on a privileged position, precisely because of this allegedly more complex nature than that of the arts.

(a) The first position emphasizes architecture's specificity in relation to the other arts, without necessarily setting a hierarchical order among these. Highlighting architecture's *purposefulness* or usefulness, as its main differentiating feature with regard to the other arts, some authors regard this as a limitation, while others, like Foscolo consider it a privilege: "[Architecture is] the unhappiest among arts because it is the most restricted and it is bound to remain exactly as is."[1:127] "[According to Kant], architecture is placed among the adherent arts, or non-free arts - arts which have a practical goal to accomplish. […] A certain use of the artistic object limits aesthetic ideas."[1:129] For J. Ruskin, paradoxically, "architecture is what is useless;"[1:133] for Schelling "[a]rchitecture, as one among the fine arts, is beyond any relationship with necessity;"[1:134] for Schopenhauer "[a]rchitecture is a useful art. However, this usefulness represents a foreign purpose to architecture as art. The duty of the artist architect is to only be concerned by the aesthetic purpose."[1:134] Others, like D. Gusti, celebrate architecture's social relevance *as art*: "[a]rt of the street and of the crowd, architecture contributes to the nation's aesthetic and practical culture and is, more than any other art, one of social pedagogy."[1:127] But not only function is seen as architecture's main differentiating feature; for G. Scott "[a]rchitecture is the only art that can confer *space* its entire value. […] Architecture deals directly with space, uses it as a material and places us in its centre."[1:134]

(b) The second position assigns architecture a privileged role with regard to the other arts, seeing it, in Vitruvius' words, as "the mother of all arts" - "[architecture] judges all works of other arts which belong to it."[1:137] Architecture is, according to P. Valéry, "the most complete of all arts,"[1:135], or, in the words of I.D.Berindey, "[t]his initial art contains all the others."[1:124] "Architecture is the beginning of every art." (G.Cerkez) [1:125] "In all great periods of creation architecture, at its best, has been the basic source of all arts." (W. Gropius) [1:127] "Architecture is art by excellence." (Le Corbusier) [1:130]

(c) The third position insists on the fact that architecture is art only partially. For A. Loos, its practicality excludes most of architecture from the realm of art: "[o]nly a very small part of architecture belongs to art: the tomb and the monument. All the rest, which serves a purpose, must be excluded from the field of art."[1:131] For F. Léger, "architecture is not an art but a natural function. It grows on the terrain as animals and plants. It is function of the social

organisation."[1:131] "Architecture is more than an art, more than a science; it encompasses human experience in its entirety." (D. Lasdun) [1:129] "Thanks to this duality of architecture, on the one hand material, on the other hand aesthetical – simultaneously science and art – it thus appears to us as being the most complete, the richest in meanings among all creations of the human genius." (P.E.Miclescu) [1:131]

If the heterogeneity of the above definitions, according to which the two fields have been mutually positioned by different authors, could be ascribed to their heterogeneous origins in terms of historic periods and personalities, we shall see further that, even within 20th-century modernity, the art-and-architecture relationship is not devoid of contradiction either.

2. Modernism and art-as-architecture

According to art critic Hal Foster, modernism in the visual arts engenders two opposing aspirations, which position art and architecture in a paradoxical state of attraction and distancing: on the one hand, the search for each art's essence, tending to dismiss whatever is considered contingent; such as purist functionalist architecture dismissing ornament, or abstract painting dismissing figurative representation; on the other hand, the search for a synthesis of all arts in the *Gessamtkunstwerk* of human-organized environment - tending to blur the differences between artistic fields.[2:598]

The history of late 19th- and 20th-century art records this desire of artistic re-integration, desire of the arts to become again part of a harmonious whole, which is the stage of everyday life. Thus could be understood the emancipation of 'applied' arts to the status of 'fine' arts in turn-of-the-century movements such as *Art Nouveau*, *Secession*, *Jugendstil*, or *Modern Style*. H. Van de Velde's *Säuberung der Kunst* (Liberation of art) conceives of this liberation precisely as a reintegration within the total-work-of-art that is the designed ambient.[3:34] Furthermore, the above-mentioned movements promoted the fusion of the visual with sound, movement and poetry, in order to enhance this sought-for art syncretism. O.Wagner's statement that "there are no arts, but one single art", goes in the same direction.[4] A leading figure of the Bauhaus school, W. Gropius declared his nostalgia for "that unity of the spirit which had raised up to the miracle of the gothic cathedral;" Gropius turned this nostalgia into a radical and imperative artistic programme: "Artists, let us finally break down the walls that our deforming pedantry has built between 'arts' so that we all become builders! [...] Painters and sculptors [...] become co-authors of construction, combatants towards art's ultimate goal: the creative conception of the future's cathedral, which will be anew everything into one single form, architecture, sculpture and painting."[5:177-8] Within the Russian suprematist and constructivist avant-gardes, a similar manifesto was launched by El Lissitsky's Proun spaces, full three-dimensional installations that represented "the station where one changes from painting to architecture," suggesting that *the goal of the arts was to become architecture*.[6]

Nevertheless, as Foster points out, this compelling wish to 'dissolve' the arts within architecture dialectically coexists within modernism with the search for each art's own essence, as referred to above. For instance, does purist modern architecture really allow for the integration of other forms of art, without detracting from its value?

3. The case of E.1027: art and architecture "battle lines"

A perfect case in point for this dilemma is the modern villa designed and built between 1926 and 1929 by Eileen Gray, Irish-born designer and architect, at Roquebrune, Cap Martin in France. In her seminal article entitled "Battle Lines: E.1027," architectural historian Beatriz Colomina offers a post-colonialist reading of the tormented history of the villa as well as of Le Corbusier's

involvement with the house and its designer.[7] The seemingly impersonal name of the villa is in fact a code that joins the initials of Eileen Gray's name and of that of her lover, Jean Badovici, an architect and architectural critic of Romanian origin. Le Corbusier was a friend of the couple and apparently admired the villa: "Those few days spent in your house have made me appreciate the rare spirit that dictates all of its organization, both inside and outside, and has given the modern furniture and equipment a form that is so dignified, so charming and full of wit."[8] Thus the villa was a *Gessamtkunstwerk* in that architecture, furniture and interior decoration items were designed by Gray to fit each other perfectly.

After the separation of Gray from Badovici the latter continued living in the villa and having Le Corbusier as his guest. In the late thirties he encouraged Le Corbusier to paint several paintings and graffiti on the villa's walls. Gray on the other hand totally disapproved of this and considered Le Corbusier's interventions as acts of vandalism.[7] In her vision probably, the integrity of the *Gessamtkunstwerk*'s body was harmed by extraneous additions, even (or even more so) by the graphics of the inventor of Purism. Even Le Corbusier's own statements regarding the murals seem to contradict each other, testifying to this unresolved tension within modernism: first he admits that "[t]he villa that I animated with my paintings was very beautiful, white on the interior, and it could have managed without my talents […]" but then he claims that "[the murals] burst out from dull, sad walls where nothing is happening; an immense transformation, a spiritual value introduced throughout."[7] If Colomina's "battle lines" clearly refer to personal and gender conflicts and to (intellectual) colonialism, we argue that they may also be read as battle lines between two understandings of modern architecture. Read in Hal Foster's key, E.1027 stages the unresolved conflict between modernism's two competing aspirations: modern architecture as the site of the arts (re)integration - *architecture as synthesis of the arts*, versus modern architecture as a pure, self-sufficient form of art, *architecture as architecture*.

4. "Art and Architecture. A Place Between"

While assuming the present-day relative autonomy of the fields as a fact, architect and art critic Jane Rendell opens up within her research a hybrid site, an interdisciplinary space, existing between art and architecture. In her 2006 book, *Art and Architecture. A Place Between*, she points out that

> "[a]rt and architecture have an ongoing attraction to one another.[...] Architecture's curiosity about contemporary art is in no small way connected with the perception of art as a potentially subversive activity, relatively free from economic pressures and social demands while *art's current interest in architectural sites and processes* may be related to architecture's so-called purposefulness, its cultural and functional role, as well as the control and power understood to be integral to the identity of the architect. Artists value architecture for its social function, whereas architects value art as an unfettered form of creativity."[9:3]

Thus use or purposefulness for architecture, versus a greater creative freedom for art. Rendell points out that, while architecture and design tend to provide answers to problems, art in return tends to raise questions. "It is in this sense [Rendell argues] that art can offer architecture and design a chance to think critically about their recent history and present aspirations."[9:47] Through the reading of a diverse collection of art works, produced outside conventional gallery spaces, as well as of architectural projects that question the usual assumptions of the discipline, she advances the notion of "*critical spatial practice*," which is both art and architecture, yet goes beyond both fields, being socially relevant, *useful, precisely because it is critical*.[9:191-3]

5. Art history for (future) architects

After having briefly reviewed the intricate integrals and differentials at play between art and architecture, we return to the starting goal of our exploration, the wish to advocate the importance, and to question the methods, of art historical studies in the field of architectural education. Our current educational system could hardly be said to reflect the seducing modernist programme of artistic integration. In our city architects, artists and art historians are trained in three independent higher education institutions (the Technical University, the University of Art and Design respectively the Babeș-Bolyai University). Although collaborations do happen on occasions such as joint workshops or in the frame of interdisciplinary post-graduate and doctoral studies, in as far as the architecture students are concerned, their curricular contacts with the other artistic disciplines happen on two main occasions.

First, during the first two years of studies, in the frame of the discipline Study of Form (Stufo), one can exercise one's painterly and sculptural abilities, in order to develop her/his creativity and capacity of graphically/visually expressing ideas, in order to develop a more sensitive understanding of the natural and built world through the practice of the plastic arts. The second curricular and systematic encounter with the visual arts only takes place for a limited group of 5th-year students, in the frame of the optional course mentioned above, History of Modern and Contemporary Art. It is with the latter that we are concerned within this paper. Thus, we refer to the art that is not made by architects themselves. The interest in this paper lies in art history as a body of works, and knowledge about these works, produced by others and in its relevance to our education, as well as to our practice in architecture.

We believe that studying the history of visual arts should be, for architects, a matter of professional culture, not of general culture. This paper proposes three relatively different roles that art history can perform with regard to our profession:
(a) Art may act as *muse* – when our art historical knowledge inspires our work as architects; in this case, the art that inspires us may have no direct connection to architecture; it may be a self-sufficient work of art, which would convey its full message in any architectural setting;
(b) Art may also act as *critic* – when art assumes the built environment as its subject of investigation and, sometimes, as its site too; in this case, one can say that architecture functions as art's muse; the work of art may still be self-sufficient or it may become site-specific;
(c) Art may be a *partner* – when art is 'programmed' in the architectural design brief, the 'work' is a joint creation. Architecture is the site of an art that only conveys its full meaning within the very place, it is integral to it.

6. Art as muse

A renowned figure of contemporary architecture, Peter Zumthor provides an excellent incentive to study art history as an architect. He writes "when I think of architecture, images come into my mind" and "when I work on a design, I allow myself to be guided by images and moods that I remember and can relate to the kind of architecture I am looking for."[10:9,25] Art should be the architect's muse: as an architect, one can only be inspired and spiritually rewarded if one explores, in an informed way, this immense repository of images, forms, atmospheres, ideas and attitudes embodied by art history. In terms of *images*, the so-called two-dimensional arts such as painting, graphic, photography, video art, provide as many different ways of conceptualizing and of representing space. Just to exemplify, starting from the impressionist 'revolution,' and its atmospherization of the pictorial space and consequent dematerialisation of objects, one realises the conceptual difference (which can also be read as a reaction) from cubist space for instance, which seems to borrow from the solidity of the objects it contains. Similarly, the non-figurative space of

Malevich's suprematist painting reaches its logical consequence in the three-dimensional installations of El Lissitzky's Proun environments and, later on, in the image-object ambiguity that characterizes for instance Frank Stella's work.

When considering sculpture, the ready-made and the assemblage, art history appears as a repository of *objects,* displaying as many types of relationship between figure and ground, matter and space, light and shadow, materials and dematerialisation, textures and production techniques, forms and spatial relationships. From the '60s onwards, contemporary art history's collection increasingly includes *situated objects* and *situated actions*. Installations, site-specific art objects, land art and public art, are all part of many post-war artists' desire to escape from the conventional spaces of galleries and museums and to get involved with the actual sites of day-to-day life, in an attempt to dissolve the persisting boundaries between art and life. Art's concern for physical and conceptual relating to its location started in the 1960s. Robert Smithson's pioneering work signalled the artificiality of the art gallery space (calling it non-site) versus the authenticity of the natural landscape (the site).[2:540-44] In what is now called *site-specific art*, the land, or indeed the urban space, is not a mere setting for the work anymore, but part of the work, as artist Walter de Maria announced at the time. With the development of performance art, actionism and participatory art, artists directly relate to the public, trying to involve the latter into the art-making process.

Images, atmospheres, objects, situated objects and actions, processes of interaction with the place and the public - all these are offered by the encounter with art history, an encounter that may prove revelatory for the architect's own creative process. Returning to Zumthor, it is remarkable how often in his writings, this great architect resorts to evoking works of visual art, music or literature, in order to better explain his own architectural works or beliefs. To give just two examples from Zumthor's essays:

> "[t]o me, there is something revealing about the work of Joseph Beuys and some of the artists of the Arte Povera group. What impresses me is the precise and sensuous way they use materials[...] *I try to use materials like this in my work*[...] [i]n sculpture, there is a tradition which minimises the expression of the joints in favour of the overall form. Richard Serra's steel objects, for example […] *When I design buildings, I try to give them this kind of presence* […]"[10:10,14, *my emphasis*]

7. Art as critic

When architecture becomes art's muse, art acts as a mirror of the built environment. In the words of critic Jane Rendell, "[a]s a mode of cultural production that enjoys a greater degree of separation from economic and social concerns, art can offer architecture a chance for critical reflection and action."[9:191] However, as Kafka metaphorically put it, "in the distorting mirror of art, reality appears undistorted."[11:218] Taking architecture or the urban environment as their object of research, artists offer architects – major actors in the production of the built environment – a valuable critique of real places and of theoretical discourses active within the field of architecture. Let us give several examples from the Romanian and Central-European context. Mircea Cantor, winner of the famous Marcel Duchamp prize in 2011 is, as the famous predecessor, a subtle user of 'assisted' ready-mades as Duchamp called them. By exhibiting a gold-covered wooden Maramureș gate, on which the traditional motive of the three of life becomes the DNA double helix, Cantor brings forth the need of renewing traditions while at the same time preserving them, providing thereby a critique of the contradictions lying within the discourse of heritage conservation (*Arch of Triumph,* 2008). Cantor also engages with issues of urbanity, highlighting in his photographic work the gap between what is thought by designers and what is actually happening (*Shortcuts,* 2004).[12]

In his paintings, Cluj-based artist Șerban Savu often depicts the informal and the marginal aspects of urbanity, 'elevating' the banal residual places such as the garage rows behind communist blocks

of flats to the 'dignity' of becoming a subject for the fine art medium of easel painting (*Pleasant Chat*, 2010).[13] In the realist tradition inaugurated by Courbet, the 'small history' of anonymous everyday life is both celebrated and revealed in its tragic precariousness, not unlike Edward Hopper's work (by the way, another 'muse' of architect Peter Zumthor).[10:17]

In the shrinking mining town of Petrila, artist Ion Barbu and writer I.D. Sîrbu reveal the decaying urban reality through the poetics of image and word. *The weep-laugh colony*, *The beauty from sleeping Petrila*, *Petrila unter alles!* are titles of publications which unite the works of visual artists and poets, gathered in an artist colony in order to express their critical visions of the fragile post-industrial landscape of the Valea Jiului mining towns. The (virtual) works (paintings and poems) which cover the walls of the derelict colony houses are a means to draw public attention to these disfavoured areas and to their need of change.[14] In a real environment this time, the quite renowned Gdansk School of mural painting in Poland reacts critically through art to the impersonal, totalitarian reality of the socialist collective housing districts.[15] Yet, as these mural paintings not only *say* something critical about the public space but also actually *do* something about it, namely alleviate its monotony by personalizing the huge blind walls, artists in this example are actual agents in the re(production) of public space, just like architects and urban planners would be. Thus, this case makes the bridge to the third, perhaps most interesting role that art may perform for architects.

8. Art as partner

Currently, disciplinary borders are increasingly fluid: artists actively engage with architecture by site-specific works, while architects appropriate artistic tactics. Less frequently, art is 'programmed' in the design brief, and the 'work' is created by *a team of architects and artists*. In different European countries, collaborative projects between architects and artists have been part of the public agenda. Such partnerships were envisaged for instance in the UK, between 1991 and 2004, when the Royal Society of Arts set up the 'Art for Architecture Award Scheme,' funding collaborations between architects and artists.[16] One example of the award-winning projects is the Laban Dance centre in London, for which architects Herzog&De Meuron worked with artist Michael Craig-Martin, whose vivid, saturated colours, one of his signature marks, were applied to the main circulation spaces within the building, facilitating orientation as well as generating a vibrant effect on the translucent facades. Also, the central theatre's outer walls are the site of Craig-Martin's murals. Critics have it that "the results of their collaboration see art and architecture blended into a seamlessly integrated whole."[17] Also in Italy, such collaborations are encouraged by special incentives such as the *Premio Artista e Architetto, La Marrana Arte Ambientale*. Architect Giannantonio Vannetti was two times prized for his collaborations with visual artists. In these works, art and architecture combine from the very start into a single project.[18] For the new Hemodialysis pavilion in Pistoia, Vanetti invited several different renown artists (among whom Daniel Buren, Sol le Witt, Hidetoshi Nagasawa, Claudio Parmeggiani) to create site-specific works for different locations of the hospital such as inner courtyards, corridor walls and floors, interior partitions etc. Sometimes, functional environments are almost entirely created by artists, reducing the architect's contribution to mere technical assistance. For the Sketch restaurant in London, artist Martin Creed has created "an environment that is *at once an exhibition, an artwork and a restaurant* […] the floor, walls and furniture take the form of artworks inspired by the boundaries of art and functionality."[19] On the *walls painted by the artist*, hang several of *his own framed paintings*; each and every piece of *furniture and cutlery* that *he chose* is different; ironically, the architects only provided some technical support for the installation of the *marble floor*, the design itself being *a creation of the artist* too.

Figure 1. Call for ar(t)chitecture, assignment for History of Contemporary Art, 10th semester.

Virtual ar(t)chitectural collaborations have been experimented by some of the 5th year students of our Faculty, which have been asked to meaningfully integrate existing pieces of contemporary art into their own projects This was part of the assessment for the optional discipline Contemporary Art History. The two aims of the exercise were: (a) to create 3 meaningful ar(t)chitectural situations; (b) to learn about different artistic media (aims, features, important precedents). Thus, to learn and create, to learn by creating. The students were free to use any of their past or on-going projects, regardless the discipline. One condition was that each of the three artworks represents a different artistic medium. The results include for instance, a garden marked by site-specific art works, signalling and problematizing our relation with nature, and based on a project in landscape design; a pavilion inspired and juxtaposed to Anish Kapor's cloud gate, based on a project for the discipline aesthetics; an installation made of waste in front of a financial centre,

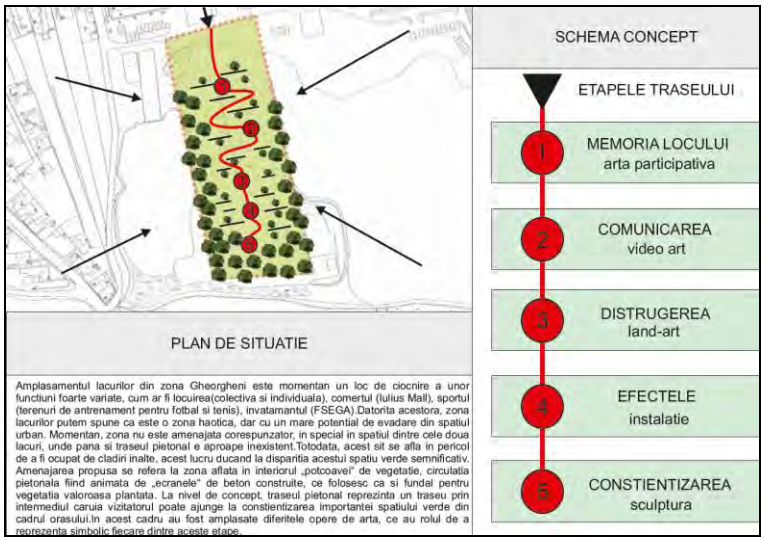

Figure 2.
Concept scheme for an itinerary through a public garden, marked by art works, based on a landscape design project by *arch. stud. Ana Maria Androne and Laura Bacali*

Figure 3.
Simulation of 'pedestrian art' piece (DDB Shanghai 2012) installed in the main hall of a community centre, in an architectural design project by a*rch. stud. Ruxandra Coroiu and Oana Cărean.*

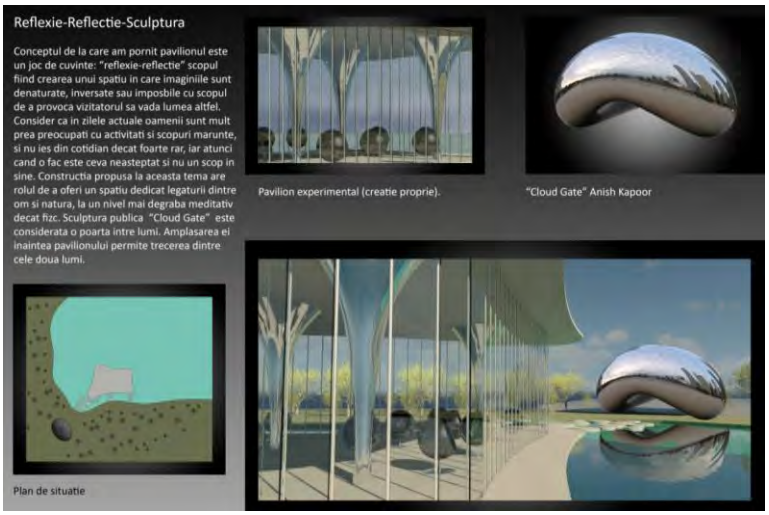

Figure 4.
Water pavilion (assignment for the discipline Aesthetics) inspired by and confronted to *Cloud gate* by Anish Kapoor (2006), by
arch. stud. Mircea Negrea.

based on an urban design project; a piece of participative- so called pedestrian art, in a busy lobby, or a piece of land art in front of a water pavilion etc. (Fig.2,3,4). Although a certain loss of in-depth study of *the entire* syllabus taught during the semester could be noticed, we consider that this kind of exercise, that can clearly be improved, has succeeded at least in making students more aware of the actual relevance of art history in the course of the architectural creative process.

8. Conclusions

To create ar(t)chitecture, to embed art within our projects is a matter of free choice. We may indeed prefer Eileen Gray's house without Le Corbusier's murals. We do not have to take the artist in our design team as we *do* have to take the structural engineer. And, of course, no matter how good a piece of art, it will never make bad architecture any better. However, engaging with (the history of) art as an architect is a rewarding effort: art may be our muse, our critic and, why not, our partner in the creative process. Some of the students have been asked what represented for them, as future architects, the field of visual arts? Here is one inspiring answer:

> "[Visual arts represent] a space of unconventional thinking, always capable of finding new means and materials of expression, a space that problematizes ways of life and the contemporary human psyche, [offering] a continually refreshed understanding of society." (Luha Emese, 5th year FAU student, my translation).

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The Influence of the Carpenter Craftsmen's Migration over the Local Genetic Fund of the Wood Architecture from North-East Europe, Norway, Sweden, Finland, Poland and Ukraine

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Abstract

This paper studies the wood vernacular architecture from the North-East of Europe, focusing on analyzing of the cult homes. They are especially considered in the study due to the importance they had in traditional community, through symbolic implications and representations that transcends technical and functional solutions. Starting from the well known examples from Romania and reaching all the way until Norway, we will study a variety of wooden churches from their constructive system, volumetric composition and stylistic detail point of view. We will see that however the formal solution and symbolism remain tributary to the local cultures, the constructive technique evolved after the circulation of the craftsman and information exchange between them on the continent. Improving the constructive techniques serves the need of representation and permits obtaining some larger higher or simply just more sophisticated constructions.

Rezumat

Lucrarea de fata studiaza arhitectura vernaculara din lemn din nord-estul Europei, concentran-du-se pe analizarea lacasurilor de cult. Acestea se impun cu precadere studiului datorita importantei avute in comunitatea traditionala, prin implicatiile simbolice si de reprezentare, care transced rezolvarea tehnica, functionala. Pornind de la cunoscute exemple din Romania si ajungand pana in Norvegia, vom studia mai multe biserici din lemn, din punct de vedere al sistemului constructiv, al compozitiei volumetrice si a detalierii stilistice. Vom observa ca, desi rezolvarea formala si simbolismul aferent raman tributare culturilor locale, in schimb tehnica constructiva a evoluat in urma circulatiei mesterilor pe continent si a schimbului de informatii dintre acestia. Perfectionarea tehnicilor constructice serveste tocmai nevoii de reprezentare, si permite obtinerea unor constructii mai mari, mai inalte sau pur si simplu mai rafinate.

Keywords: vernacular architecture, wooden churches, carpenter craftsman.

1. Introduction

Wood was, is and will remain one of the most frequently used materials in construction, due to its physical characteristics, abundance and aesthetic aspect [1]. Such similar level of spreading and popularity determined still from the beginning the appearance of specialized craftsmen in

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woodwork, which aside from the profile comparing to other craftsman, formed a distinct professional category and later on a community, that was the community of the carpenters.

At the beginnings, this profession was practiced by craftsmen who were self educated, they being the ones who were preoccupied with construction from the moment of selecting the wood and closing with the final details, each type of construction being particularized not only by the form, but also by the nature of the selected raw material. With time, this profession evolved, even though the profession perpetuated without having an organized educational background around it, "stealing of the profession" was the main form of assimilation of the carpenter craftsmen skills. Even so, as it was mentioned earlier, the profession evolved, and over time, its level of complexity of working the wood and of the assembly elements, respectively the adopted forms, offered one of the development degrees of a society.

The role of growth and progress given through symbolism to the wood, but also the economic role, were taken into countries where significant amount of wood mass existed, and the constructive similarities and even the aesthetics of the wooden constructions betray some migration of the specialized craftsmen. In this way, two migration and influence directions were identified, which have taken shape between the 13th and 15th century: the direct way - in which the geographical line starts from the West of Scandinavia, respectively Norway and goes through Sweden, Poland, Hungary and Romania -, and the indirect way, which has a starting point in the north-west of Germany and goes down towards Czech Republic, Slovakia, Hungary all the way until Romania. Out of the conclusions that can be drawn from drawing these lines it is highlighted the fact that these countries have a common historic background regarding wooden architecture, both directions having an end point in Romania, and the stopping point is the border of Transylvania with the other historic regions.

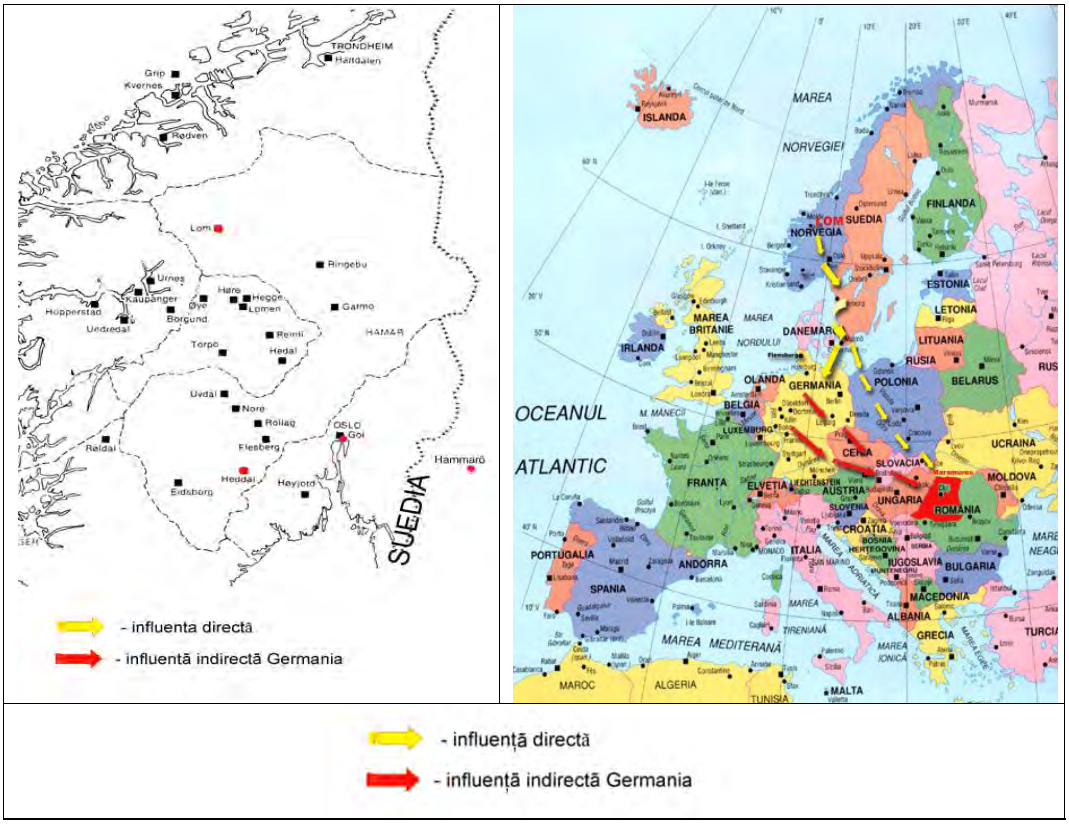


Figure 1. Influence system of the craftsman, possible influence path realized by the carpenter craftsman between the Scandinavian countries and Transylvania

In addition, it can be concluded that Romania is the most southern country from the European civilization's chain of wood. Wooden constructions from the territory of European influence covered a huge area, but wooden architecture, which attracted carpenters the most, and on which they put significant accent, was the architecture of residences and of places of worships (churches).

2. Wooden churches in Romania

2.1. History

Unlike the majority of the European cases, in Romania, the slow bureaucracy, spiced up with several restrictions and delays on behalf of the authorities from those times, slowed down the process of setting the beginning date of the wooden culture in Romania. We are talking especially about Transylvania where wooden architecture is very accurate and within this chapter, churches have honourable role not just in number, but in quality and durability as well. Therefore, on the ground of forbidding by the authorities the construction of the stone churches, together with the few church documents that had left, through a deduction process and a thorough calculation, specialists attest the appearance of a culture for wooden church construction around the year of 1000. According to archaeologists, the beginnings are even earlier, the existence of churches similar to those made out of wood being confirmed in the interior of the fortress from Dăbâca. However, the most flourishing period regarding the wooden church construction was included between the 14th and 15th century, while the zone where most of these constructions were located was Maramureş.
Romania's place on the list of countries with tradition of wood craftsmanship, part of European wood culture, has at its grounds the richness of raw materials that were available. It is easy to understand the inclination towards wood processing in conditions in which at the end of the 19th century Romania was covered with forests in approximately 70%. The majority of the wooden constructions from Transylvania have a folk character, which is why they were included in the chapter of architecture and folk culture, the patrimonial research becoming in time the interests of the ethnologists, philologists, and even geographers. Folk architecture out of wood is studied since the end of the nineteenth century within the University from Cluj, with time and development of scientific research being extended and overtaken by researchers including the domain of art history.

Figure 2. The church from Ieud Deal

Figure 3. The church from Bârsana

Beyond the constructive similarity, the proportional and the quality of execution of the churches in Transylvania, in the South of Poland and of Ukraine, a certain level of originality, quality exists that

has a specific imposing for each region, while in the territory of Transylvania, churches from Maramureş have won their reputation not just within the interior of the country but also on an international level as well, some of them being included in the patrimony of UNESCO. From these churches, we mention the church from Bârsana (1390), the church from Poienile Izei, the church from Săcălăşeni (1442), or the church from Ieud Deal (1364). Churches and in general wooden construction from Maramureş and the Land of Oaş belong to the category of traditional construction that has at it grounds grinders in clasp.

2.2. Techniques of construction

Clasping represents a semicircular shape cavity, executed at 15-20 centimeters distance from the edge of a wood grinder with circular section, useful at joining. The provided distance had the role of keeping the grinder edges intact, but subsequently a new joining method was developed through clasping, respectively of those at the edges, the cavity being realized at the end of the grinder [2]. The two joining techniques were used side by side for a period of time. In time and with the development of other techniques, mainly of other materials, clasping was used only at constructing household attachments. The next step in the evolution of wooden grinder joining techniques seems to appear together with the arrival of the Saxons in Transylvania, being represented by the "German clasp". This type of joining was used especially at constructions of which composition entered the carved grinders in at least two parts, realizing the joining part at the edge of the grinder, which were chopped off in order to give the walls a smoother look. Also, this type of joining was used at construction where in its structure grinders of large dimensions were included, from resinous wood and which was executed in high quality of processing. In the history of architecture, specialist kept this technique under the name of "blockbau system" (right clasp) [3, 4]. Of course, in time, the joining technique through "swallow-tail" was developed, a system which has not disappeared even if the wooden constructions rarely appeal this technique, this still being used in the industry of joining some various component elements of some gearing, etc.

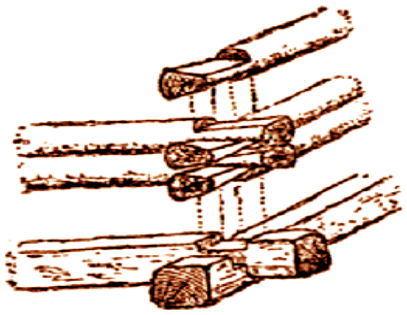
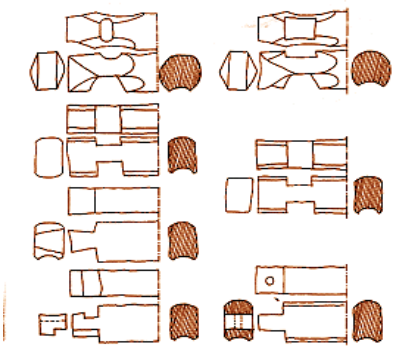


Figure 4. Joining system through clasp



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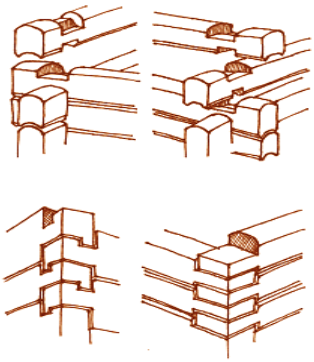

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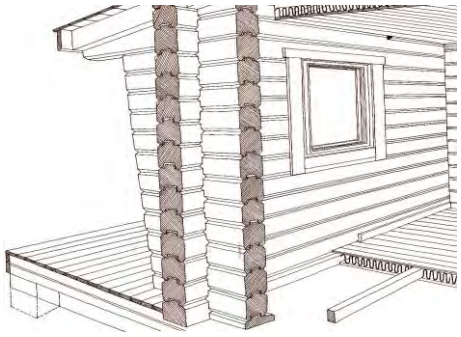

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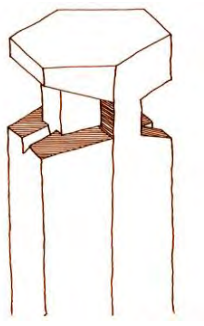

Figure 8. Swallow-tailed clasp

2.3. The characteristics of the wooden churches from Transylvania

In general terms, the constructive principles of wooden architecture from Romania were the same with those of wooden cultures in the European countries, the fundamental differences being from the category of the constructive system used and the cultural and religious peculiarity of the Transylvania area, in comparison with other continental regions. The first step towards local Romanian peculiarity consists from the result of stylistic and constructive combination among the gothic forms typical for the Occident and the origin plan of Byzantine as the oriental influence peculiar to orthodox religion, which was dominant in the territory of Romania. Religious services always have left the fingerprint on every domain, but in the architecture they have determined the appearance and development of new styles; in Transylvania the above mentioned fusion being one of the expressions of this fingerprinting. Over time, wooden churches from Transylvania gained more and more obvious characteristics that separated them from the style in Central and Northern Europe as would be the increased height of the nave, pronave and church threshold (where it is the case), which have lead to the necessity of constructing double roofs, the result of this modification having a consequence in the increased size of the churches. To this it is added the belfry that was placed over the nave, which kept the gothic influence in most cases. For the completion of the enumeration of the specific elements that marked religious architecture from Transylvania, especially in the area of Maramureş, churches with smaller dimensions are dominating but which offer monumentality sensation, with exquisite interior and exterior decoration, Byzantine type or Postbyzantine type paintings, rich in symbols born from the fusion between specific religious motifs, symbols of faith and folk culture, the interior space with reduced dimensions but carefully detailed, with a balance that respects the well determined proportions (balance respected also at the exterior proportions), or the double roofing.

Figure 9. Sf.Arhangheli Church, Rogoz

Figure 10. Sf.Arhangheli Church, Surdeşti

This particular mixture of the Transylvanian region, mainly of the northern part, shows the well defined existence of a unique framework in which limits a new original style was born, recognized and appreciated on international level.

A well expressed care always existed in order to delimit sacred space from the unholy or with secular character. Smooth clasps, high and well isolated walls are part of this expression of this care. Churches from the North of Transylvania stand out with their tall and supple towers located in the western part of the building, with single or double roofing, gutters, covered with shingles, lace turret covered with a helmet surrounded by four turrets.

3. Wooden churches from Transylvania and those from the rest of Europe: comparative analysis

3.1. Generalities

The turret is the expression of the local particularity of the North-Western region of Romania, giving home to the belfry and those who had surveillance duty. The turret is placed in the superior part of the turret tower, balancing the composition from point of view of the loading gauge. A tall tower without turret and with considerable gauge dimensions can be met at the Scandinavian countries, like it would be the case of the Church from Hallingdal, Norway (1160).

Figure 11. Torpo Church, Hallingdal, Norway

Wooden Churches without turret were constructed in Northern Germany, like the St. Nicolae Cathedral in Felsnburg (1390). Nevertheless, the Cathedral from Flensburg has similarities with churches from Maramureş and these similarities can be found at the level of framework structure. It is about the Church from Rogoz (1561), the church from Budeşti (1643), the church from Apşa de Jos (1561) and more recent examples would the church from Şurdeşti (1721) and the church from Plopiş (1796). These similarities have their origin in the solving of the interior framework structure that has precise rules for obtaining a similar exterior shape. Differences exist between West-European churches and the ones in Transylvania; one of them consists of the different disposition of the tower's orthogonal structure. This succession of similarities and difference between Scandinavian churches and the churches from Central Europe and those from Transylvania describe the evolution in time of the working techniques and put the grounds of establishing the migration and the influence zones of the carpenter craftsmen.

Figure 12. St. Nikolai Church, Flensburg

Figure 13. Sf. Arhangheli Church, Plopiş

Figure 14. Sf. Nicolae Church, Budeşti

What the majority of the previously mentioned churches share is their durability. This quality comes together with the experience of the constructors and taking into consideration the similarity of the elements between churches on area of Europe so expanded, and together with chronological perspective regarding the construction years of each church, we can realize that Scandinavian carpenter craftsman started to work and to started improve themselves in the art of building wooden churches somewhere around 1000-1100 in order to give birth to the Churches from Gol – Hallingdal (1200) and from Lom (1220), Norway. Using these examples, in comparison with those Germans, it can be observed that there is a delay of 50 years of experience between the Scandinavian and the German craftsman, and then migration started of which geographical parameters are mentioned in the introductory part of this paper. It is interesting to follow the detail of the roofs at the Norwegian churches mentioned before, they being tall and steep similarly to the gothic stone churches from Germany. Regardless of the details, it can be concluded that the elite of the European carpenter craftsmen were trained by specialized craftsmen in the construction of Churches, being given the level of constructive detailing and decoration, together with the evolution of realization techniques over time.

3.2. Evolution of church architecture through the prism of carpenter craftsmanship development

Churches that were kept until present days, part of the Maramureş culture of the 17th and 18th centuries, reveal the existence in that period of two big carpenter craftsman families or two schools in that domain, which ensured the succession of the specialized carpenters in the construction of the wooden churches: one had its residency in Salistea de Jos (Nyzhnie Selyshche) and covering mainly the parish houses from the plains and the area of lower hills around the Hust, while the other was answering to the necessities of the parish houses from Maramureş, with residency most probably in one of the villages from upper Iza Valley. Starting from the same elements and characteristics of each church, it was possible to notice the existence of some itinerary of larger dimensions and most of the time smaller, great craftsmen having their names marked as a sign of recognition of the values generated by these constructions. The artistic refinement, expressed through ample compositions, carved on doorways, had many times the role of marking and celebrating the high statute of the practiced profession. Beyond the complexity and beauty of the carpenters' creations, they have had the burden of the entire responsibility of the construction, another reason why they introduced a sign of recognition.

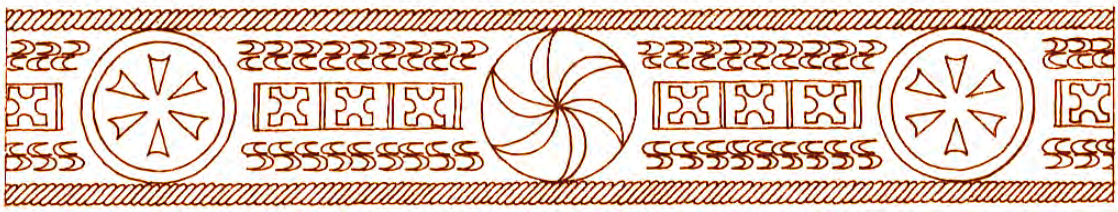

Figure 15. Master grinder, Sf. Arhangheli Church, Lăzeşti village, 1738

Figure 16. Detail, grinder - „sign of the great craftsman”

Those from Maramueş knew to adapt to the changes brought by new socio-political and cultural conditions, and their constructions reflected the needs and evolution of the local people. In this way a change started to emerge from the old style to the new style, through disappearance of some and appearance of other on the ground of technical evolution, while the generated shapes were always classified in the expression of the wish of freedom, expression and love towards the people's propriety from the zone. For starters they beneficiated from exchanging land pieces that were in the hands of local nobles, who managed to keep a convenient balance between spirituality (oriental Christianity) and the status of the nobles of occidental origins. So it can be said that architectural expression has its local specific elements well anchored, in case of Transylvania it is the case of religious and cultural influences through locating at the border between orient and occident, however without being detached of the essential nature of the woods' universal culture, through cooperation and migration of the great carpenter craftsmen specialized in the construction of places of worships, which has determined the step by step improvement of realization techniques in report with the evolution of the profession over time, but also with the needs and local resources. In this way, at occidental countries a tendency is observed towards majesty with ample spaces and well highlighted details, while the north of our country marches on the abundance of symbols and small spaces, with a taste of humiliation specific to our traditional culture in relationship with the local religion, the most evident thing kept in common is the shape and the height of the towers. From this point of view, an opposite proportionality can be observed between the height of the towers and dimensions of the attached buildings, Churches from the North (Norway, Sweden) and those from Central Europe (Germany, Slovakia) having massive buildings and smaller, more discreet towers, while Transylvanian churches benefit from a building with relatively reduced dimensions while the towers are high and steep. As a tendency it can be noted even an evolution of this relationship between the body size of the building and height of the tower on the influence lines mentioned above, from the North to the South the heights of the towers are increasing. This tendency has an end point in the Church from Săpânta, from Maramures County, the largest wooden church in the entire world, where from the total height of 78 meters, 54 meters belong only to the tower.

Figure 17. The church from Săpânta

A less known detail is connected to the motivation why in Romania churches were built with the highest towers: political regime from the territory of Transylvania did not permit rights to the local people, one of the interdictions consisting of the interdiction to built churches on the side of the hills, in order to divest their role of guide reference point; the answer of the Romanians to this was in building increased height towers, in order to maintain alive the symbol and reference.

4. Wooden churches from Europe

4.1. Northern Europe

The differences and the similarities between the wooden churches from Europe doesn't stand only in the details presented above, but also include the notions in contact with the way of processing the wood and the specific influence sources of each region. If about Romania I have mentioned already the main areas of influence on the way in which the constructions took shape, the ones in Norway for example have a shape that is easy to repair as inspirational specters, these borrowing the shape of Viking ships, in many cases the central space of the church bearing the name of "skipet" or *ship*, and the columns of great dimensions are known under the name of *mast.*

At the level of style, Nordic people were not cheap when it came to the quantity and quality of decorations, Urnes-Sognefjord church from Norway having complex sculptures influenced by the art of the Vikings around the Nordic portal. Special paintings can be found on the wall of the Torpo, Heddal and Ulvik churches also from Norway.

Figure 18. Heddal Church, Notodden, Norway

Staying at the Norwegian chapter regarding the wooden cult homes (churches), we don't need to skip the construction technique called "lafting", traditional to its region, which consists of carving the grinders and holding them together horizontally in order to give birth to a massive wall. This technique implicates the existence of an organized frame made out of vertical columns, the walls being completed with long and vertical planks. The first churches built with this technique had the columns stuck directly in the ground, but due to the shortcomings provoked by this solution, rotting of the wood being the most evident, in the next periods constructors have tried a horizontal bed of grinders that was positioned on a rock foundation, technique that can be found also at the wooden churches in Sweden, as it would be the one from Hedared, or in Denmark (Holmens Kirkegårds Chapel).

Figure 19. Church in Hedared, Sweden

Figure 20. Holmens Kirkegårds Chapel

Unfortunately from Northern Europe only few wooden churches are still standing, and it requires a significant effort to keep those churches standing that can be visited today, the majority of them being in Norway. Nevertheless, according to the documents, the biggest wooden church is still standing, in Finnland, at Kerimäki, with a length of 45 meters, width of 42 meters and a height of 37 meters, having a capacity of 3000 seats on chairs, and another 2000 souls can fit into the church standing.

Figure 21. Church in Kerimäki

4.2 Slavic world

If churches from Romania have many times high and steep towers, the same proprieties have the roofs of the churches from Poland, as it would be the one from Sękowa (1520) or the one form

Haczów, the latter representing the oldest gothic wooden temple in Europe (1388). Similarly to Slovakia, in Poland, the most impressive wooden churches are located in the region influenced by Greco-Catholicism and by Orthodoxy even if almost without exception Polish wooden churches are under the patronage of the Roman-Catholic Church. In some cases, to the influence elements mentioned before, it can be added the characteristics that can be found in the Romano-Catholic churches, as it would be the high tower, extended naves. In Southern Ukraine, wooden churches start to look very alike with the ones in Maramureş, however, in many cases a Slavic mark being present.

Figure 22. Church from Sękowa

Figure 23. Church from Haczów

From the center towards the East of the continent we can observe a bigger and bigger variation of the shapes, the case of the churches from Slovakia being conclusive. Despite the evident influences by Slavic origin, including association between church and “tei” (symbol for the Slavs), significant differences exists between each church, due to the adopted style, being used either in combination, either unitary the gothic, renaissance and baroque styles. This derives even from the fact that

wooden churches were built also by Greco-Catholics and Orthodox people, but as well by Protestants, even if the latter is significantly smaller in proportion. However, relationship between religion and place of worship suffers at the chapter of diversity in the influence space of the wood culture, the extremities of this area not offering the diversity that we can find in Slovakia. At the chapter of similarities must be mentioned the shingle covered roofs, but also the very rare usage of the nails for joining.

5. Conclusions

The value of the wooden churches is uncontested, as proof of recognition many of such constructions are already on the list of UNESCO. The way in which they were built, the used architecture, the style and the influences that stood at the basis of birth of these monuments are important points not just in the history of architecture, but in the history of Europe taken as a whole and separately for each country. So proof exists of a strong relationship regarding the technique of processing the wood on European level, without derogating the national specific of each space that enters the area of exercise of this domain. The key of any resemblance sign or even similarity at such scale is the information, and as until not so long ago the existence of consecrated communication tools known today were equal to zero, the circulation of those who withheld the information remains the only viable explanation [5].

If a profession, in which the major part of its existence did not have other support than the one of exercise through work and talent and passing over the information from father to son, was able to put on the map such similarity lines and interactions between divers states of the old continent, but also to give color and originality to each society of these states, for us it remains only to study and to learn how could these principles be applied today, in a moment where speed and circulation quality of the information tends to unite us in a way that throws us question marks regarding the way in which the health of our society is evolving, taking it separately or under the aspect of globalization.

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Practices of the built heritage as other space: conservation of the architecturally-homogenous rural settlements of Transylvania

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Abstract

The built object is simultaneously a product of cultural practices and of certain politics and power-relations – that construct a specific space and its contents, in a specific period. As these shift, such culturally-loaded objects become heritage-protected items. The protection targets the conservation of imprints of disappeared or threatened practices onto a material form – this being in itself a practice of experiencing the space. The heritage object becomes an isolated enclave, removed from the natural flow of time, thus becoming „other". Such is the case of the rural architecturally-homogenous settlements of Transylvania. Most of these heritage-objects are no longer 'practiced' as historically designed, the rural communities gradually turning into rurban hybrids and their cultural practices mutating. The object itself preserves a memory of its practices embedded in its spatial organisation and its image. These still-homogenous settlements have become isolated enclaves through the process aimed at suspending the ongoing hybridisation and sometimes even succeeding it. They have become compensatory spaces, mirroring an idealised image of the rural village. Due to this 'heritageisation' process, they have become other to their local and regional context, the exception in relation to the constantly mutating norm. In order to survive as protected enclaves, they have become contested spaces, their initial function being denied and partially replaced with a more heritage-protectionist and economically self-sustainable one (tourism, sustainable development practices) with a direct impact on their communities. In order to preserve the imprint of the original cultural practices, these very practices are prohibited within the protected space. Their protected status entails a seemingly break with their contemporary time, ordering and functioning. This paper proposes a comparative analysis of such cases in an attempt to identify the reflexive relation between these heterotopic sites and their heritage status.

Rezumat

Obiectul construit este simultan un produs al practicilor culturale cât și al politicilor și al relațiilor de putere – care construiesc un spațiu specific într-un cadru temporal dat. Pe măsură ce acestea evoluează, obiectele încărcate de conținut cultural devin bunuri patrimoniale protejate. Acest statut întețește conservarea amprentelor unor practici dispărute sau amenințate cu dispariția, iar acest proces devine în sine o practică culturală. Obiectul de patrimoniu devine o enclavă izolată, extrasă din fluxul natural al timpului – un „altfel de spațiu". Acesta este și cazul așezărilor rurale, arhitectural omogene din Transilvania. Majoritatea acestor obiective nu mai sunt „practicate" în sensul lor original, practicile culturale care au modelat aceste spații suferind mutații iar comunitatea rurală devenind treptat un hibrid rurban. Obiectul în sine păstrează o memorie a practicilor sale integrată în organizarea sa spațială și în imaginea sa. Aceste așezări devin enclave

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izolate în urma procesului de „patrimonializare" şi spaţii compensatorii, oglindind o imagine muzeificată, idealizată. Rezultatul acestui proces de „patrimonializare" sunt spaţii „altfel" – faţă de contextul lor local şi regional, reprezentând excepţia de la „normalul" aflat în continuă schimbare. Pentru a supravieţui ca enclave protejate, devin spaţii contestate, funcţia lor iniţială fiind negată şi parţial înlocuită (turism, practici sustenabile) având impact direct asupra comunităţilor lor. Pentru a păstra amprenta fizică a practicilor originare, statutul patrimonial interzice însăşi aceste practici. Statutul protejat produce o aparentă ruptură faţă de timpul, ordonarea şi funcţionarea contextului lor, transformându-le în fragmente izolate şi stagnante. Această lucrare propune o analiză comparativă a unor astfel de cazuri într-o tentativă de a identifica o relaţie reflexivă între aceste situri heterotopice şi statutul lor patrimonial.

Keywords: built heritage, heterotopia, space, practices of space, heritage policies, Transylvania, rural settlements.

1. Values and meanings of the heritage space. The heritage status

The heritage status of the built object is defined through the hierarchies of values attached to it. These values are *diverse in nature* – such as cultural, economic, political, aesthetic, historical etc. and tend to *change over time*, either replacing each-other within their hierarchy, either disappearing completely; they can be *conflicting*. They are "strongly shaped by contextual factors" [1] – they often reflect the socio-cultural and political context in which the built object is being perceived – so that conservation decisions (the selection of objects to be conserved or of conservation/restoration techniques, the management of the conserved object) reflect general hierarchies of value that are defining for a certain period, or, according to the *reception theory*, "changing meanings of a monument reflect particular interpretations"[2] [2],[3]which imply most often physical consequences.

All of these values are summed up and articulated as *cultural significance*[3] and, according to the dominant theoretical orientations, they are acquired, through a mostly externally imposed process, being thus extrinsic to the object itself. We argue that, as socio-cultural context change, the hierarchies of value - through which the built object is being acknowledged – are cumulating layers of meaning – values attributed to the object that are either new, or recycled, acknowledged, forgotten or denied, yet all remain inscribed within the material form of the object. An initial function-related layer of meaning is usually defining and highly visible in the architecture of the object; for specific categories of built objects this initial layer of meaning harbours a representational value, intrinsic to the object, and therefore different from a value gained in time. The space gains its following layers of meaning through the practices that endow it with additional signification. The material form of the object records the attitudes and interpretations coming from the community using that particular space – the way the object is being 'received' within a cultural context often impacts on the objects' material form.

[2] The reception theory, used primarily in literary theory, emphasises the reader rather than on the author: „the readers' receptions of a text are completely independent from the author's original intentions or the literary critics' interpretations of the text. The meaning of a text is defined by its readers' receptions: *readers, not authors, make meaning* (Crosman, Do Readers Make Meaning? In: S.R.Suleiman and I.Crosman (eds) *The Reader in the Text*, pp. 149-164. Princeton: Princeton University Press 1980). According to reception theory, there is thus not a single pre-determined 'adequate' reception of a given text on which literary theory needs to focus. Instead, all actual receptions in the past and the present are valid as such, and their particular characteristics become the objects of study for a 'reception history'.[...] there is also no primacy of an academically gained 'interpretation' as opposed to mere cultural 'receptions'; in fact these categories cannot be distinguished from each other, since every interpretation implies a reception while every reception includes an interpretation", Holtorf, Cornelius (2000-2008) *Monumental Past: The Life-histories of Megalithic Monuments in Mecklenburg-Vorpommern (Germany).* Electronic monograph. University of Toronto: Centre for Instructional Technology Development. http://hdl.handle.net/1807/245, accessed July 2013.

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The modern redefinition of the heritage status aims to encompass, and acknowledge, all of the layers acquired in time by the object, its complex constructed value, yet it remains in itself an interpretation, another layer of meaning, attached to the object through heritage practices. As we argued before, this heritage-status layer deems itself the final layer, in an attempt to stop the destructive evolution of the object. Despite the fact that heritage is not a modern construct, a process attached to the human condition rather than a 19th century ‚sudden' discovery, the specific heritage concept that performs within the contemporary context has changed radically, widening its area of interest; this accelerated ‚heritage-isation' process[4] [4] is explained by some as the consequence or symptom of the identity crisis of the human constructing capacities [5] [6] or a consequence of the "general [modern] perception that anything and everything may disappear"; [7] this final past/present rupture and the crystallization of the modern historical/heritage consciousness claims its main source in the industrial revolution, and the radical shifting of the hierarchy of values that came with it [6] [8]. Choay sums up these values as follows: the *national value* – built object as an illustration and support of the national feeling; the *cognitive/educational value*, the *economical value*, and the *esthetical/artistic value*. At the beginning of the 19th century the built object – now 'the historic monument` - gains yet another value, one dictated by its *uniqueness and irreplaceable nature*. After the rupture, the initial emphasis is placed on the traditional architecture, that becomes the opposite of the serial, the mechanic, the produced, the calculated, and the anonymous; through this antithesis of the old and the new, the built historical monument, weather public or private, becomes an idealized representation of the permanence of the sacred [6]. Further on, the "cultural heritage has grown to international dimensions", and the heritage concept has come to include a diverse range of objects, different in nature, scale, cultures, age and physical condition [8]. This 'heritage-isation' process was initially aimed at conserving as many material markers as possible, even if devoid of their original practices, values and cultural schemas; the direct consequence was the 'museification' of the objects and, subsequently, brought into focus the need for a different type of conservation – that of "processes, technological systems, skills, bodies of knowledge" - more than that of the material imprint [9].

2. Heritage as heterotopia

This conjoined process – heritage-isation, 'monumentification', 'museification', singles out the specific built object (object, site, area etc.), acknowledges its special nature and its values, and endows it with additional value - the heritage ‚protectionist status'; the object becomes ‚other' in relation to its non-heritage counterpart. The built objects' perception within its context – the way it is being received and interpreted, its functioning within networks of other heritage objects, its normative prohibitions and regulations, its internal functioning – all become *other* through its protected status. The object is endowed with new boundaries, both physical and immaterial; its initial diffuse boundaries become more clearly determined (i.e. the minimal protection area, its standardized signalling etc.); in some cases these protectionist boundaries manifest as physical enclosures, temporal delimitations or other supra-structural delimitations (at different scales – local, regional, multiregional etc., and delineated by certain criteria). Both physical and non-physical protectionist delimitations define the heritage space as an enclave. The heritage status redefines the built object and, by redefining its boundaries – physical, mental, legal, social etc. – it redefines its accessibility. The protectionist conditioning manifests as access controlling systems both physical and non-physical – such as legal restrictions or group appurtenance – which conditions the reading of the object. The heritage object remains both isolated and permeable and subjected to rituals of entry, dependant on the role assumed by the 'reader' of the object and on the status conferred to the object by the 'reader'.

[4] Heritage-isation or heritageification from *‚patrimonialisation'*, fr. – defines the „process through which elements of culture and nature become, at some point in the history of societies invested with the quality of heritage worthy of being saved, showcased for the benefit of present generations and passed on to future generations".

The heritage status also impacts on the temporal functioning of the object – also the basic scope of conservation: the will to abolish the passing of time; it 'freezes' the object and its destructive evolution, thus turning it into a 'slice of time'; the removal from the natural flow of time and even its reversal, through restoration, ensured by the protectionist status, singles it out of its context, installing it on the 'shelves of the museum' – the only means of accessing and perpetuating knowledge; this 'museification' as defined by Agamben signals the perilous nature of the conserved object devoid of its practices. This museum space:
„*is not a given physical space or place but the separate dimension to which what was once – but is no longer – felt as true and decisive has moved. In this sense, the Museum can coincide with an entire city (such as Evora and Venice, which were declared World Heritage sites), a region (when it is declared a park or nature preserve), and even a group of individuals (insofar as they represent a form of life that has disappeared). But more generally, everything today can become a Museum. Because this term simply designates the exhibition of an impossibility of using, of dwelling, of experiencing*" [10].

This heritage-status implies also, through conservation (isolation and exhibition) of the built object, a shift within the nature of the object. The loss of practices of the heritage space – whether forced of not – is the loss of a direct connection to experience, thus charging the object with a compensatory role. Since the protected space cannot be experienced as originally imagined, by an individual or community that no longer possesses the tools to 'experience' it or since the only experience possible is a distorted one (the tourist gaze), the space acquires its compensatory nature. The protected space is granted its refuge-value, for it aims at artificially recreating spaces and orderings, "differences that the present no longer admits" [11]. In some cases the compensatory nature of the heritage space produces new practices,[5] means of experiencing the space – practices that are as subjective and artificial as they are deliberately created and presented as authentic.

The heritage status endows the space with this compensatory nature, and at the same time with an illusory nature; firstly, and more visibly, the illusion of permanence constructed through conservation and restoration of the built object, also linked to its 'slice of time' nature; secondly, through a manifest and contrasting display of its distinctiveness, it exposes its contemporary context as illusory and transient. This illusory nature of heritage is also reflected on the present-future relationship. Unable to accurately judge the present, lacking the 'distancing gaze' that accurately delineated the 'old' heritage, subjected to fast changes and rapid accumulation of potentially patrimonial objects, one is enthralled by the anxiety of identifying within the illusory contemporary production of objects the ones worth protecting. One such case is the already-indexed industrial and post-industrial heritage, once considered uninteresting, and currently still provoking debates on what is and should be protected. The example of the industrial heritage reflects the conflicting present-future relationship, and should act as a warning for today's heritage approaches.

As the perspective of heritage is constantly widening, heritages' conceptual definition has come to encompass very different, particular and often conflicting categories (regarding function, stiles, importance etc.), as well as – on a more theoretical level – even conflicting 'truths'. When discussing the difference between history and heritage, constructs that "should not be confused" [12] with each other, Lowenthal argues that heritage is often, if not always, fabricated – selectively "celebrating some bits, and forgetting others" [12]; heritage is "updated and upgraded", in order to "reshape our own past" so that:
"*We achieve a false sense of consistency by updating memories to accord with our present views, remaining unaware of how much our attitudes have changed over time. Such 'mistakes' become fixed articles of faith*." [12]. Thus, as Lowenthal suggests, heritage is able to encompass contrastingly contradicting and mutually exclusive 'stories' – a plurality of conflicting heritages,

[5] New practices such as those of experiencing the space as the "experience of the real" - through exhibition design, re-enactments, mixed media exhibitions, interactive exhibitions – all applicable to the built heritage.

unable to cancel each other, and all validated exactly by their very 'fabricated' nature. In the contemporary context, all of these 'interpretations' attached to the heritage object are simultaneously acknowledged within the heritage concept. This conflicting nature is also reflected from the heritage objects' capacity of "embodying more than one culture" [13], of carrying multiple meanings for multiple readers. In a more material perspective, the heritage object is able to juxtapose within one real space different, conflicting spaces, capacity best reflected through the interpretative presentation of the object to its 'readers' and through the contemporary repurposing of heritage spaces.

As Choay points out, and as the etymology of the Latin word – *patrimonium* (patrimoine fr., patrimoniu ro.) suggests, the heritage space defines itself as a place of memory, a place "invested with the residual sense of temporal continuity" [14]; within the 20th century globalizing context, the heritage concept has come to be defined as a more flexible space of memory, one encompassing a multitude of "collective memories [otherwise] impossible to unify" [14]. As the material instances acknowledged as heritage multiply, the concept gains a universally accepted character and becomes "a constant of every human group" [15]. As defined by Nora, these places of memory – or sites of memory are assets common to all human groups, created through the meaning/value investing process.

"*A* lieu de mémoire *is any significant entity, whether material or non-material in nature, which by dint of human will or the work of time has become a symbolic element of the memorial heritage of any community*" [16]. Heritages' mirror function lies at the basis of the conservation concept and principles – why do we conserve? For one identifies and defines oneself through selected markers - past achievements, both material and immaterial. The rapid heritage-isation process of today's society portrays this very shift towards the past and its material remains, conserving and interpreting them in order to unravel its own image.

All of these attributes implied by the heritage status analysed above follow the principles detailed by Foucault in his essay *Of Other Spaces*, describing heterotopic spaces. The mirror function, the constancy within every human group, the enclave and 'slice of time' characters, its compensatory and illusory characters, its capacity of juxtaposing mutually exclusive spaces, its controlled access describe the heritage space as a flexible heterotopic space. We argue that in certain cases the heritage built object is able to sum up most of these characteristics, becoming a functional heterotopic space; while one must keep in mind that not everything is a heterotopia – as previously discussed by several critics, heritage space generally succeeds to fulfil the heterotopic profile, and even more explicitly, within the contemporary context.

We argue that, while wider theoretical approaches make up the basis for an analysis of heritage as heterotopic, the case study analysis can shed light on the applicability of the philosophical concept within the conservation management and the architecture field. The paper proposes the analysis of the case of architecturally-homogenous rural settlements of Transylvania.

3. The architecturally homogenous settlements of Transylvania – heritage status and heterotopic character

Without being a particular case, the Transylvania region manifested a somewhat different industrial revolution compared to its neighbouring provinces of the Austrian Empire; as Wollmann suggests, some of the main reasons for this were "the advanced stage reached of the woodworking technique", and the reluctance to give up the traditional settled techniques manifested within the "very strong and well organised" local guilds [17]. The industrial revolution rupture – as manifested in western Europe, or the shift from the "preindustrial techniques, (manufacture)" stage to the

"beginning of the industrial stage" [17], is difficult to pinpoint; in the region's case the rupture was replaced with a delayed and rather smoother transition, ultimately leading to a finer and ampler preservation of the traditional built context. The influence of the 'industrial revolution' manifested unevenly within the territory both regionally and locally, creating enclave-like spaces, more or less isolated from the transformation processes.

The advancing of the industrial processes affected both practices of the rural space and its built context, regardless of its function; whereas the new technologies meant new and accelerated production processes and a bigger operating scale, the impact on the rural housing was less visible: the housing context maintaining its general plotting and land-use schemes, its allotment organisation, typologies. Most of the changes were the outcome of the new technologies – new materials and techniques replacing the old ones (roofing materials, coatings and finishes, concrete elements etc.); the subsequent territorial restructuring created new polarizing urban centres and new "socio-cultural facilities [...], cultural houses, 'clubs', canteens" [18]. The aim was to make both the "cooperative peasants' house" and its built context more functional, more comfortable and more durable [18]. As the industrial advanced, the rural settlement gradually transformed, losing its defining character, mutating both practices and their spaces. These external influences, as well as several complex socio-cultural and economical factors led to the mutation of these settlements, creating a '*rurban*' hybrid. Despite being predominantly residential areas, by definition less prone to mutations, the gradual adjustment and disappearance of the dominant practices of these settlements took its toll on the built medium. As we argued in previous studies, such is the case of the wooden churches located within the boundaries of the area; the loss of the original practices either transformed their built imprints, either led to their disappearance. The same phenomenon manifested within the rural settlement takes on a different form, explained through several key points: the much more flexible nature of the residential function, its indispensability, its easily adjustable nature, its embedded meaning; while the transmitted traditional outlook regarding the conservation of still-functional inherited material goods (both movable and immovable) contributed to the actual conservation of these rural settlements, another traditional, transmitted notion manifested simultaneously; the continuous adjustment and upgrade can as well be considered a staple of the traditional rural view of the inherited material (and sometimes even immaterial) goods. Since being more easily traceable through documents and hence more visible, the unhindered adjustment of the built form of the wooden churches reveals this exact outlook, and same behaviors: if needed, the church's space could easily be altered, enlarged, renewed, redecorated, its shapes updated (roof pitch, bell tower etc.), and the object transmuted (and in some cases re-assembled differently). These two traditional contradicting perspectives – the 'preserving of the inherited' and the 'improving when needed' – shaped the space of the rural settlement, ultimately leading to its mutation, under the pressure of the (urban) 'new'.

Despite this phenomenon, some of these settlements maintain their original character and their "authenticity [...] – the street network and plotting structure – is proven [mainly] by historical maps" [19] and architectural profiles. In these cases the dominant structure of the settlement remains largely unaltered. The residential function continues to be the dominant feature of the space, despite suffering not always minor alterations (a common practice consists of the doubling of the house – a new, larger, modern and semi-urban house is built either in front or in the back of the old, much smaller rural house). While the regional and local specificities (typologies, morphologies, internal structures) are not the subject of this paper, a more detailed analysis of their influence on the enclave-like character of the settlements may be developed within a further study.

While most of the practices that defined these spaces have disappeared (related to the occupational profiles of the settlements – agricultural, cattle breeding etc.; seasonal, ethnical or local celebrations etc.), some survive in altered or diminished forms (socio-cultural practices and customs, such as the elder's get gatherings and their participation the the life of the village, certain celebrations) and few

remain unaltered – such as the religious practices, preserved mostly due to their canonical and/or institutionalised character. The urban influence causes in the first place a polarizing effect - migration, low birth rates and aging of the remaining population, loss of occupational profiles etc.; secondly, it mutates the attitudes towards the built context through the transfer of urban esthetical and functional principles – perverting the previously mentioned need to 'upgrade'. The inhabitants' attitude towards the mutation of the settlement reflects their perception of its space – as bordered, isolated and backward.

4. Conclusions

Despite this the remaining unaltered enclave-like built context manages to preserve the memory of its traditional practices, now largely disappeared, within its spatial organisation, volumes and overall image. The paper proposes the 'reading' of these settlements within two large theoretical categories: the institutionally protected one and the 'preserved through isolation' one.

The isolated settlements manage to protect the imprints of their practices through their removal or distancing from exterior influences, yet even if traditional practices disappear and the 'new' manages to transgress, the traditional outlook (or the 'upgrade if needed' traditional attitude) remains a defining trait of these communities. Their heterotopic features (enclave-like ordering of space, the 'slice of time' character) are not as poignant as with the case of the graded settlements.
The protectionists grading – the The National Monument List as well as the UNESCO grading – have managed to delay the gradual deterioration of these settlements and simultaneously to enhance their enclave character. The protectionist policies determine both material and immaterial boundaries; the protection area of the objective (be it single monument or an entire settlement) is a clearly defined un-negotiable delimitation within which all uncharacteristic interventions are prohibited. The area is appointed new functioning rhythms and routes; in some cases these routes define new hierarchies and orderings of the space – while the centre of the settlement remains the most important, the remaining built fabric becomes a '*mise en scene*', a mere background for the main objectives. Willingly or not the perception of and access to this protected space are thus guided and controlled.

As is the case with the general compensatory nature of the built heritage discussed above, in the case of these settlements the will to experience the 'realness' is even more intense, as an entire setup is needed and thus re-constructed (the unsuitable elements are pushed outside of the main 'experience-routes' or camouflaged[6]). Its illusory and compensatory nature, or its 'game of make believe', is reinforced further more through re-enactments of disappeared practices, presented as part of the 'real experience'. As the case with the heritage Saxon villages, both practices and communities have dissolved; through their official grading the built imprints completed their 'museification' process and their acknowledgment as 'past'.

These three connected characteristics - 'slice of time', compensatory and illusory nature – are further highlighted in the case of the UNESCO graded heritage. Granted the 'universal heritage value' status, the built object becomes thoroughly 'other', and as a cardinal trait of human achievement, and utterly important object to be conserved, no longer belongs to the local community but to the universal one.

The conflicting nature of these heritage settlements derives from both internal and external causes; through their externally granted heritage status, their natural evolution is paralysed and reversed in

[6] One such case of camouflaging the unwanted elements, as encountered in several graded and protected Saxon villages, is the double selective rehabilitation of only the main street houses and only their main facades. This contemporary practice closely resembles the technique of theatre stage decor – the compensatory 'real' experience is fabricated and served as a knowingly misleading construct, its authenticity further degraded through its illusory nature.

order to illustrate the 'real experience' of the space. If left unprotected, the space's internal conflict between the 'old and the new' gradually transforms and consumes any authentic remains, be them immaterial – practices – or material, the built context.

The functional conversion does not revive the heritage space, for once granted its status it becomes an exhibited object of 'rogue taxidermy'[7] [20]; yet the functional conversion can preserve and perpetuate the vessel of disappearing/dissapeared practices, identities and communities as their constant re-interpretation. Its most important heterotopic quality, highlighted through the 'heritage status' is its mirror function; while the built heritage offers an image of one's past achievements, one must interpret and constantly re-build its own identity on this reflection.

"*The Museum occupies exactly the space and function once reserved for the Temple as the place of sacrifice. To the faithful in the Temple - the pilgrims who would travel across the earth from temple to temple, from sanctuary to sanctuary - correspond today the tourists who restlessly travel in a world that has been abstracted into a Museum. But while the faithful and the pilgrims ultimately participated in a sacrifice that re-established the right relationships between the divine and the human by moving the victim into the sacred sphere, the tourists celebrate on themselves a sacrificial act that consists in the anguishing experience of the destruction of all possible use.* [...] *Tourism is the primary industry in the world, involving more than six hundred and fifty million people each year. Nothing is so astonishing as the fact that millions of ordinary people are able to carry out on their own flesh what is perhaps the most desperate experience that one can have: the irrevocable loss of all use, the absolute impossibility of profaning.*" [13].

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Memory and Identity. The Industrial Heritage

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Abstract

The way in which we relate to our past and our heritage defines us as a society. The abandoned industrial areas within the city are testimonies of our history and they can not and should not be ignored or destroyed, because they carry with them our memories and our identity. There was a time, when they gathered around larger or smaller communities, that build their lives around them, so the area was defined by the people and became a place and not just a simple space. There is always a strong bond between people and the places they live or work in, so these ruins are more than just emptied and deserted buildings, they are the keepers of our memories and emotions and they should therefore be preserved, restored and converted, so they can proudly represent the past, function in the present and be set for the future. They are truly important landmarks in the collective memory of the society. The primary aim of this paper is to explore the importance of the memory and the identity of the place, the meaning and the role they have in our lives and how they are or can be preserved for the future. This paper is based on literature reviews and case-studies, that support the above statements.

Rezumat

Modul în care ne raportăm la trecut şi la moşterirea noastră ne defineşte ca societate. Zonele industriale abandonate din interiorul oraşului sunt o mărturie a istoriei noastre şi nu ar trebui să fie ignorate sau distruse, pentru că ele cuprind amintirile şi identitatea noastră. A existat un moment în care acestea au adunat în jurul lor comunităţi mai mari sau mai mici, astfel încât zona a fost marcată de oameni şi a devenit un loc şi nu doar un simplu spaţiu. Întotdeauna există o strânsă legătură între oameni şi locurile în care aceştia locuiesc sau muncesc, şi de aceea aceste ruine sunt mai mult decât clădiri golite şi părăsite, ele sunt depozitele amintirilor şi emoţiilor noastre şi, ca urmare, acestea ar trebui să fie păstrate, restaurate şi convertite, astfel încât să susţină trecutul, să funcţioneze în prezent şi să fie pregătite pentru viitor. Într-adevăr acestea reprezintă repere importante pentru memoria colectivă. Scopul principal al acestei lucrări este să cerceteze importanţa memoriei şi a identităţii locului, semnificaţia şi rolul pe care acestea le au în viaţa noastră şi modul în care ele sunt sau pot fi păstrate pentru viitor. Această lucrare se bazează pe studiul literaturii de specialitate şi pe studii de caz care sprijină afirmaţiile făcute.

Keywords: memory, identity, history, emotions, preservation, conversion

1. Introduction

The care and respect for the built heritage and for the history and time evoked by it, represent the consideration given to the memory of the place. The past reverberation addresses to the society's

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collective memory and leads to the creation of a new identity of a certain place, with strong significations and a powerful echo.

The buildings of a city are standing as a testimony for the personality of that city, for its history and culture, but also for its aesthetics. A combination of disharmonic structures creates a feeling of chaos but, at the same time, a compatible and complementary diversity between different parts of the city can create a visual richness [1]. The architectural structures, that express the living and cultural differences between different communities develop an important visual identity of the city and they are an active part in the development of the urban identity and of the image created in people's memory [1].

Evidence of change, transition and industrial development in general, a mark of erosion and abandonment, the ruins give the city an aspect that transforms it into a "place full of the promise of the unknown with all its epiphanies and dangers".[2] How does the resulting landscape look like? It is a lunar and a vain one. Still, it is our current landscape, it is part of our daily lives, marked by the consequences of the separation from the classical industry, the visible and secure work, the large equipments and machines, the presence of the large industrial areas within the city, and from the useless and chaotic expansion in the territory, [3] and for that reason they have to be reactivated.
How can these industrial sites be restored? What memories do we need to retrieve? Do we see them through our current experience? What are our goals and solutions?

In the XXth a trend has emerged that encourages collective memory restoration, the archieving and the preservation of the historical and social baggage, as one that defines us as a society and sometimes as an offensive against rapid changes that characterize the contemporary society. The memory creates a special relationship with the space, namely that it preserves the essence, good or bad. [4] We, as humans, need both spatial and temporal marks to feel that we are part of history and old buildings give us both. Along with these marks a sense of identity is crucial for a full and coherent understanding of who we are.

Our historical heritage is defined in time and space, and as long as it can be preserved through architecture, this language of space is alive and it is our duty to pass it on to the next generations. [4] An important part of this history, even if it is quite recent, is made out of the abandoned industrial sites, that carry a huge emotional charge, through the fact that the industrial revolution scattered the existing social structure and had a major impact on the society development.

The memory can be associated by the psychic, tangible locations or by the intangible ones. The industrial plants, that grew together with the town, are part of the memory of the place, they are today's urban gaps which have the regeneration chance.

The abandonment of the industrial sites is equivalent to the creation of a dead space, which creates a distressing landscape where the key-elements are the ruins, not only those of damaged constructions, but also of the whole society built around them. The industrial areas are landmarks that shape the image of what kind of society we are. The abandoned sites often affect a large area and they are the testimony of a drifted society, a society that is still searching to find its identity.

2. Significance/Meaning

2.1. Memory and identity

The memory of a place is the sum of urban and architectural ensembles. More than this, it is an expression of who we are and that's why the memory is always subjective. Even more, it is the

souvenir the posterity keeps and cherishes.
Around abandoned industrial sites once there were communities, smaller or larger, more or less prosperous, which built their lives and hopes in these places, marking them, giving them an identity and leaving behind a legacy that states a revolutionary period of our society.

Architect Augustin Ioan values the strong relationship, that occurs between people and places, and especially the bond between people and the memories connected to these places, memories that usually appear over time, memories that can be pleasant or not, but are definitely irreplaceable, as the presence of the structures from different times, beside the visual diversity, offers something more, a time layout, the dating of our lives. [5]

Johannes Cramer and Stefan Breitling emphasize the different attitudes toward ruins. For some, the old is actually the proof of stagnation or even decline but, on the other hand, for others the old should be treated with respect due to its survival despite the difficulties that went by. The marks of the deterioration can be considered a kind of cultural identity. [6]

Andreas Vogler and Arturo Vittori state that the modern architecture analyses a building through a scientific approach, paying more attention to the mathematical formulas and convenient locations, than to the creation of a place identity; that's why, today's communities are, mostly, lacking that unique and special atmosphere, and the old places, that still have it, can not be reproduced, "since their making was a complex cultural process." [7]

2.2. Memory and history

According to Pierre Nora, memory and history are not synonyms, but on the contrary. Memory is life, as part of the society and in a permanent evolution, it is subject to the relation between remembering and forgetting, vulnerable to interpretation and manipulation, capable to remain dormant until it is awakened. On the other hand, the history is the reconstruction, always troubled and incomplete. While the memory is a phenomenon of the present, the history is a past representation. So, the memory finds its roots in the concrete aspects: in places, in gestures, in images and objects. By contrast, memory is multiple and yet specific, collective yet individual, while history belongs to everyone, so it has a universal role. That's why memory is absolute, while history is always relative. [8] In this context, for the transition from memory to history to happen, it needs every social group to redefine its identity. [8]

According to Tim Endesor, most of the time the industrial abandoned sites are considered wastelands, devoid of social, material and aesthetic qualities, but initially they housed a wide range of industrial activities that gathered around them communities, with a rich history. [9] Still, those buildings are witnessing various social and historical events, they evoke many memories, signify obsolescent fashions and products, they represent the mark of the passing time and, besides evoking the past, they contain a piece of the present and a foreboding of the future. [9]

These sites are places where things happened and could happen again. After all, memory can be defined as "an undefined and complex encounter between space and time". [10]

For example, Romania has a rich industrial heritage, with marks from diverse historical moments: the ancient period – the exploitation methods of mineral resources, the XXth century – a moment, that marks the beginning of the industrial revolution on the Romanian territory, the communist period – the growth of the mining exploitation and the rise of the industrial giants.[11] While some of us look at these abandoned sites nostalgically, others consider them the evidence of a terrible time, but either way they are a part of our existence that we just cannot ignore or destroy.

2.3. Memory and emotions

The industrial abandoned sites always manage to get an emotional response from us. Either it is a beautiful and positive emotion, linked to a nostalgic memory or, on the contrary, a disturbing and unpleasant one, we cannot remain indifferent to its presence.

The emotional impact these abandoned areas have upon us, is determined by the memories connected to them, by the link that exists between us and these places, and it is a very specific and personal one, because "the same urban space will have different meanings to different people at different times." [12]. It cannot be explained in a logical or scientific way, but, nevertheless, it exists.

There is a powerful relation between memories and emotions, they are interconnected and they are both subjective and personal, so as a consequence, it would be interesting to explore the emotional memory, a concept that "explains that certain events take on the weight of memory, because they are emotionally charged." [13], through the conversion of the abandoned industrial sites.

We cannot ignore the fact that "the impact our surroundings have on us is strongly influenced by our emotional response to it" [12] and, because there is always an emotional response to the sight of an abandoned industrial site, its reuse could have a positive effect on the surrounding community.

Eberhard Zeidler states that "the way in which we perceive and react to our building makes them a human experience." [12] This experience is passed through an emotional filter and we should be aware that "our emotional perception is more than a reaction, for it ultimately becomes a powerful force and we must understand it, if we want to design cities well-suited to human beings." [12] As part of the city, these ruins must regain their dignity, so they can really be reintegrated into the urban fabric and become an old-new source for new memories and emotions.

3. Importance/Role

The memory of a place is relevant for its social and historic value. It is an important reference point in our society that states who we are. It helps us understand our present and build our future.
Ignoring the memory of a place leads to the loss of a part of our history and even more, it can have a concrete impact by creating pollution, visual or physical, or it can cause social repercussions. The industrial abandoned sites carry in their surroundings their individual memories and, along with these memories, the identity of the place, the core and essence and these elements define the site as a place rather than a simple space. Its character is fashioned by the era they were built in and by their architectural styles and industrial functions. [9]

Along with the memory comes the identity of the place, which is made up of numerous emotions, experiences and actions that give it character, which can be defined as "the general <<atmosphere>>, which is the most comprehensive property of any place." [14] This character is the core, the essence of it and it is what makes it a place and not a simple space. It is the story of the place and it has been shaped between "the individuals, groups and others in the wide society, as a basis to claim authenticity, originality and singularity, even ownership."[15]

Preserving the "genius loci", "a location's distinctive atmosphere, or a <<spirit of place>>" [7], is more important that having everything demolished ("tabula rasa") for a fresh start, because by holding our heritage, including the industrial one, the society can acknowledge its existence.

Through the layers of the past and present, these sites can continue to memorize who we are and they can reshape their identity and the identity of the city, because we should not forget that the abandoned industrial sites are located mostly in the cities, sometimes not to far from the city center. Of course, we always have the solution of demolishing them, but by doing that, we would loose a part of our history, memory and identity, which are priceless values of our society, that must be kept.

4. Preservation - Case studies

The memory of the place and the identity can be preserved by injecting new meaning into the old fabric, thus creating a mirror of the past that reflects the present and looks into the future.

By evoking the past when converting a building, we not only conserve, but we also value the memory and the identity of the place. The industrial buildings that go through a conversion process should not be an exception, because, while they combine the old and the new, they respond to the functionally as well as to the place memory and they address both to the emotional and practical aspects.

The conversion processes are rich in new meanings that are connected to the past memories and to the place identity.

4.1. Guthrie Theatre, Minneapolis

Opened for the public, for the first time, in May 5th, 1963 [16], situated on the left side of the Mississippi River, the new Guthrie Theatre, redesigned by Jean Nouvel reopened in 2006, [17] provides many facilities for performance such as a classical thrust stage, a stage for contemporary plays, a studio theatre and a "cantilevered lobby known as the Endless Bridge, with windows that frame the many nearby postindustrial landmarks." [18].

The theater building fits perfectly there, paying a tribute to the memory of the place, and to the industrial surroundings, by introducing innovating elements and materials, suited for the 21st century [19]. The metal and glass composition seems like a dark blue steel bunker, which respects the surrounding, and "the circular line of the structure evoke the solemn beauty of grain silos, a nod to Minnesota's agrarian past" [20]; also the rectangular structure recalls the nearby flour mills, as the "design is reminiscent, in mass composition, of the old mill buildings in the district." [21], as seen in Figure 1.

Figure 1. Guthrie Theatre, Minneapolis – exterior view
Author: Appraiser

Public source: http://en.wikipedia.org/wiki/File:Guthrie-North.jpg

At dawn, the exterior walls glimmer due to the ghosts of the great dramatic moments played on Guthrie Theater scene. The screens from the metal exterior show various theater plays, but the images don't reveal themselves except from predetermined places. Almost imperceptible, these urban memories take over the façade. "Thus the past of the theatre merges with its present, spectators interact with actors on these reflective walls as they do during the play itself, and again inside and outside, here and there, are confounded." [22]

Jean Nouvel treats the memory issue, and creates a visual composition that reflects the people, the culture and the environment. For him the memory of the place, the culture and the context are landmarks which draw and define any construction. He takes into account the site, the context; he gives a fresh mark, but always respects the memory of the place. So, we can say that "today as yesterday, history and modernity are friends, and the Guthrie, amidst mills and bridges, discovers its ambition to become a clear historic mark of the vitality and inventiveness of theatrical in Minneapolis" [19]

4.2. A forme cole mine, Germany

At the request of the Government of Saarland, architects Augustin and Frank transformed a former cole mine into a building with new functions and a new look. The process took place between 2003-2005 and their intention was to create "exhibition – and performance – spaces, offices and a guest-house" [23]

So, although the old complex didn't have too much historic value, the architects changed an auxiliary mining complex into a building that now houses administrative and public functions and by extending it, they added a new structure that provides guest accommodation.

They preserved the whole old structure and they attached a second innovative skin, so the thermal isolation would not be a problem anymore. The design is complemented by a high-quality interior work and the overall appearance is characterized by industrial materials. [6]

By integrating a new complex into the old one, by preserving the old structure, extending it and complementing it with new materials, the architects preserved the memory of the place, they respected its identity and they chose to honor the past.

4.3. Signal Box, Basel

The Signal Box in Basel is placed among railway tracks adjacent to the 18th and 19th walls of the Wolf-Gottesacker cemetery. [24] It is a utilitarian railway construction, with an outer layer of 20 cm wide copper strips, which are twisted in certain places, so that it can filter the daylight, while protecting the electronic equipment within the construction. [25]. In this way, some kind of a defense system is set up. Also, the cooper has "a functional goal, creating an electrostatic shield" [25], that is working like a Faraday cage. [26] In the beginning, the copper, that wraps this building, was opposing the surroundings, but today the copper is no longer bright, it has changed its color, it's looking brown, even gloomy, and soon it will be almost black. [27] The color can alter the perception, because the color can carry psychological and moral suggestions. [28] It proves to be indispensable, because it corrects and bounds the shapes by giving them consistency and value and it affects the memory filter. So, the colors can be considered a valuable working instrument in the hands of the architect, and the way this instrument is used is decisive for the quality of the final surroundings. If, at first, the image of the building could have been considered not to fit the area, today it is fitting perfectly in the surroundings. So, it can be said that, the two Swiss architects,

Herzog and de Meuron managed through their ingenious ideas to improve the urban quality and to convert an industrial area without character into an artistic and dramatic piece of work that captivates in the daylight and through the night, which now stands for a symbol, a mark that resonates with the memory of the place.

In this case, the memory celebration is done by joining the context, but also by using the right materials, which reflect the environment. The copper strips create an amazing effect, and the architectural object's image remains in the viewer's memory, because the copper "creates a dynamic architectural skin" and as a viewer moves around the building, "its lustrous twisted copper façade appears to change, a characteristic observable by travelers on passing trains." [24].

Moreover, the copper strips diminish the severity and the volumetric purity of the architectural object, giving it a mysterious aura [27] and "like a battery with wires radiating from it, Signal Box auf dem Wolf emanates vague danger and poetic ambiguity." [24]

This construction is more an object than building, it represents something atypical, and through it Herzog and de Meuron wished to express a mood, a feeling. [27] Over time, the emotions extended into memories and so, the architectural object became timeless.

Seen from the south-west corner, it is offering an unexpected perspective over the memorial stones from the mentioned 19th century cemetery, Wolf-Gottesacker (testimonials about the past). So, it brings new life through design and the used materials, but it respects the historical meaning of the place. The way it relates to the past stands as a testimony of its value and of the relationship between the society and the past, the history. The respect for the memory of the place implies an inquiry, a profound analyze of it, which later can be translated into an appropriate architectural language. This signal-building vibrates into the background sketched by the train's movement and by the railway lines, representing the conversion of an infrastructural object into a symbolic image, the image of an amulet. [29]

4.4. The 4 Gasometers, Vienna

The four gasometers were built in 1896 on the south-side Simmering district in Vienna. [30]. They were the biggest structures of this kind in Europe, as each gasometer, "consisting of a steel frame with polychrome brick outer cladding" has an inner diameter of 62 meters and is 72 meters high. [19]

For almost 100 years, they supplied the Austrian capital with gas, but in 1985 they were closed. [31] Only a few years later, the four imposing structures became landmarks for the adaptive reuse of an industrial site for all Europe.

The plans for a major conversion of the former industrial site were created and the area was developed in a way that makes it viable for reintegrating into the city fabric, being transformed by 2001 into a residential, commercial and business area. [31]. Each gas tank was designed by one famous architect and together they have turned these 19th century gasometers into a exciting urban entertainment centre. [32]

Each gasometer was divided into several zones for living, working. The levels with the shopping malls are connected to the others by bridges with glass walls, that "allow visitors to look up into the inside of the hollowed out gasometers and surmise how people live up there" [32], so the four buildings are one unique complex, a symbol and a tribute to the memory of the place.

The conversion of the **A Gasometer** is based on the concept of Jean Nouvel. He attached to the

exterior wall nine slim residential towers, each being 14 floors height, [19] with 4 m between them, allowing the daylight to come in, through the original windows and after the light is reflected by the mirrored surfaces of the walls of the interior building. Nouvel created a "large indoor plaza with a translucent roof playing with reflections, refractions and transparencies between old and new structure." [31].

The inner towers are slightly detached from the original wall and this provides space for vertical access. Also, each segment has access to outside views through the windows in the original brick wall either directly, or across the inner space between the segments. The architect dreamt to reuse the existing structure on the top dome as a support for bio-climatic equipment, but for now the spiderweb which frames the sky remains pure décor. [19]

Architect Jean Nouvel based his design on the concept "genius loci", recreating the interior and creating a synergy between the weight of the old building and the structure of the new one. The imagine of the new building doesn't contradict the existing one.

The **B Gasometer** is the work of Wolf D. Prix and Helmut Swiczinsky, members of the Coop Himmelb(l)au Group. Their project included an addition of three new volumes to the existing classical façade: "a cylinder inside the structure, the dynamic added shield that kinks towards the gasometer in an almost protective manner, and the multi-functional event hall situated in the base of the gasometer." [31] It is obvious that "there is no attempt for the new addition to blend in with the existing building" [30], but on the contrary. Inside the cylinder and the new building are located offices and flats, 360 residences that vary from very spacious spaces to small studios for students, and also there is a conical courtyard designed to provide natural light for the indoor spaces. [33] The flat block, the shield, is comprised of a system of concrete columns, as shown in Figure 2, rising from the foundation to the roof and the glass and aluminum curtain walls enclose the flats, which get plenty of sunlight due to theirs limited depth. [33]

Figure 2. Gasometer B – exterior view
Author: Otto Normalverbraucher
Public source: http://commons.wikimedia.org/wiki/File:Hochhaus_neben_Gasometer.jpg

Everything was done around the ground floor garden which continues the shopping mall from the firs building. This gasometer was called "The Shield" and its aesthetic purpose is to add a modern element to the Victorian structures of the gasometers.

Manfred Wehdorn designed the **C Gasometer** and he chose to mostly preserve the initial aspect and feeling of the building. He respected the historic value and the memory of the place, keeping the brick exterior structure and building inside 6 residential buildings, directly attached to the old walls. Manfred Wehdorn created an indoor garden and realized an eco-friendly designed terraced structure. [34]

For the **D Gasometer** Wilhelm Holzbauer chose a different solution. Instead of embracing the model of the circular buildings from inside the structure, he set up 3 residential towers in a star settlement connected in the middle. The spaces between the buildings were set for the interior gardens and "much of the original inner walls and their window openings are still visible". [31] Wilhelm Holzbauer occupied the center of the existing building with elevators and stairs, from which three compact sections were divided by indoor gardens penetrating the perimeter of the existing building. [35]

During this process the historic exterior wall of brick was conserved and the conversion of all four Gasometer has been done respecting the collective memory, the memory of the place. The whole process aimed to bring back an abandoned area that resulted from the discrepancy between the existing buildings and the current needs. This problem became solvable through change, through conversion the inherent values are being not only preserved, but exploited.

4.5. Elbphilharmonie, Hamburg

The ambitious project Hafencity, through which the old harbor was returned to the city, is one of the most remarkable urban redevelopment schemes on waterfront and the revitalization process is implying the conversion of hundreds of storehouses in order to reuse the space for offices, residential, educational, leisure and supply purposes, under the city government's objective "to allow Hamburg to compete internationally for enterprises, visitors and inhabitant under the slogan <<urban and maritime>>". [36]. As a part of it, stands the Elbphilharmonie, as the crowning highlight, having a shape of an anchored ship, and creating a new cultural mark, [36] valuable for its functions and for its role in the recovery of an historic building. Here, the dialogue between old and new is enhanced, not suppressed and this mixture of old and new shows respect for the memory of the place.

The Elbphilharmonie was designed as a complex building including a large concert hall, a multipurpose hall, restaurants, 45 flats, a hotel with approximately 250 rooms, [37] parking facilities, and "a panoramic terrace with views of Hamburg and the harbor, these varied uses mirroring the diverse aspects of the city itself." [38].

The building, designed by Swiss architects, Herzog & de Meuron, is placed on top of a massive brick warehouse, the Kaispeicher A, constructed between 1963 and 1966 and shaped like a distorted cube that tapers towards the west. [38] It is an extrusion of that warehouse, an iridescent, multifaceted crystal with differences between the top and the bottom such as: the broad, undulating sweep of the roof rises to a total height of 100 m at the Kaispitze, but the eastern end of the roof is about 20 m lower. [38]. The new structure looks like it would be floating above the old one, so that the original image, the initial memory of the place is perfectly conserved.

The glass is the defining material for the extension, emphasizing the contrast between the old and the new and preserving the memory of the old building. The façade is made up of almost 1.100

individual glass panes, each being four to five meters wide and over three meters high and that means that the glass surface is about 21.500 sq m. [39]. The panoramic terrace called the Plaza gives a spectacular and unique view: to the north, downtown Hamburg, and to the east, west and south, the River Elbe and its harbor, and it "will function as a gigantic joint between old and new" [38] as it is situated on top of the warehouse and under the new building.

As the old is preserved and represented by the warehouse, which now "lends its solid construction as a base for the new Philharmonic" [38], the new is taking us into an "alien landscape" of the philharmonic and concerts halls. The stairs and the floors, the ceiling and the walls become almost indistinguishable and "the galleries sweep into each other, overlap and form a steep amphitheatre". [38]

The structure fits perfectly into the context, as the memory aspects are preserved and the new architectural object emphasizes the old one. The careful preservation of the existing materials, as well as the integration of the new materials is a sign of respect for both the modern architecture and for the history of the harbor, for the memory of the site.

5. Conclusion

The urban space is continuously and rapidly changing and along with it, we do too. The post-industrialization time has created many abandoned industrial sites in the cities that carry with them our memories and our identity. Due to a powerful bond that appears between people and places the memory of the place must be preserved, because it is part of our heritage. Along with the memory come the identity and the sense of belonging. These abandoned industrial sites determine an emotional response on our part.

By conversion these lifeless places can be updated, new sites can be created with considerable value. Of course, the conversion should be done by respecting the memory and the identity of the place, by taking care of the "genius loci", the character of the place. Such "assets" are special, because they cannot be created overnight, but they appear, naturally, only after a long and complex process.

Through ingenuity, the case studies presented above show us, how past and present can coexist within the walls of these abandoned industrial buildings, how they can house new functions, new people and new businesses and also the way that they can support new communities and how they can receive new layers, so that new memories can be created and their identity can be complemented.

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Ancient Bathing and Baths in the Black Sea Region around the 5th Century BCE

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Abstract

Ancient bathing culture around the Black Sea coasts in the mid 5th century BCE is divided between the more primitive facilities of barbarian peoples and the highly advanced Greek facilities for bathing. Case studies give a description of the Skythian steam tent, the Thrakian pools at the megalithic sanctuary in Marcov Kamak, the Greek gymnasion around the ancient Greek world and in particular the Greek gymnasion to be found at the shores of the Black Sea. In absence of rich archeological evidence, we attempt a theoretical reconstruction of the Black Sea gymnasion following the typology used in the mother city of Miletos.

Rezumat

Cultura băilor antice din regiunea de coastă a Mării Negre către mijlocul secolului al 5lea î.e.n. atinsese două niveluri de dezvoltare: în nord erau răspîndite dependințe primitive ale popoarelor barbare; iar în regiunea sudică erau răspîndite complexele de băi dupa model grecesc. Studiile de caz oferă o descriere a cortului scit pentru aburi, bazinele tracice de la sanctuarul megalithic Marcov Kamak, programul de gymnasion din lumea antică greacă și în mod particular: gymnasionurile grecești ce se găsesc pe coastele Mării Negre. În lipsa de surse arheologice relevante, încercăm o reconstrucție a gymnasionului pontic urmărind tipologia folosită de orașul mamă Milet.

Keywords: ancient architecture for bathing, Black Sea architecture, Greek gymnasion, Skythian tent, Thrakian stone pools

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1. Introduction

The hygiene and bathing culture in the Black Sea region dates back to the ancient Greeks and their neighboursing peoples, the so-called barbarian that inhabited the hinterlands of the Black Sea. These were the Dacians, the Thracians, the Scythians, the Lydians and many other tribes. By the 5th century BCE, the Greeks had colonized the entire Black Sea coast and the hinterland remained to be inhabited by the natives, whose lifestyle depended more on the mountains and plains. At point when the Greeks met the natives, the latter had rudimentary bathing habits, while the former were already enjoying a complex ceremony of public bathing in the *gymnasion.*

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2. Skythian Bathing and Bathing Tents

At the north of the Black Sea, the Skythians – a nomadic people – developed tent structures for their dwellings and did not have a permanent bathhouse edifice. As many other peoples form central Eurasia, the Skythians believed what bathing in running water was polluting it. Thus, they adopted a different cleaning habit described by Herodot as part of the hygienic ritual after a burial:

"[…] and after burying them the Scythians cleanse themselves in the following way:—they soap their heads and wash them well, and then, for their body, they set up three stakes leaning towards one another and about them they stretch woolen felt coverings, and when they have closed them as much as possible they throw stones heated red-hot into a basin placed in the middle of the stakes and the felt coverings". […][1]

The Scythians then take the seed of this hemp and creep under the felt coverings, and then they throw the seed upon the stones, which have been heated red-hot: and it burns like incense and produces a vapor so thick that no vapor-bath in Hellas would surpass it: and the Scythians being delighted with the vapor-bath howl like wolves. This for them replaces washing, for in fact they do not wash their bodies at all in water. Their women however pound with a rough stone the wood of the cypress and cedar and frankincense tree, pouring in water with it, and then with this pounded stuff, which is thick, they plaster all their body and also their face; and not only does a sweet smell attach to them by reason of this, but also when they take off the plaster on the next day, their skin is clean and shining.

3. Thrakian Bathing and Religious Practice

For the western part of the Black Sea, in the area inhabited by the Thrakians, we have an account of an archaic bathing practice. It is at the megalithic sanctuary of Markov Kamak in Tsarev Bulgaria, dated from as far back as the Late Bronze (14th to 13th centuries BC), to the Pre-Roman and Late Ancient Ages. The complex is formed by several stone blocks, some of which contain small pools cut into the stone. Scolars have argued that the pools may have had a ceremonial use and the bathing in the small pools was meant to be a ritualic purifying during a religious ceremony.[2]

Skythian and Thrakian bathing practices exhibit distinctive and efficient hygiene habits mixed with religious rituals, well adapted to their style and beliefes. However complex and integrated, their bathing customs appear indeed rudimentary, i.e. "barbaric", in comparison to the bathing customs of their contemporaries, the Greeks.

4. The Greek Bath Building. Gymnasion

By the 5th century BCE, the Greeks had colonized entirely the Black Sea coasts. The period of Greek colonization of the Black Sea is accounted for the first intensive and unitary urban development of its coasts, introducing the Black Sea to many Greek urban facilities such as the gymnasion, a highly specialised public institution for sports, hygiene and social life. The Greeks had a very advanced bathing culture and going to the baths was an essential habit, for physical as well as for mental health. In ancient Greek times it was a common under-standing the body hygiene was directly linked to health, thus most of the houses had already private bathrooms dating as far as the 14th century BCE.

The public baths appear around the 6th century BCE as an annex of the *gymnasion* – a highly specialized structure invented by the Spartans for military training [3]. The *gymnasions* were sport

centres but also meeting places important for the social life in ancient Greece. It had rooms for each type of physical exercises (*stadium*, *palaistra*, baths, exterior porticoes for exercising on bad weather and also where filosofers and other scholars could make public presentations and hold debates). The bath area – *loutron* – were almost every time cold water baths, as they were designed for body hygiene in the first place, and less for relaxation. The warm baths were more aristocratic in character and were too indulgent for the usual use in the *gymnasion*. Next to the cold bath in the loutron, there was a room for massage and enointment with aromatique oils. Men and women used the loutron at separate times, or in some cases, they each had a special loutron designed for separate use. In the *gymnasion* there was a steam room named *laconia*, where the Greeks used to pour water on hot stones splashed with spices that improved the perspiration session. This procedure was very similar to modern day saunas.

Furthermore, the bathing ritual grew into an art in the Greek cult for the body. The *gymnasion* became a place where one would go to admire the '*young ephebeans splashing water over their bodies*'. Next to hygiene and esthetical pleasures, the *gymnasion* was also the place to discuss philosophy, politics or even business affairs. Thus, it became a very important social centre of the ancient Greek city. Some researchers even consider the *gymnasion* to be the most important community center of the polis.

The *gymnasion* and the Greek baths have known two major periods of development: first period dates before the 5th century BCE, in the archaic and early classical period, and the second period dates during the classical Greek antiquity (5th century BCE and later). In the first period, the *gymnasia* were ususally placed outside of the polis, and the *gymnasion*, the *palaistra*, the *stadion* and the *hippodrome*s had modest edifices, built with perisable materials.There are almost no remains of these buildings. The *gymnasia* and their annexes from this period miss conspicuously from all ancient archeological sites, and leave us with no clue as to how they looked like.

Only later after the 5th century BCE and in the high classical period, the *gymnasia* became the center of public life in the polis and consequently, their architecture adopts the monumental style and is build from durable materials such as stone. This is also when the gymnasia are moved within the city walls and earn their place at the centre of the polis [4]. The gymnasion became a centre of the social life, attracting visitors both for sports, for bathing and for social gatherings, lectures, politics or business.

5. The Greek Gymnasia at the Black Sea

As mentioned before, the Black Sea coasts were entirely colonized with Greek settlements by the 5th century BCE. A historian of the time names them as "ducks around a pond". The so far 'inhospitable' sea was becoming more and more welcoming to the Greeks than in the previous centuries.

Many Greek city-states looked to profit from the wealth of the Black Sea, but none excelled Miletus, a city from Ionia. Miletus was already a major commercial centre in the Aegean and in the middle of the 6th century BCE, it turned its full attention towards the north. In the next century, it already controlled the traffic on Bosphorus and was gathering wealth from the tade with grains, metals and fish. Its colonies were the jewels of the Black Sea: Sinope and Trapezus in the south, Phasis and Dioscurias at the foot of the Caucasus, Panticapaeum guarding the entrance to the Azov Sea, Berezan and Olbia opening the trade routes to the northern steppes.[5] Crimea had some of the best natural ports with an abundance of fish from the Azov Sea, but the fear of the native population hindered the millesians to colonize this area.

It was the colonists from Megara (Greece) who founded here the great colony at Chersonesus, near Sevastopol in the Ucraine, a development that would be later eclipsed by their most important colony of all Byzantium (today Istanbul). On the west coast, the colonists from Megara founded Mesembria (Nesebur, Bulgaria). In this part of the sea however, the millesians were still the most active, with their colonies at Istria (Histria), Tomis (Constanta), Odessus (Varna) and Apollonia (Sozopol).

The pontic colonies were not secondary settlements for ancient Greece, but were essential to the mother cities whose economy depended heavily on the commerce with goods from the pontic colonies. A ship could sail from the Azon Sea to the Rhodos Island in the Aegeean in 9 days [6] on fair wind, and its goods came to be appreciated in the entire ancient world. Wheat and barley that was cultivated in the hinterland were essential food supplies for Ionia and continental Greece [7]. In its war with Sparta, Athens relied heavily on the shippments of grains from the black sea and the defeat of Athens is much owed to the blocking of the Dardanelles by the Spartans [8]. Peanuts, oil, iron, wood, fish were abundantly exported from this region [9].

In accordance to their importance, it is highly improbable that these colonies lived without a gymnasion, one of the most important institutions of the Greek polis. In fact, most of the Greek colonies on the Black Sea are attested as polis in urban sense which means they has the same structures as any other Greek polis [10] such as gymnasion and public baths[11]**.** There are more than 50 major colonies on the Black Sea. Of them, 34 are attested as polis in urban sense, another 8 are mentioned as polis in sens urban in ancient lists and another 18 match important or essential features of the polis even though they are not attested as polis. Even though some historians argued that a polis might exist even in the absence of administrative offices, gymnasion, theatre, agora or foundain house, this standpoint is held invalid by most of the contemporary historians [12]. Thus, one would expect to find an abundance of Greek *gymnasia* with Greek baths in the coastal area of the Black Sea. However, if the gymnasion buildings in other places of the Greek world are to be found in excellent state, those in the pontic area fell victim to attact and consecutive distructions during foreign invasions. In time, most of them fell victim to invaders and many of the Greek settlements lay to ruin today, so there is not much of the former urban structures to be recognized. However, we have the certainty of at least two Greek gymnasia, both of them attested, either in written sources or in archeological sources. The first one is at Olbia [13] and was discovered during excavations at the beginning of the 20th century. The second one is said to be at Sinope (Turkey), but this one is only mentioned in written sources. According to Strabon, Sinope was "the most notable city in that part of the world" and it had an agora, a stoa and a gymnasion [14]. Their architecture seems to have been monumental – an elemental characteristic of a colony of Sinope's status. This was the most important and the most prosperous of all colonies in the southern Black Sea due to its strategic location of its double port, which commanded the commerce to the Crim, the Borsphorus and the Caucazus. Of the many reseachers and travelers, Robinson gives us a beautiful account of the frustration of not finding any remains of the great ancient Sinope:

"Of the architecture of ancient Sinope, its art as carried into building, no more can be said than of its other art. Notwithstanding the care with which the city was built, the old structures have perished. The only possible trace I could find of the aqueduct is in the arches against which part of the city wall is built. … The finest of Mithradates' palaces was at Sinope but all its adornments, together with the stoas, gymnasium, and market-place of later times, have disappeared and left no trace."[15]…."Unhappily there are few certain data for reconstructing the ancient city. Looking down from the height above I tried in vain to make a mental plan which would include the stoas, gymnasium, and market-place, the Palace of Mithradates, and the Temple of Serapis. There are no ruins or even any mounded outlines for points of departure.[16]

6. Theoretical Reconstruction of the Pontic Gymnasia

In absence of their ruins but requiering a thorough study within the subject of Black Sea bathing architecture, we will proceed with the theoretical reconstruction [17] of the pontic gymnasia, in the attempt to create a mental image of how these might have looked like and functioned.

The planting of Greek *poleis* around the shores of the Black Sea is largely a tale of two mother cities: Miletos and Megara. For this case study, we will choose the case study of Miletus and will have a closer look at its urban plan and gymnasion edifice.

The first gymnasion in Miletus is the Gymnasion of Eumenes II of Pergamon and had a stadium annexed. It is the oldest gymnasion in Miletus, built between 195 and 159 BCE and financed by Eumenes II din Pergamon [18] The building of this gymnasion is not well preserved.

The most important gymnasion of Miletos is the "Gymnasion of Eudemus", occupying a central position in the city, east of the northern agor and next to the stoa. It was built in the helenistic period, in the 2nd century BCE. It was accesed through a monumental propylon on the southern part. The gymnasion is built around a rectangular palaestra of 19x35m, surrounded by a stoa with doric columns. The main building of the gymnasion was in the northern part and included a series of rooms: with the ephebeion at its center (the room for instructing the youth), and on its sides the apodyteria, the rooms for anointment and baths – the essential auxiliary space in the Greek gymnasion. [19]

7. Conclusions

The bathing culture and institutions in the Black Sea area around the 5th century BCE is marked on the one hand by the bathing customs of the so-called barbarian peoples: the Skythians and the Thrakians, who used very efficient hygienic techniques combined with religious or cult practices. Their constructions were tents and or otherwise particular stone work on sites of sanctuaries. On the other hand, there is the import of Grek sanitation systems and hygiene, sports and entertainment customs brought about during the period of Greek colonization of the Black Sea coasts. The Greek baths were an essential part of the gymnasion, which in time grew into one of the most important urban centres of the polis, incorporating essential parts of the Greek social life. In the absence of major archeological remains of the Greek gymnasia in the Black Sea Area, we attempted to reconstruct a mental image of what the pontic Greek gymnasia might have looked like. The Greek baths are indeed very important community centres of the polis, and they incorporate aspects of sanination, hygenie culture, entertainment that lay the foundation for the later institutions for bathing and tourism.

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Reinterpreting Communist Monuments and Architecture through Art Interventions. Eastern European Case Studies

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Abstract

The main focus of this article is to analyze the way meanings and attitudes towards former communist symbols are reshaped by young artists in Central Eastern Europe. To this effect we take a look at several case studies on controversial monuments and buildings which arose stiff controversies. Examples from Leipzig, Chemnitz, Prague, Sofia and Bucharest depict a general tableau of contested heritage across CEE countries varying from removal, to oblivion and banishment. Young artist reappropriate these unwanted objects and spaces converting their ideological underlying and their aesthetic image. Lastly, we discuss that these new agents construct new visual discourses and meanings and create the premises for critical healing of burdened recent past.

Rezumat

Obiectivul principal al acestui articol este de a analiza felul în care semnificațiile și atitudinile față de fostele simboluri comuniste sunt modificate de tinerii artiști din Europa Centrală și de Est. În acest scop prezentăm studii de caz despre monumente și clădiri care au stârnit controverse aprinse. Exemplele din Leipzig, Chemitz, Sofia și București descriu un tablou general al unei moșteniri contestate al cărui destin variiază de la demolare și îndepărtare fizică până la ignorare și uitare. Tinerii artiști își reapropriază aceste obiecte și spații nedorite convertind substraturile lor ideologice și imaginea lor estetică. În cele din urmă, dezbatem modul în care acești noi agenți formatori de opinie construiesc noi discursuri vizuale și noi semnificații, și creează premisele pentru o vindecare critică a trecutului recent.

Keywords: Post-socialist landscape, art activism, communist monuments and achitecture, Eastern Europe

1. Introduction

Undoubtedly, after more than 20 years following the collapse of the Iron Curtain, socialist modernism has evolved from underground standing point to trendy subject of concern. As economical and societal transformations were the most urgent, early post-socialist writings deal almost exclusively with the economical and socio-political aspects of transition from the former regime to open market policies [1]. And not surprisingly, artist's discourses have preceded any explicit critical literature or structured studies. From art installation to film, socialist times take

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central role in the visual production of eastern artists, becoming almost a distinct brand. We need not to talk about hugely mediated films like *Sonnenallee* and *Good Bye Lenin!*, as recently new wave of Romanian film-makers have built themselves a renowned career winning almost every major European film contest with the same recipe for socialist memorabilia. Even more recently socialist appeal has spread from cult-art into mass consumption, from prize-winning to money-making industry. Newly opened and very popular shops as *Ossiladen* in Germany are bringing back products to the nostalgic consumer or to the young retro-curious buyer. Same goes for the mushrooming museums of Socialist era all over Eastern Europe where socialist reality is exhibited in scenographic arrangements, theatrically lit and air-conditioned spaces available for the ticket paying cultural explorer, when a few steps away authentic socialist architecture is demolished to make way for long gone cathedrals and palaces or refurbished in new bright and shiny materials.
If today, the material production of the communism finds new categories of consumers, the most hated symbols are also reinterpreted through recycling and new semantics. Architecture and the statuary of the former political system thus becomes a conceptual resource for contemporary art. If we are to look at the recent landscape transformations of Central Eastern European countries (CEE) art plays a central role into shaping new attitudes toward communist heritage and burdened reminders of the recent past.

2. Banishement of Marx in Leipzig and his revival in Chemnitz

The oversized relief depicting Karl Marx and entitled, *Karl Marx and the Revolutionaries. The Innovative Essence of his teachings* (Fig. 1) with a total length of 14 meters, cast in solid bronze, reigned for more than three decades (from 1974 to 2006) above the main entrance of the University of Leipzig. The relief was meant to envision the explicit ideological affiliation of the university, raised on the ruins of former *St. Pauli* church, dynamited by the communist regime in 1961. Representing the sacred socialist mythology, it replaced the Gothic facade and thus could be interpreted as an icon of Marxism and a triumph over the Christian tradition of the university. Following the demolition of the modernist building in 2007 to make way for flashy neo-Gothic high-tech architecture, the unwanted artwork struggled for 2 years to find a new place in the city. The repositioning of the monument with such uncomfortable meanings led to a heated dispute on the local media and public arena. The first option taken into account was its positioning in the courtyard of the new university well under construction. The university board as well as other official voices opposed this attempt, citing technical rationale due to the weight of the object and the difficulty of assimilating such a powerful emblem of the socialist past. Moved around in different places, eventually, the relief of Marx was placed on a free parcel near the Faculty of Physical Education and Sport, and remained in the city periphery and neglect, an antechamber to oblivion.

In Chemnitz, a city located 30 kilometers south of Leipzig, the statue of Marx is the focus of local pride and the main tourist attraction of the city. A bright example of typical socialist urban planning, the Eastern German city was named Karl Marx Stadt. In 1971, in order to mark the obvious link to the homonymous mythical patron, a colossal monument was erected in the city center representing the ideological and anatomic head of the father of socialism. Measuring over 7 meters in height it was placed on the pedestal of equal height becoming the biggest representation of this kind in the communist world. In 1990 the city returned to its original name but the massive bust remained in place as a reminder of an obsolete era.

Figure 1. Karl Marx and the Revolutionaries. The Innovative Essence of his teachings, Relief in bronze, on the former facade of the Karl Marx University in Leipzig in 1996.

Both in the case of Chemnitz and Leipzig, the artwork carry numerous negative connotations as enforcement of Soviet art (being designed by a Russian sculptor) and destroying the city's traditions. In the years following the German Unification, many citizens claimed the removal of the statue, however in time, a different attitude prevailed. Today it is seen as a unique document of history, a bizarre attraction of the city and is promoted as such. The feeling of shame attached to the sculpture eventually turned into one of pride [2].

In the summer of 2008, a group of artists and art students together with the local administration organized the event *The Temporary Museum of Modern Marx* (Fig. 2). The idea was to present the head of the German philosopher in a whole new way separating it from the urban context, thus allowing new interpretations of the physical object as well as of his philosophy. To this end, the head was surrounded by a spatial structure of scaffolding and covered with white fabric, outlining a tilted rectangular object. The visitors could perceive and explore the gigantic head at different scales through a system of platforms arranged in a spiral path. They were also encouraged to learn more about less known aspects of the work and life of the philosopher and to record their own critics and opinions. The project allowed the appropriation of the soviet monument as well as democratic debate upon socialist philosophy through modern temporary architecture and intellectual reinterpretation. While in Leipzig Marx's relief was marginalized in disgrace, his head was openly accepted in Chemnitz, becoming the iconic and unconventional emblem of the city. Marx's banishment from Leipzig and its revival in Chemnitz, demonstrates the divergent fate of the socialist heritage.

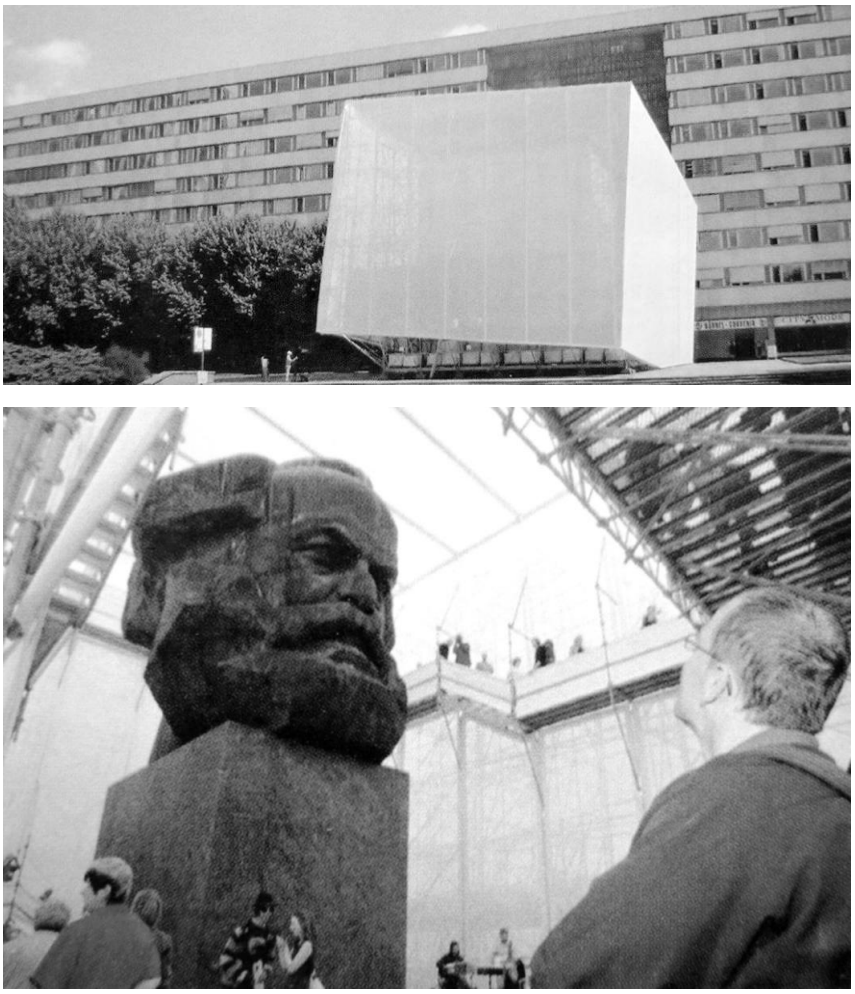

Figure 2. The Temporary Museum of Modern Marx in Leipzig, 2008.

3. "Masked" Sovietic heritage in Sofia

On August 21, 2012, images of *the Soviet Army Monument* in Sofia located in the center of the Bulgarian capital to commemorate the Soviet liberation from fascism, circled again the world. "Vandalized" overnight, the monument was illegally covered with a fresh coat of pink paint and marked in capitals "Bulharsko is omlouvá" (Bulgaria is apologizing). The color selection was not random constituting a reference to the same color choice of Czech artist David Černý in *The Monument of Soviet Tank Crew* art installation in Prague in 1991. The aesthetic critical gesture in Sofia marked the anniversary of 45 years since the 1968 invasion of Czechoslovakia by Warsaw Pact troops, Romania being the only exception. That night, an estimated of 5,000 to 7,000 tanks and 500,000 soldiers occupied part of the former socialist state. Nearly 100 people were killed and over 600 injured. In the event Bulgaria was the closest ally of the Soviet Union as the initiator of the invasion, and was the first country among the Warsaw Pact members who insisted on a military intervention in Prague. It was also the last in the Eastern Bloc to officially apologize after 1989 for its military involvement in the campaign.

In recent years *the Soviet Army Monument* was the center of a heated controversy. Several associations and private initiatives asked repetitively for the removal of the monument from its central position to the city's Communism Museum, opened in 2011. The request was declined due to the interests of the Russophile groups who argued that the monument represents the liberation of Bulgaria from under the fascist regime and its removal would be an attempt at historical revisionism.

This was not the first time the same monument was converted by means of ideological street art and symbolic graffiti gestures. In June 2011, the relief was the subjected to a semantic recycling: from anonymous socialist-realism into postmodern pop-art, block-buster and Mc-consumerist critique (Fig. 3). The metal soldiers of class struggle were transformed overnight into super-heroes of contemporary culture (Superman, Captain America, Joker the villain and Robin, Batman's sidekick, Santa Claus and Ronald McDonald the clown) underlined by the text “In pace with time”. The red flag protected by the statuary group was also decorated with stars and stripes: a victory of pop culture over the outdated monumentality of communism. Many were those outraged by the artistic vandalism of the austere monument. But, contrary to official opinion, the intervention attracted public’s sympathy and smiles. Crowds, locals and tourists equally, flocked to see the curious flamboyant silhouettes. After a few days the monument was cleaned and restored by the local administration, but the event attained an unexpected success, locally and internationally, the new trendy image of communism echoing in the international media. The same monument has been used as a tool of protest in the political scandal surrounding the female punk group Pussy Riot undergoing trial for anti-Putin acts. This time, the Soviet soldiers received colorful masks in solidarity and support of a fair and democratic process.

Figure 3. Soviet Army Monument in Sofia, 2011.

4. Bucharest's empty pedestal of possibilities

In Bucharest, Lenin's statue located at the foot of the monolithic Soviet pseudo-skyscraper *Casa Scânteii*, stood tall and impressive on its pedestal from 1960 when Boris Caragea molded in bronze the great stature of Vladimir Ilyich Stalin. After the dramatic revolution in December '89, as a sign of democratization of the country, the symbols of socialism were the first to be removed from the urban landscape. On the 3rd of March 1990, the crane operator George Gavrilescu, on his own initiative drove and pulled down the political colossus. He repeated the same action in front of the Faculty of Medicine in Bucharest, removing the statue of Petru Groza, as well. Measuring over 7 meters high and weighing nearly 10 tons, the bronze of Lenin was taken to Mogoşoaia (Fig. 5), in

the suburbs of Bucharest where "with his eyes facing the sky, with his hat in the left hand and the right to his chest, the statue of the father of Bolshevik revolution rests his metal body among the weeds" accompanied by "other things expelled from their time: a red slide plucked from a playground, street clocks showing always the same time, the effigy of Petru Groza and bust of the creator of modest human comedy"[3]. In 2011 the statue was safeguarded from bronze thieves, natural elements and from historic futility in order to be better placed in a Park of Forgotten Monuments at the initiative of Monuments Heritage and Tourism Department and the City Hall of Bucharest. The project aims to restore the memory of the former regime in an attractive product for tourists, but in the absence of necessary land or budget, the project suffered repeated delays. Along with the statues of Lenin and Petru Groza, other historical relics and smaller achievements of the communist period would make up the props for ritual reenactments of propagandistic festivities of communism such as the transformation of simple children into pioneers of the socialist motherland.
During his stay at Mogoşoaia, in October 2009, Mihai Zgondoiu, a Romanian young artist, painted the statues of both Lenin and Groza as an artistic statement. Zgondoiu painted the face and hands of the two statues in pink highlighting their eyebrows, beards and mustaches with black paint. The intervention was of course labeled as vandalism, and spirits were stirred in Mogoşoaia [4]. A few hours after the intervention of Mihai Zgondoiu, Lenin and Groza were repainted black. The short lived art installation was suggestively named *Soviet Dolls*. The artist assessed that he is neither a supporter nor an opponent of the communist era, and that his criticism concerns the way in which history is being hidden behind fences in contemporary Romania [5]. The tale of his critical action does not stop there. Swiss artists, Heidy Baggenstos and Andreas Rudols, present during the Zgondoiu incident at Mogoşoaia reverted the process, in which the black paint is washed gently in an attempt to restore the pink applied by the artist. So returning to the status of black relic of history is interpreted as an act of vandalism. The pair subsequently exposed the video documentary of their restorative performance of historic vandalism in the Ark Gallery in Bucharest with very positive reactions from critics.

The pedestal in *Piaţa Presei Libere* (the Free Press Square), left unoccupied when Lenin got thrown at Mogoşoaia, also became the subject of artistic interventions and it returned to the symbolic and cultural landscape of Bucharest, through the use of art installations. In 2010, the Romanian artist and curator Ioana Ciocan laid the foundations of a program called *Project 1990*, in which the empty pedestal is temporarily and periodically being filled with artwork. According to the artist, its destiny - like that of other places - is threatened by forgetfulness, or worse, by demolition. Although the monument has no plastic or architectural value, its potential and its controversial mythical load qualify it to reinterpretation. *Project 1990* is programmatically opposed to permanent and monumental statues or representations, considering that this was plentifully achieved by the former bronze figure of Lenin, which is still marking the place even with its disappearance. Dan Perjovschi affirmed that this kind of void is undeniably preferable to the totalitarian eternity. The project started on January 26, 2010, the anniversary of Nicolae Ceauşescu, with the flash 24 hours exhibit of a replica of Lenin's original statue, made out of unconventional materials, such as polystyrene, barley, rice, chocolate and candy. The choice of this date was not accidental, causing an exceptional reaction regardless of the extreme cold and ensuring the visibility of the first act of reoccupation of the pedestal. Despite the reluctance of the Commission for Culture of the Bucharest Municipality, *Project 1990* received approval for other similar interventions. A total of 11 installations, performances, frescoes and statues were created during the two years of activism and cultural contextualization. In May 2010, Andrei Ciubotaru literally raised on the pedestal the true values of Romania, represented by three outstanding musicians: Alexandru Tomescu, who in 2007 won the privilege to play the famous Stradivarius Elder-Voicu 1702 violin, Răzvan Suma and Horia Mihail (the Romanian Piano Trio). The living monument represents a critique of the value circulation in the contemporary society and the passersby public is invited to admire and promote the most genuine and less visible of national values.

This was followed in September 2010 by the work of Emanuel Borcescu: *The Capitalist Worker Hero Fresco* (Fig. 4). Four murals printed on canvas, referring to the outdoor advertising that covers the public buildings in the post-socialist city, are posted on the pedestal in order to present the new ideals: money and the Romanian society represented by four human archetypes: *căpşunarii* (the strawberry pickers), *corporatiştii* (the corporation employees), *mitocanii* (the cads) and *Piperiştii* (the real-estate profiteers) [4].

"The painting is a reference over time to the former communist Romania reverential images that praised the working class heroes. It represents the new heroes involved in the construction of a new social system which is subject to a new set of values. The new expressed concepts are the job, the mall, the gadget, the car or the villa as symbols of social status. In fact, everything that entered in the irrational sphere of our hero irreparably steals his freedom, which he initially started looking for, when he begun building this system. The project doesn't aim at balancing or comparing social systems but, due to their proximity, it aims at highlighting the weak points of the capitalist system in general, and its Romanian specificity, particularly"[6]. Unfortunately the fresco could only be admired for a short period, after being secretly removed and confiscated by a "respectable association" disturbed by its message and the use of the object. In October, Mihai Balko surrounded the pedestal with 5 red triangles; the five peaks of the decomposed Soviet star stand for the *Red Sharks* who still lurk and represent a threat.

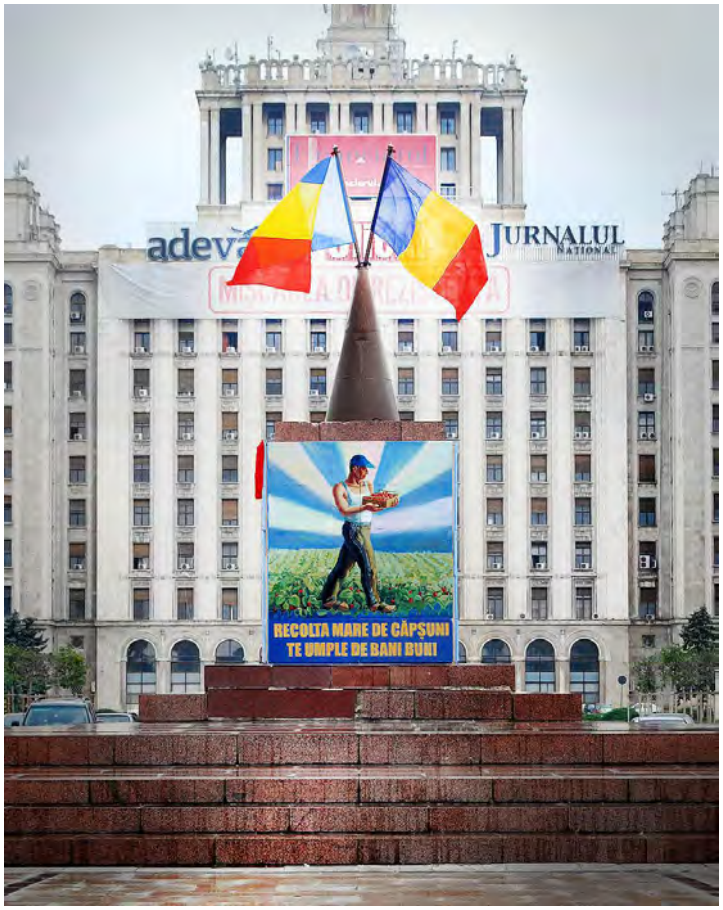

Figure 4. The Capitalist Worker Hero Fresco, Bucharest, 2010.

In order to celebrate the National Day the artists used an online platform (visulromânesc.ro) to address the question "Are you Romanian? What is your dream?" to a wide audience. They used the responses to create a sculptural work. Most of the responses were about leaving the country and the possibility of a better future outside the national borders. The opening of the *Romanian Dream*

event on December 1st consisted of a sculpture and a performance with lugagge and suitcases, objects of departure and exile.

In Aurel Tar's art work entitled *Scânteiaaa* the pedestal hosts the official logo of the regime's journalistic propaganda tool. The "torpedo street-art" as described by the author is meant to take his final goodbye to the past mentality and especially to Lenin.

Where are we? by Ionut Theodor Barbu investigates the sad post-revolutionary situation in Romania, which is still trapped in a Balkan-communist reality with a vaguely European style. "The long decades of communist subjugation and the excessive current political interests created, according to Barbu, a Romanian citizen who lost his identity, literally swinging between inexistent values and lost post-Revolutionary traditions. *Where are we?* evokes the community's lack of tools and identity elements that affected the structure of the Romanian people"[4].

The communist bedroom or the dreary blocks of flats are the subject in the canvases painted by Florin Tomescu. Art critic Mircea Cipariu says about this work that "it addresses the topic of concrete as a mirror response to the consumerist seriality and to the kitsch reproduction typical for the *knowledge society*. His work makes us wonder: life and art win over any concept of serial organization of the world"[4].

Returning to the starting point of the cultural vandalism of the statue of Lenin in Mogoşoaia, Mihai Zgondoiu placed a real scale photographic reproduction of the pink painted former communist leader. But this time Lenin is placed face down on the ground, slain at the feet of the pedestal where he stood tall for 30 glorious years. *Lenin's Sleep* (Fig. 6), as the work was entitled, is just another leader (or myth for that matter) fallen from a pedestal. "Warning! Falling off the pedestal is very easy" is the artistic statement. *Handgun*, the work of Bogdan Rata, represents a red painted oversized foot-hand on top of the granite block performing the victory sign. This becomes the symbol of a new revolution that, this time, will take place in our consciousness and not on the streets. *Melting*, replaced *Handgun* shortly after, in May 2012, exhibited for two months as a collateral event of the Biennale of Contemporary Art in Bucharest. The new sculpture shows just the feet of the original statue and the residual material of a slow process of melting down and disappearing from history leaving behind a golden stain. The artist Judith Balko, author of the artwork stated: "*Melting* brings into question the recent past and how it is perceived by contemporaries. Too often, for those who have lived under communism, the brutality and ugliness of the collective past is canceled and faded by memories of a tender personal past, of lost youthfulness. For those who were born after the collapse of the communist regime, it seems all too often just a sad, but sealed chapter of the history of this country, without any connection to the present or the future"[6].

Despite the intense artistic activity, plans of the mayor's office and a number of associations, considered erecting a new monument and removing the desolate pedestal of historic futility. Ioana Ciocan, originator of *Project 1990*, claimed that the possible demolition of the pedestal would represent a victory for ignorance against the freedom won in 1989 and demonstrates the incapacity of Romanian society to take responsibility for its own history by deleting any evidence. The contested object is not only the former base of Lenin's statue, but according to the *Project 1990* experiment, a temporary exhibition urban space, a critical tool of interpreting the relationship between contemporary society and the past, a mechanism for healing the human, visual and urban spirit of the city, a prism through which current issues are reflected upon and (re)viewed. Lenin pedestal finally achieves artistic and aesthetic value, not for what it was back then, but for what it is today.

"I do not believe in any kind of destructive attitude. I do not think we will get rid of communism's

breath and all that it destroyed in Romanians identity, if we tear down pedestals, People's Houses or blame the artists who worked on command on portraits of Ceauşescu. I think that the artists I challenged to exhibit in a place very sensitive to some, succeeded in just a year to create a new identity for Lenin's pedestal. Their attitude was sometimes ironic to the authorities - *Red Sharks*, sometimes sad - see *Romanian dream*, but always critical. The subject of art's relationship with totalitarianism and political pressure, of the artistic product designed to support false causes, which tends to be put to work for political biased messages in a given historical context cannot be neglected. *Project 1990* emphasizes my interest in the art of propaganda, and the need to revive places in Bucharest with particular historical significance, such as Lenin's pedestal, that constitute spaces which are not fully exploited by Romanian artists"[4].

Figure 5. The abandoned statue of Lenin at Mogoşoaia

Figure 6. Lenin's Sleep, Bucharest, 2011

5. New aesthetics for old socialist buildings

Image conversion applies not only in the case of socialist monuments; its architecture becomes a way of expression and assimilation of recent history, as well. Prague's *Television Tower* is such an example where Czech artist David Černý converts monolithic concrete constructivist verticality in a path to the future crawled upon by black oversized silhouettes of human babies, suggesting an alienated future of the human race sharing the same genome and with the same cartoon like figures, as explained by the artist. Žižkov Tower, as it is known in the Czech capital, is a uniquely shaped building, built between 1985 and 1992 on the hill whose name it bears. Designed by architects Václav Jirí and Aulický Kozak with a height of 216 meters and three volumes suspended between its slender concrete columns, from its completion it is was considered an eyesore to the distinctive and idyllic landscape of the city. Intended as a temporary intervention, Černý's art installation enjoyed tremendous success, becoming a permanent fixture. Like other many examples of communist architecture in Central and Eastern Europe, the fate of the tower has been uncertain after the collapse of the totalitarian regime as numerous representatives of the public asked for its demolition criticizing the megalomaniac presence in the subtle skyline of the city and its upsetting proximity to the Old Hebrew Cemetery. Meanwhile, mostly due to David Černý's aesthetic makeover, the tower has become an alternative landmark for tourists. Similarly, *Electro Putere Craiova* and *Fabrica de Pensule* in Cluj-Napoca, unintentionally create new associations between spatial relics of communism (which nobody wanted anyway) with contemporary art as trendy spaces with new viable aesthetics. They recycle its material products and add new usages and new images, thus challenging the mainstream and long established negative association of socialist modernism with the former oppressive power. In the process, unwanted architecture and its rundown image is starting to be appreciated by certain categories of users of the city.

6. Conclusion

Artistic intervention, on the one hand, produces ideological exorcism of guilty memories and monuments and critical reflection upon the relationship between contemporary history and amnesia. For most of the people having experienced socialism, coping strategies with traumatic recent past is translated into disaffection for the built environment. The need for forgetting and looking to a hopeful future (eventually turned into disillusion) meant forgetting, ignoring or even despising its spatial products. But these represent equally the carrier of memories, even bad ones, and someone's need for oblivion should not be imposed on the rest.

And, on the other hand, it creates the aesthetic premises for the re-appropriation of the socialist heritage. In this respect, the legacy of socialism can be interpreted as a resource for Eastern European cultural discourse of artists, from cinema, to performance and installation. The temporary museum in Chemnitz, the Soviet Monument in Sofia or the pedestal of Lenin's statue in Bucharest are free ideological canvas where contemporary art can manifest itself and reinterpret symbols of oppression in a process of exorcism and banalisation [7]. As the distance increases and negative political association and traumatic memories blur inhabitants of the major cities of the former Eastern Block may not find socialist architecture that uncomfortable, quite the opposite, it can become *trendy* and *cool* for the identity aware young urban dweller. Places like Café Moskau, the newly opened exclusive hotel and restaurant in Prague's Television Tower, the refurbishment of National Theater in Bucharest to its former modernist shape, give new contextual image to the socialist aesthetics. Age as the main rationale for monument preservation does not constitute a valid criteria to survey cultural value. Urban memories and cultural witnesses are equally important, recent and ancient, the difference resides in the temporal distance that allows us to, or prevents us, from appraising their value.

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Contemporary High-Density Housing. Social and Architectural Implications

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Abstract

High-density collective housing seems to have become a widely accepted solution for solving the contemporary housing need, in the context of a continuous growth of population. However, following recent architectural developments and other overcrowding situations, it is obvious that using density as a single criterion in generating well calibrated built environments that contain urban quality has serious limitations. This study aims to follow the relationship between high density built environments and human behavior in order to define the perception and behavioral implications of such environments on their inhabitants. The study is based on a series of sociologic researches dealing with how inhabitants in high density environments perceive density and how it influences their behavior. These studies have demonstrated that the spatial arrangement and the social context do influence the distribution of social resources, having an impact on interpersonal relationships and representing important factors in determining the quality of life in residential environments. The final part of the study attempts a translation of social behavior and human needs related to the physical environment in overcrowding situations in a series of generic conditions that can be followed by future designs. The goal is to determine principles that can be transformed into spatial arrangements, in order to create future dense built environments correctly calibrated to the needs of their residents.

Rezumat

Locuirea colectivă cu densitate ridicată pare să fi devenit o soluție general acceptată pentru rezolvarea nevoii contemporane de locuințe, în contextul creșterii continue a populației. Totuși, în urma dezvoltărilor arhitecturale de dată recentă și nu numai, este evident faptul că densitatea folosită ca un criteriu unic pentru generarea unor medii construite calibrate corect și care să posede calitate urbană are limitări serioase. Studiul de față își propune să urmărească relația dintre mediul construit cu densitate ridicată și comportamentul uman, pentru a putea defini implicațiile percepției și ale comportamentului unor astfel de medii asupra locuitorilor. Studiul pornește de la o serie de cercetări sociologice care tratează felul în care locuitorii unor medii cu densitate ridicată percep densitatea și cum ea le influențează comportamentul. Aceste studii au demonstrat influențele pe care aranjamentul spațial și contextul social le au în distribuția resurselor sociale, influențând relațiile interumane și constituind factori importanți în determinarea calității vieții în mediile rezidențiale. În partea finală a studiului se încearcă o traducere a comportamentului social și a nevoilor umane legate de mediul fizic în situații de aglomerare într-o serie de condiții generice, care pot fi urmărite în proiecte viitoare. Scopul final al studiului este determinarea unor principii care pot fi transformate în configurații spațiale, în scopul obținerii

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unor viitoare medii construite dense corect calibrate la nevoile locuitorilor.

Keywords: high density, overcrowding, perception of density, human behavior, urban sociology, environmental psychology, dense built environments, minimizing negative effects of density through architectural design

1. Introduction

The continuous phenomenon of population growth determines the continuous growth of cities in order to support the ongoing need for new housing. In this context, collective housing of high density seems to be the only viable answer to the growing demand for housing, and urban life in compact cities is a goal of modern society in terms of concerns for sustainability and minimizing the consumption of energy and fossil fuels, in relation to reduced carbon dioxide emissions. In the future, the state of crowding within the built environment will inevitably increase, as well as contact with an increasing number of people. Faced with the inevitable situation of increasing population and residential environment density of the urban areas, we find that high density is not always seen as a positive feature of the environment, quite the contrary. High density has dual connotations, both *positive* and *negative*, and the arguments are strong for both sides.

The *negative connotations* of high density built environments are supported by the association of high density with a number of social evils resulting from either the situation of an excessive congestion of people in areas perceived as quantitatively restrictive, either determined by historical antecedents of residential housing with disastrous social consequences, assimilated especially to negative examples of collective housing built during the 60's and 70's years in England and the United States. High population density leads to the idea that many people assembled together will suffer various negative effects, particularly manifested upon behavior patterns. In parallel, homes within high-rise buildings, especially those of the last century, were and still are generally perceived as cold, dehumanizing and inconvenient in the sense that they discourage the sense of community [1]. Another factor that supports the negative vision is the fact that there is a constant common confusion of terms, between the terms 'high-rise' and 'high-density', relating in an erroneously manner density to negative examples of high-rise buildings [2]. The poor reputation of density is also supported by studies from the fields of medicine and neurology that have demonstrated the existence of specific physiological reactions under conditions of crowding, manifested by an increase in the adrenal system and heart rate, leading to increased tension. Recent studies also showed that people living in big cities, that experience crowded environments and are subjected to interact with a broad social network manifest an increase in the regions of the brain associated with memory and higher emotional intelligence (the anterior cingulate cortex of the amygdala) compared with others [3].

The *positive connotations* of high density are primarily supported by the fact that a design that uses a high density configuration is more compact and manages to conserve important land resources, reduce transport distances and therefore the necessary energy consumption, representing a more efficient model from the economical as well as environmental point of view. Also, from a sociological point of view, large concentrations of people represent a large demand for services and goods [2], as well as a platform for communication with multiple possibilities and an extremely rich and intense exchange of ideas [4]. The intensification of interactions due to an increased density also leads to an increase in safety within public spaces, as demonstrated by Jane Jacobs (1961) in her book *The Death and Life of Great American Cities* [5].

In order to understand the implications of density, it is primarily important to establish the meaning of the term density, because in general the term has multiple meanings depending on the disciplines

and the contexts in which it is used. The term density can refer to either *physical density* or *subjectively perceived density*. As Vicky Cheng (2009) states," *physical density* is a numerical measure of the concentration of individuals or physical structures within a given geographical unit. It is an objective, quantitative and neutral spatial indicator", that can be used in the design practice only if it is related to a specified scale of reference [6]. On the other hand, *perceived density* represents the subjective perception of individuals on the environment and on the other participants within that environment. Also, it can represent the perception of the estimated number of individuals present in a given area, of the space available and its organization and the relative relationship between individuals inside the given area.

The built environment affects directly *personal relationships* and *neighborhood relations*, while spatial configuration is an important factor in determining satisfaction of residents. Also, the experience of living in high density environments is much more complex than living in lower density environments. Thus, we believe that understanding the relationship between people and the built environment and the way in which high density affects human behavior and social relations is particularly important for designing and constructing new high-density residential environments. This study deals with the subjective perception of high density, in order to understand the influence that high density environments have on the behavior of their inhabitants in order to define design directions that can improve future high density residential environments.

2. The implications of the physical environment on human behavior

Due to the urban way of life in which large populations of people live in artificially constructed areas, much of their behavior is thought to be influenced and guided by the architectural character of spaces and the qualities of the physical environment. For the modern world, the interaction between people and the built environment has acquired great importance, and the relationship between humans and artificially built environments is very complex and depends on a whole host of interrelated factors.

The built physical environment manifests a direct influence on *our behavior*, on *the social systems that govern our social group interactions* and on *our individual experience and behavior*. People are in a permanent contact and exchange with their environment, and as Andrew Baum and Stuart Valins (1977) note in their book *Architecture and Social Behavior*, "our behavior can be conceptualized as a dynamic sequence of adjustments and readjustments to our physical and social environment" (p. 1) [7]. The way in which the architectural configuration affects the behavior can be expressed as a function of ongoing or potential social dynamics and psychological orientations.
In the human interaction with the built environment and its influence on us, its effects are mediated by a number of variables with a high degree of complexity, which are involved within the framework in which the exchange between the individual and its environment takes place. In this framework, the effects of certain spatial configurations are manifested through complex interactions with other *physical*, *social* or *psychological dynamics*. Thereby, the effects of architecture are truly universal, overcoming aesthetic and symbolic properties, but they represent only a part of the overall effect that the environment has on us. Architecture influences our experience and behavior in the context of both *general* and *specific variables*. Thus inappropriate distance to certain objects, physical or social conditions of the built environment, spatial or functional distances between social groups can influence individuals, social behavior and the development of the group. Prior studies have shown that the variables of a configuration do influence the psychological and sociological processes, suggesting that some specific properties of the built environment affect social contact and its regulation, playing a key role in defining living conditions [7].

3. The implications of the high density environments on human behavior

The scientific concern for the effects of crowding on people is not at all new, starting to take shape with the beginnings of industrialization and becoming organized in the 1920s, coinciding with the moment in which for the first time urban population exceeded the rural population in American cities. This moment gave rise to the first studies on behavioral mechanisms determined by the density of the built environment. The concern about the negative effects of urban life and implicitly of agglomeration on human behavior is emphasized immediately after the Second World War, when, after liberation of the shortcomings of the war, American and European cities recorded an unprecedented real estate boom.

The first sociological studies on the influence of density are based on the premise that urban life is a continuous source of aggressive behavior, frustration and conflict that generates as a final result a number of evils and social dysfunctions. The city is perceived as a negative factor that irremediably influences the life of its inhabitants by generating stress, induced by the state of crowding.

3.1 Density and social pathologies

One of the first studies on the effects of crowding with a high resonance both in the academic as well as public consciousness is Calhoun's laboratory study conducted on a population of rats. Calhoun (1962) studied the effects of a dense environment on the behavior of the animal population (Fig. 1). The results are presented in the paper *Population Density and Social Pathology* [8]. In laboratory conditions, populations of rats were subjected to spatial constraints and limitations, while being provided with enough water and food supplies. While the only limited resource was space, the rat population instead of growing exponentially because of food suffered a dramatic decrease, exhibiting violent and aggressive behavior, high infant mortality, a decreased quality of nests and even a lack of nest building exhibited by mothers, cannibalism, deviant sexual behavior, followed by asexual behavior and total withdrawal from the community's social life.

The grouping of those manifestations is defined by Calhoun as "*behavioral sink*", and the conclusions of the study and the term that describes them became very influential after they were published, migrating from the academic area into urban culture. A behavioral sink is described as being "the outcome of any behavioral process that collects animals together in unusually great numbers. The unhealthy connotations of the term are not accidental: a behavioral sink does act to aggravate all forms of pathology that can be found within a group" (p. 144) [8]. Still, explaining a pathology relying exclusively on the conditions of high density has a limitation that was proven by further studies, and the extension of the study's findings on the human urban population as a result of the success of the study has been proven inconsistent. In fact, Calhoun's study rather refers to different degrees of social interaction than simple physical conditions of density, demonstrating the alteration of normal social behaviors of animal populations through the stress caused by crowding conditions induces by a high density environment.

3.2 Crowding and behavior, a necessary distinction. The theory of density-intensity

The psychologist Jonathan Freedman (1975) has conducted a lab research on people based on the performing of different tasks under different density and crowding conditions, showing positive results on the behavioral consequences of high density environments. He demonstrates that it is not density that determines the degenerative behavior of populations, as revealed by Calhoun's study of animal behavior, and identifies the main trigger to be crowding. Crowding does support excessive social interaction and a lack of control over unwanted social contacts.
Freedman defines the framework for the study of high density consequences, noting the important distinction between crowding in physical terms, as defined by lack of space and the perceived

crowding, defined as the "sensation of being crowded", a distinct feeling from that of having very little space. The study of human behavior is related to the physical state of high density and not to the sensation, and the main issue in determining the effect of density is the control of other social factors (social variables) with which high density is generally associated, such as poverty, level of education, ethnicity. He elaborates *the theory of density-intensity* which supports the idea that crowding increases the importance of other people to the situation, as "[...] crowding by itself has neither good effects nor bad effects on people but rather serves to intensify the individual's typical reactions to the situation" (p. 89-90) [1]. Crowding intensifies the importance of other people involved in the situation, the individual's reaction towards the other participants as well as towards the situation itself.

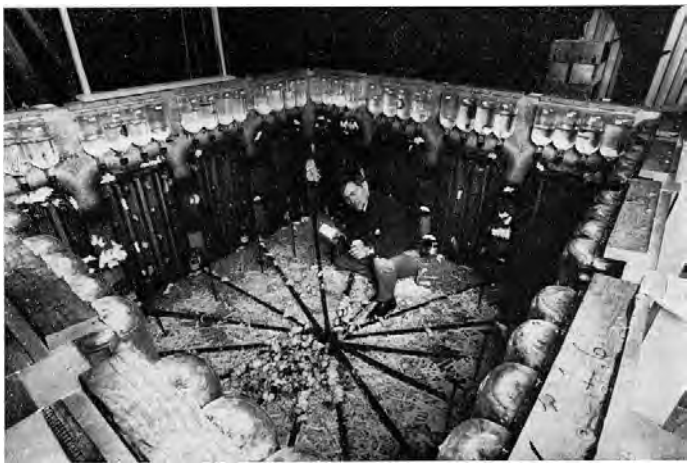

Figure 1. Calhoun J., experiments with rats. *Source:* commons.wikimedia.org

His findings support the fact that density doesn't generally have negative effects on humans, but it intensifies the typical reactions towards other people involved in the crowding situation. Density itself is not unpleasant, but its perception depends on the situation, by the fact that the situation might be pleasant or unpleasant for the person experiencing it. Thus, if a situation causes discomfort, the perception of the discomfort will increase as density increases (Fig. 2); otherwise, if a situation is perceived as pleasant, the sensation of pleasure will increase with an increase in density (Fig. 3). Freedman considers density as being primarily stimulating but not stressful, and crowding itself as not generally negative [1].

Figure 2. Workers, industrial revolution, 1900. *Source:* commons.wikimedia.org

Figure 3. Cheering crowd, V-J Day in Montreal. *Source:* commons.wikimedia.org

3.3 Architecture and behavior

One of the first sociological studies that relate the behavioral manifestations to the configuration of the built environment is that of Andrew Baum and Stuart Valins (1977) that compare the attitudes and behaviors of two similar groups of students that live in two different types of dormitories, with different planimetric layouts, for a longer period of time. The study is conducted between 1971 and 1975. The major difference between the dormitory layouts is a functional one, regarding the way in which the living units are grouped in relation to the common areas, while the amount of space provided per person is comparable.

One of the dormitories has *a corridor-design layout* (Fig. 4), in which the bedrooms are organized along one single hallway, while the bathroom is located centrally and the lounge is located at one end of the corridor. All the shared spaces are being used by all the residents of one level, thus creating large groups of 34 users. The students who live in this configuration are exposed to a high level of interactions with a very large number of people. The other type of dormitory has *a suite-design layout* (Fig. 5), with four or six person suits arranged along one central hallway. Each of these suits contained two or three double occupancy bedrooms organized around one common lounge, with a bathroom. This layout typology generates much smaller groups, of either four or six residents, while only the central hallway is shared by all 33 residents of a floor. This configuration does sustain privacy and the possibility of filtering the unwanted interactions with other residents. The corridor-design dormitories, due to the spatial configuration of the layout, do not allow their residents to control the interactions with large numbers of students, also intensifying the consequences of interactions that can be perceived as stressful. The suite-design dormitories on the other hand offer their residents enough protection against unwanted social contacts, as well as control over desired contacts. The results of the study showed that students that lived in the corridor-design dormitories, being exposed to large groups and intense and uncontrollable social interactions have developed a greater sensitivity to group size and a lower tolerance towards crowding. Their way of adapting to the frequent and unregulated social interactions is generally withdrawal and avoidance of social interaction.

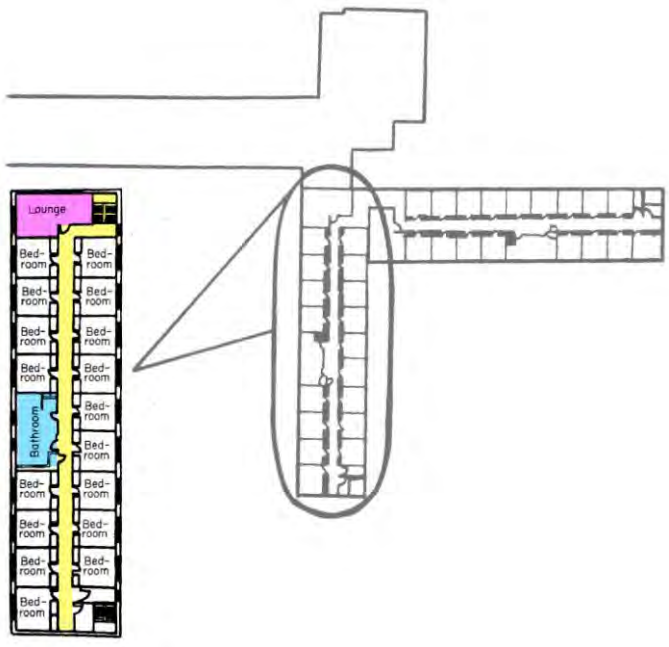

Figure 4. Dormitory, corridor-design layout.

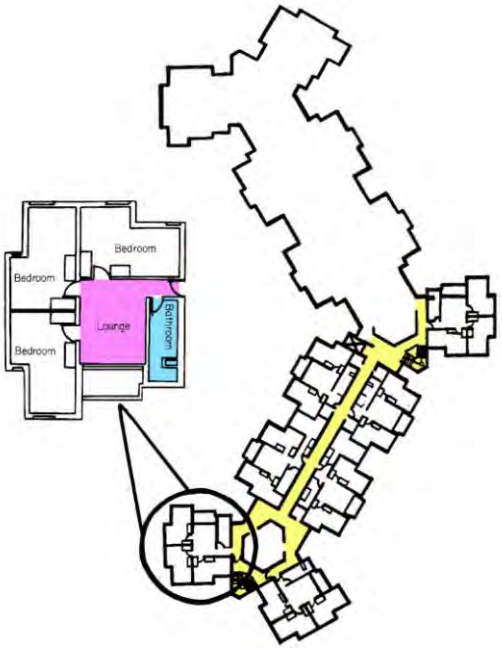

Figure 5. Dormitory, suite-design layout.

The conclusions show that *the perception of crowding is a function of the frequency of interaction and unwanted and uncontrolled social contact*, and the perception of crowding becomes negative in relation to both friends and strangers, at the moment in which the frequency of social contacts reaches a point where regulating interactions becomes difficult or even impossible. The negative feeling generated by crowding in relation to the architectural layout is translated by the two scientists as "*a syndrome of stress related to the breakdown of social regulation"* (p. 102), associated with loss of control and unsatisfying and unwanted interactions. Its most obvious manifestations are stress and avoidance behavior. However, the study found that the consequences of stress caused by crowding do not have long-term effects and that its manifestations disappeared shortly after students have moved to other dormitory types available in the campus [7].

3.4 Social implications of high-density housing

Robert Edward Mitchell (1971) has studied the effects of high-density housing and housing units on the emotional health and family role relations in a very specific environment, that of Hong Kong. The habitation situations of Hong Kong provided many types of relationships between residents, housing units being shared by either members of the same family or by members of distinct families or households.

Mitchell elaborates a set of considerations relevant for the influence of residential density on residents, establishing primarily that physical characteristics of density within the dwellings do not influence the level of emotional stress perceived by residents. The decisive influence on perceived stress is held by the social characteristics of the residential environment, especially the social composition of the dwelling unit, through the structure of social life and social control of the neighborhood. Thus, individuals do not respond directly to housing, since the effect of the architectural features of housing exerts an indirect influence. Instead, housing affects the patterns of social relations, and the individuals react to those social patterns that are influenced and determined by the architectural configuration.

The main effects due to housing with high density conditions identified by Mitchell are: *clear awareness of lack of space in the housing unit*, *the influence of social structure on the internal relations of the housing unit*, respectively the differences perceived in the situation of cohabitation of family members or people without family relationships, the latter condition leading to a state of increased stress. Stress amplifies in the case where avoiding unwanted contacts isn't possible, mostly due to the home's location in the higher levels of the building, where withdrawal to neutral spaces or public spaces is not possible. Other effects are *parents having a decreased control of children* through the fact that children are given a greater freedom in spending time outside the housing unit, and finally *discouragement of social practices* of friendship between neighbors and friends, since the usual entertaining practices aren't carried out due to lack of space. Also, the study showed that individuals can bear high levels of density in the housing unit, provided only that members of a single family reside it [9].

3.5 The relation between apartments and the perception of the surroundings

A recent study from the area of environmental psychology is that of Annie Moch, Florence Bordas and Daniele Hermand (1996) that studies density subjectively perceived by the residents of collective housing estates from dense areas of Paris, respectively the 13th arrondissement. The three researchers note that *the need for privacy in the home is a basic need in relation to housing*, with decisive influences on social life, while the lack of satisfying this need can have extremely negative influence on social life. Also, the feeling of congestion can be attributed to a number of different reasons, such as physical, social or individual factors.

The researchers observe how human perception of density in relation to the apartments is influenced by a number of variables, such as *residential satisfaction*, but also *factors that are linked with the presence of other persons* within the collective housing, such as *interpersonal relations* and *the possibility to have control over social interactions*. The residential satisfaction of the internal density of one's apartment influences the perception of density of the surrounding neighborhood outside the apartment. The more residents perceive their own apartment as being cramped, respectively the available amount of space as insufficient, the more this subjective perception will extend outside, upon the whole neighborhood that will be perceived as overcrowded. Also, the perception of density depends on the social relations, because as crowding is stronger perceived, satisfaction towards social interactions with the neighbors is decreasing.

Study results have shown that density is generally perceived by residents through the filter of other factors that people normally associate with the presence of others, such as high levels of noise, cleanliness, odors or unwanted interactions with others. Generally, the wellbeing of people is inversely proportional to the feeling of crowding, meaning that as density increases so does the feeling of annoyance towards the surrounding environment [10].

3.6 Social and psychological implications of high density city space

In regard to the relationship between urban and public space and their social and psychological implications that they have on the neighborhood, they are studied by Bryan Lawson (2009). Lawson discusses about the influences that the spatial arrangement of the public space and the elements from the immediate vicinity of housing have on the quality of life, calculated by the satisfaction measurement of the need for privacy, and on relationships within territory. He discusses a number of situations of public space, in relation with the generic perceptions that these generate, and proposes a mechanism for solving and improving each negative situation, that can be attained by design.

Privacy and *loneliness* are considered to be subjective indicators of social interaction in public space, which do not have universal values since their perception depends on cultural variations, some cultures being more gregarious than others. *Privacy* refers to an individual's ability to control the amount and type of contact he has with others and Lawson suggests that satisfying the need for privacy by design should be achieved by offering spatial boundaries that users can operate in order to organize hierarchically their social contacts, both inside and outside the home. On the other hand, he discusses the general belief that high density entails an increased feeling of *loneliness* and a lowered sense of belonging to the neighborhood in terms of spatial design. He considers high density as having an altering effect on social trust that occurs when the public domain is not designed with consideration for hierarchy and local conditions.

On the perception of public space, an important role is played by the notions of *private*, *public* and *semi-public space*. Those notions are linked with *the concept of territoriality*, an attribute that refers to the social structure. The attachment towards certain territories, the clear awareness of borders and the tendency to defend them are manifestations of territoriality, and the modern city is a source of degradation of this feeling. The factors that are negatively influencing territoriality are: ambiguity of spatial design, uncertain borders and areas that are hard to defend. In relation to the environment, territoriality is identified with three needs: the need for stimulation, identity and security. The spatial configuration elements that can be traced by design in order to support the wellbeing of inhabitants are: defining privacy by spatial borders that allow control over social contacts by the inhabitants of an apartment; offering relations for the apartment with public space that should contain also green areas with natural character, both visual and of access; maintaining areas with natural qualities in relation to urban spaces in areas of the city with high density, green qualitative and well maintained urban areas being considered to be the most important factor in determining

the perceived quality of life in big cities; accessibility and quality of public transport; an increased level of security and a low level of anti-social behavior; noise control.

Through his study, Lawson proves that many of the problems generally attributed to high density are not in fact linked to numerical coefficients of distribution, but are more related to spatial geometry, although high density determines an increase of the negative perceptions of the environment. Thus, for a well balanced urban space in relation to the needs of its inhabitants, spatial configuration and the contents of that space are important, and problems of spatial perception could be avoided by an attentive design [11].

4. Conditions for designing built environments that improve the perception of density

By reviewing all the studies cited above, it can be concluded that the built environment, both in terms of public space as well as building, if configured in a *correct* way can improve the perception of density, while if configured *incorrectly* may lead to a negative perception of density. In this regard it is useful to attempt to establish the general conditions which could support a positive perception of high density while alleviating the effects of high density. These conditions or requirements are formulated according to the needs and social behavior identified in high density environments perception. These *conditions* or *requirements* are formulated according to the needs identified in the perception and social behavior of residents of high-density environments. They do not represent predetermined spatial configurations, but are topics that can be traced by design in order to be translated into spatial configurations. Pursuing these requirements through design can lead to well balanced future living environments, can improve housing and environment quality and also increase residential satisfaction in high density conditions. The conditions that support a positive perception of high density built environments could be formulated as:

- Achieving a fair balance between the need for privacy offered by housing and the need of interaction and expression in the wider community.
- Reducing unwanted social interactions, while supporting positive interactions that reinforce a sense of community.
- Maintaining satisfactory group sizes at satisfactory residential rates, depending on the conditions of the project, since contact with too many people in the common areas of residential buildings will discourage close social interactions and the sense of community.
- Presenting in the immediate vicinity of residential buildings qualitative outdoor areas, appropriate for social interaction and group control, that community members can use frequently.
- Providing availability and quality in relation to various functions and services. Also, providing easy and diversified access to those facilities is important, as well as the possibility of walking to most of the facilities needed for the daily routine.
- Providing availability and quality of transport, and also diversity for transport, such as bicycle lanes and good public transport links.
- Offering visual relationships and accessibility with qualitative green areas and support in various ways contact with nature. The green public areas in high density settings should be large, coherent, well-landscaped and well-maintained.
- Presenting a high-degree of safety and discouraging vandalism through the configuration of open, public space and also intermediary, semi-public space.
- Presenting sustainable and ecological features in the design of the housing buildings.

5. Conclusions

Studies on the satisfaction of the residents of high-density environments have shown that density provides both advantages and disadvantages. It is generally true that as population density increases, the greater the potential of emergence of conflicts and unpleasant situations. These negative manifestations of density are due to the increase of social contacts, and therefore of unwanted contacts, doubled by lack of control [7, 10], and are not the result of physical density of people or spatial elements. The determining factor influencing the perception of density by people who live in high-density environments is not density itself, as it's tempting to easily deduct, but *the combination of social and physical characteristics of space*, decisive being *the interaction between individual and the environment as a whole*. Also, *perceived density is influenced by a number of variables* that are either individual cognitive attributes of the individual, or attributes of the environment in which he finds himself, so they may be physical, social, psychological and cultural [7, 11]. From this research it was found that a correctly built environment, whether it is public open space or a construction, can by means of its own configuration help to improve the perception of density and can alleviate negative feelings perceived by its residents generated by high density. In this respect, the study attempted to formulate a set of generic conditions that represent *a resource of correcting the perception of high density environments by design*. Central to the relationship between architectural configuration, people's experience and their behavior is the way in which built environment meets the needs and social expectations of its inhabitants. Thus, in formulating balanced future high density environments it is important to follow design principles that are congruent with the needs of residents and simultaneously pursue mitigating the perceived negative effects of high density.

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Using Community Data in Order to Improve the Development and Targeting of Housing Strategies

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Abstract

Could it be possible to use available quantitative and qualitative data on communities in order to obtain a clearer picture of a population and its needs in matter of housing? And, if so, can this picture be used as a basis for answering these needs? This paper tries to answer these two questions and, thus, to determine the role of community data in the development and targeting of housing strategies. Household size, structure and relations are in many cases influenced by the household's members belonging to a community. In architectural design, although it is not sufficient, this kind of specific information is indispensable in order to provide end users with the house they need. Census data contains official quantitative information on some of the communities (such as ethnic or religious) within a population. Other quantitative information can be obtained, with minor errors, by associating community membership with the physical location of a population (the case of local communities). Moreover, qualitative information on community behaviors is in most cases well documented.

Rezumat

Este oare posibilă utilizarea de date cantitative şi calitative cu privire la comunităţi în scopul obţinerii unei imagini mai clare asupra unei populaţii şi a nevoilor acesteia în materie de locuire? Şi dacă da, ar putea fi folosită această imagine ca suport pentru acoperirea acestor nevoi? Lucrarea încearcă să răspundă acestor întrebări şi, astfel, să determine rolul pe care îl joacă datele cu privire la comunităţi în dezvoltarea şi ţintirea strategiilor de locuire. Mărimea gospodăriei, structura acesteia, precum şi relaţiile din interiorul ei sunt în multe cazuri influenţate de apartenenţa membrilor la o comunitate. În proiectarea de arhitectură, deşi nu este suficient, acest tip de informaţie este indispensabil în vederea oferirii către utilizatori a locuinţei de care aceştia au nevoie. Datele de recensământ cuprind informaţii cantitative cu caracter oficial cu privire la unele comunităţi (etnice sau religioase, spre exemplu) din cadrul populaţiei. Alte informaţii cantitative pot fi obţinute cu mici erori prin asocierea apartenenţei la o comunitate cu locaţia fizică a unei populaţii (situaţia comunităţilor locale). Mai mult, informaţiile calitative cu privire la comportamentul comunităţilor sunt în majoritatea cazurilor bine documentate.

Keywords: analysis, communities, framework, housing, policies, strategies

1. Introduction

Communities are social groups whose structure and behavior are strongly related to group life features such as norms, social conventions or traditions. Moreover, relations within a community

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are based mostly on interpersonal contacts and informal networks. [1, p.1] Thus, when speaking of a community we can best describe it by a framework within which community members act and relate to each other. Even though this is an informal framework and its rules could seem loose when opposed to those of strongly formalized frameworks such as the legal system, its influence on the behavior of community members should not be neglected. Depending on the strength of social bonding within a community, the influence of norms, conventions and traditions on the behavior of its members can be more or less significant.

Bonding-bridging relations within and between communities may vary from one population to another. Taking this aspect into consideration, it is vital to know if the system to analyze is society or community-led before we make any other assumptions. If inter-communitarian bridging relations are far stronger than the internal bonding of the communities, than we can speak of system dominated by societal forces [1]. In this case, the analysis of specific characteristics of certain communities might be irrelevant due to their weak influence on the behavior of the individuals. Although poorer in specificity, a society-led system is preferable from an analysis point of view to a community-led one because of its higher level of transparency. Strongly bonded communities might be almost opaque due to poor integration within the general system. As an instance for this latter situation, communities that live in isolated locations might share a strong bond just because of their weak possibilities for bridging. Barriers of non-physical nature, such as poor integration of some communities within the system due to cultural or economical issues, can also exist.

The first question that this paper tries to answer is if it could be possible to use available data on some characteristics of communities in order to obtain an analysis framework for a population and its needs in matters of housing. Should there be a significant presence of communitarian organization within that population, a deeper analysis might unveil some relations between community characteristics and housing needs. For instance, should there be the number of children within a family influenced by communitarian social conventions, the influence on the size of the housing unit needed by that family should be evident. This kind of information might be documented in qualitative studies on communitarian behavior or it might result from the quantitative analysis of statistical data.

Should the construction of an analysis framework based on community characteristics be possible, the second question that the paper will try to answer is if this framework could be used as basis for building better housing strategies and implementing them through well targeted policies. In order to answer that question, it is vital to know whether the proposed framework offers the possibility of tying the results of the analysis to administrative divisions (such as: country, region, county, metropolitan or local). Should the framework be custom tailored from the beginning in order to provide decision makers with the specific information input they need for the development of housing strategies, the answer is evident.

2. Data availability

In order to answer the first question posed by the paper, it is required to know whether relevant data on the communities that make up the studied population is available or not. For the study of specific housing needs of a community, relevant data is represented by the demographic profile of that community, its size, the number of households within it, the average size of a household, the total number of housing units used by community members, the structure of these housing units (average area, average number of rooms, construction system, available utilities, age structure, general condition structure) and the average number of occupants per housing unit. Even though in most European countries detailed information out of which this data could be extracted is gathered by census every 10 years, available official data on communities remains scarce. Also, because of

the lack of means for gathering data and the unstandardized methods used, most information that could be obtained directly from communities is unreliable. When speaking of small, strongly bonded, precisely localized communities, this problem of data availability might be impossible to overcome. Thus, the use of data on classic communities defined by very specific features of group life doesn't seem as a viable solution for obtaining a clearer picture on a population's housing needs.

A solution for the problem of data availability consists on replacing narrow classic communities with broader community groups. These groups can be custom tailored based upon available relevant data and, thus, they can represent a viable alternative to the use of community data. Some well known examples bases for constructing such groups consist of ethnic, religious, local or regional belonging criteria. Even though these groups might include sometimes a large number of heterogeneous communities scattered over a large territory, common features are still shared by their members. This fact seems to be determined by bridging between communities that share some common values rather than by a group bonding. Of course, in the case of isolated communities this bridging does not occur, though some similar behavior determined by the isolation status might be shared by their members. Thus it should be possible even to group similar isolated communities.

The main disadvantage of using community groups consists of their larger degree of heterogeneity compared to that of classic communities. Due to this fact, very specific communitarian characteristics are replaced by more loose features when grouping communities. Also, some characteristics might be even completely lost through grouping operation. Nevertheless, groups represent more than a second best solution when community data is unavailable.

3. Choosing a geographic location when constructing a group

Community group analysis results should represent an input in the process of developing housing strategies. In order for this to be possible, it is necessary that group location can be tied to an administrative division (such as: country, region, county, metropolitan or local). This way, the path that leads from analysis to planning and decision making is considerably shortened. For example, at a regional level it is best to use groups from within the studied region. Should these groups be constructed around the belonging to a settlement, a religion, a nationality, or any other criteria, it is important for them to be geographically located in that region. Thus, planners should be able provide the region's decision makers with strategies that they can implement through specific regional policies.

Due to the fact that any chosen administrative division chosen as a reference geographic level requires available data at least on its immediate sub-levels, it can be easily stated that the lower the geographic scale, the more difficult it is to divide the population into groups due to the lack of statistical data. Thus, at city level, for example, it can be quite difficult to construct relevant groups based upon available data. In such cases an acceptable solution might be that of extrapolating features of wide-spread groups to local communities. This reverse process might be misleading when not considering the typical issues of transition from general to particular cases. Even though there might exist similitudes between the local communities and the group that comprises them, this relation does not imply the equivalence of the two. Thereby, a community can have, and in many cases does have, some particular characteristics that distinguish it from its group. Considering this, it is of vital utility to make a clear distinction between the shared features of communities within a group and their distinctive characteristics.

Another important aspect to be taken in consideration is the influence of a location's characteristics on its inhabitants behavior. This kind of influence can be best observed on local community groups that are engaged in traditional activities supported by the physical features of their location.

Settlements developed around fishing, mining, tourism or other activities enabled mainly by local physical resources are the usual home of such groups. Thus, in such places, local population that might belong to more than one community might share behavioral characteristics related to professional traditions. Although the advantages represented by natural endowments constitute in many cases only starting points in a settlement's evolution and their relevance might decrease through time due to self-reinforcing features [2, p.157], settlements that have their activities tied to natural factors can be found at any given moment. This happens either because of the weakness of circular-reinforcing effects (the settlement isn't able to evolve) or due to the early age of the settlement (it hadn't got the time to evolve).

4. Using households as base unit for groups

A population can be represented through two mutually exclusive sets: one of the members of households and another of people that don't belong to households (not to be mistaken to single member households, this latter category consists mainly of institutionalized individuals). This is important for the study, because households represent the end-users for housing units. Thus, the housing need of a community group is best estimated through the needs of its households.

In architectural design, household size and structure represent indispensable (although not sufficient) information in order to provide end users with the housing they need. The architect should know the number of the future dwellers of a house and some of their basic needs determined by age (children have different needs than elderly people for example) and cultural identity (mainly from the point of view of the relationships between the household's members) in order to be able to provide them with the design they need. At a higher scale, from a planner's point of view, some generalization is necessary, even though this might have a negative influence on data accuracy. Thus, a relation should be found between community characteristics and the relevant features of the belonging households. Statistical and probability methods can be employed in order to achieve this goal, provided that sufficient data is available.

The number of members of a household varies through time, fact that impacts on its housing needs. These variations might occur due to natural causes (such as the birth or death of household members) or through the process of individuals leaving or joining the household. In both situations, the change within the household might or might not trigger the need for new housing depending on the suitability of the current housing unit for the new conditions. Both, the growth and the decrease in size of a household might trigger a need for a new household. Also, structural changes within the household might as well make its housing unit unsuitable. Thus, for example, even though a housing unit should remain big enough to accommodate a larger family, due to some of its characteristics it might be unsuitable for newborn children.

Another aspect to be taken into consideration when making estimations is that of the dynamics of the groups as wholes. The total number of households belonging to a community varies through time due to the continuous formation of new households. People that leave their previous households in order to form new ones represent internal causes for the increase of the total number of households within their group, while existing households that join that group represent external causes. These variations impact on the community's need for housing [3, p.20] and they should be estimated by planners in quantitative terms. Also, there might exist identifiable group characteristics that have an influence on these variations. For instance, a conservative community might have a lower incidence of household exiting through divorce. Or a group might be less open to new external additions. Either way, provided that sufficient data is available, the propensity of the studied group to increase or decrease its number of households should be measurable.

5. Tying household characteristics to a group: a probability method

Should household data be available for a group, it is possible to associate household characteristics to that group by measuring their occurrence. In probability terms, a feature that occurs often within the households of a group has, most likely, a high probability of occurrence (at least within a limited period of time). Thus, we can associate groups with occurrence probabilities for any relevant feature shared by the households belonging to them. This association operation it particularly useful when making prognosis or when generalizing information from a selection of a group to the entire group (provided that there exists some qualitative information to sustain generalization).

In order to measure the probability of occurrence of a feature within the households of a group, the paper proposes a generalization of a formula used by the model developed by the Laboratory of Applied Economy of Geneva (LEA) to determine the probability of an individual owning a housing unit in Switzerland based on his nationality and age range [3, p.44]. Thus, by substituting nationality to groups, individuals to group elements (e.g. households) and housing ownership to a generic feature in the original formula, while abandoning the age range criteria we obtain:

$$p_i(c) = \frac{Nh_i(c)}{Nh_i} \tag{1}$$

where:
pi(c) -represents the probability of occurrence of the characteristic „c" within the households of group „i"
$Nh_i(c)$ -is the number of group elements that share the characteristic „c" within group „i"
Nh_i -is the total number of elements within group „i"

In words, Eq. (1) associates the probability of occurrence of a characteristic "c" within a group "i" to the proportion of elements (households) sharing that characteristic within that group.

It might be argued that, by not considering the age range when constructing Eq. (1), an useful detail was lost. This elimination was however necessary, considering our objective of building a general purpose formula. Nevertheless, it is a possible to build a more comprehensive generic formula by introducing a new notion: the subgroup. We define a subgroup as being a selection of elements of a group that is made based on a criteria considered to be relevant (e.g. age range). Now, returning to the construction of Eq. (1), if, while keeping all other alterations the same, we replace the age range criteria in the original LEA formula by the more generic criteria of belonging to a subgroup, we obtain:

$$p_{ij}(c) = \frac{Nh_{ij}(c)}{Nh_{ij}} \tag{2}$$

where:
$p_{ij}(c)$ -represents the probability of occurrence of the characteristic „c" within subgroup „j" of group „i"
$Nh_{ij}(c)$ -is the number of elements that share the characteristic „c" within subgroup „j" of group „i"
Nh_{ij} -is the total number of elements within subgroup "j" of group „i"

In words, Eq. (2) associates the probability of occurrence of a characteristic "c" within a subgroup "j" of group "i" to the proportion of elements (households) sharing that characteristic within that subgroup.

There are some facts to keep in mind when using E.q. (1), E.q. (2) or any other similar formula. One of these facts is that similar values of the occurrence probability of a certain characteristic within

the households of two different groups/subgroups might have unrelated causes. In statistical terms, this translates into the well known truth that correlation does not imply causation.

Another aspect to keep in mind when working with probabilities of disjunct events (events that cannot occur simultaneously) is that a low probability of occurrence of a certain characteristic within the elements (households) of a group/subgroup (e.g. $p= 0.01$) is equivalent to a high probability of the non occurrence of that characteristic ($\neg p = 1-p= 0.99$).

Because the occurrence probability of certain characteristics changes through time, it is useful to analyze also their evolution. Changes in values of these probabilities can indicate the success or the failure of implemented policies and point towards future directions. Thus, by analyzing the deviation between the targeted change and the observed reality, it should be possible to state whether the expected effect of adopted policies was achieved and to what measure.

6. The normative framework

In order to give an accurate interpretation to the results of an analysis, some benchmarks are needed. Measured values are plain numbers and provide no meaningful information for planners unless compared to reference values set by normative frameworks. Regardless of its actual value, it is impossible to state if a number is high or low without comparing it to conventionally established benchmarks (usually determined through an empirical process). Thus, a number is to be compared to a set of values that are conventionally considered as normal before making any further statement.

Legal frameworks enforce construction parameters through minimal and maximal threshold values for different parameters. For instance, in Romania, the Law of Housing (L114/1996) enforces minimal conditions for housing units. It sets for a housing unit, depending on its maximum number of inhabitants, the minimum area, the minimum number of rooms and their minimum areas, the minimum number of bathrooms and their minimum area, the kitchen's minimum area, the minimum storage area, minimum equipment for every room and many other mandatory conditions. Any values that are outside those imposed by the law are to be considered as unacceptable. Thus, when comparing the observed conditions to those of the law, any observed deviation must be remedied (by legal and technical means).

In order to compare reality with a desirable situation that isn't enforced by law, it is possible to set a custom system of benchmarks through a scientific framework. Although such a framework should comprise the legal requirements, it can offer support for a more complex analysis by using a wider palette of criteria or a set of supplementary benchmarks. Thus, for example, although a law enforces a minimum area for a room, through a scientific framework it is possible to lift this threshold to a value that represents rather a desire than a necessity. In strategic planning, this possibility of analyzing the implementation of aspirations is indispensable.

7. Conclusions

Although data on classic strongly bonded communities might be in most cases either unavailable or unreliable, it is possible to build wider groups (that might contain more than one community) based upon existing data. Thus, a more detailed image of a population and its housing needs can be constructed through the analysis of the relevant features of its groups. This image can then be compared to the requirements of law or the or desiderata of custom built scientific frameworks in order to determine future strategic directions to follow. Based upon these directions, decision makers can adopt policies meant to correct or improve the observed situation.

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Architecture as an Orientation Tool in Housing For Seniors

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Abstract

Seniors are becoming a larger and more important part of the European population and they need a special, appropriate environment, that meets their necessities. Older adults sensory capabilities change, seniors may have various impairments, that disrupt their sense of orientation, and architecture must provide an answer to this problem, it must facilitate and support the best possible guidance. So, the important question is: What does orientation in architecture mean? How can we increase the orientation ability through architecture? How can the built environment ease seniors life? Can architecture provide an appropriate answer to suit seniors individual needs? Regarding the cognitive, spatial orientation involves the human capacity to form mental maps in order to establish the correct location in time and space. The design focused on facilitating spatial orientation and wayfinding is critical in an environment where seniors live. Lots of studies propose the creation of "natural maps", based on the principle, that the image (sketches, schemes, signs, colors, images etc.) has a great impact and the visual availability of the space may facilitate a better understanding of how to handle it. This current research is an attempt to study the relationship between the elderly person and the built environment, and the goal is to illustrate how architecture can act as a tool that supports orientation and wayfinding. The environment is not limited only by its physical boundaries, but it also includes the psychological and social aspects, which represent a significant part of the study.

Rezumat

Seniorii au devenit o parte importantă din populaţia Europei şi au nevoie de un mediu special, adaptat nevoilor lor. Capacităţile senzoriale ale vârstnicii se schimbă, ei pot avea varii deficienţe, care să perturbe simţul de orientare, o problemă în întâmpinarea căreia arhitectura trebuie să vină cu soluţii şi cu aplicaţii bazate pe abilităţile curente ale seniorului, în aşa fel încât să faciliteze şi să susţină o cât mai bună orientare. Aşadar, cele mai importante întrebări pe care trebuie să le adresăm sunt urmatoarele: Ce semnifică orientarea în arhitectură? Cum putem spori abilitatea de orientare a seniorilor prin intermediul arhitecturii? Poate mediul construit să îmbunătăţească traiul vârstnicilor? Poate arhitectură să ofere un răspuns adecvat, care să se plieze pe nevoile individuale ale seniorilor? Din punct de vedere cognitiv, orientarea în spaţiu implică acea capacitate a omului de a forma în mintea sa hărţi cognitive cu scopul de a stabili o localizare corectă în timp şi spaţiu. Proiectarea axată pe facilitarea orientării spaţiale şi a „wayfinding-ului" este critică într-un mediu în care trăiesc seniori. O multitudine de studii propun crearea de „hărţi naturale", bazându-se pe principiul că imaginea (scheme, schiţe, machete, semne, culori, fotografii etc.) are un impact semnificativ şi că accesibilitatea vizuală a spaţiului poate facilita o mai bună înţelegere a modului de manipulare a acestuia. Această lucrare studiază relaţia dintre seniori şi mediul construit, iar scopul este de a ilustra modul în care arhitectura acţionează ca o unelţă care susţine orientarea. Mediul construit nu este delimitat doar de limite fizice, palpabile, ci include aspecte psihologice şi sociale care reprezintă o parte importantă a studiului.

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1. Introduction

Nowadays it is important that architecture meets the needs and the orientation problems of the elderly. Most seniors have many and various deficiencies, physical or mental, and the society must deal with this issue and find appropriate solutions, and architecture is becoming an important tool in doing so. Through their layout, their landmarks, their design, geriatric centers, health centers, nursing homes and other special designed buildings could make an important difference regarding the orientation and, in the end, the living conditions of the elderly.

There are many aspects that need to be taken into consideration starting with the structural ones, like the layouts, till the details, like signs or patterns. Architects must understand the health problems seniors may be suffering from and must find real solutions adapted to these problems, so that there can be a real improvement in the elderly orientation and living style. The challenge requires an interdisciplinary approach, as many variables must be regarded. In a building dedicated to seniors, every detail can make the difference, so architects must solve complex situations.

2. Orientation

Seniors may have various deficiencies that can disturb their orientation sense, problems to which architecture must respond with solutions and applications based on the current abilities of the elderly, architecture must facilitate and support the best possible guidance. So, the starting point for the architect is the preparation of a plan that must be easy to read and easy to follow. Orientation in space is ultimately influenced directly by this architectural clarity that starts from the beginning, when the construction is still in the draft stage.

Cognitively, spatial orientation implies the human capacity to form cognitive maps in order to establish a correct setup in time and space and to achieve a certain purpose in the specific behavioral process. At the same time, a successful spatial orientation involves not only the representation of a cognitive map, that corresponds to the real area, but especially the fulfillment of the spatial relations, that occur between the individual, as an exponent of the environment, and the rest of the surrounding environment to which he relates. [1] This is why spatial orientation can be related to a process of self-education, of topographical learning, that relies on the information provided by the immediate physical environment, a process that was schematized by Russell J. Ohta professor at the West Virginia University (Figure 1) [2] . The individual comes into contact with this information, decodes and filters it through his cognitive system in order to understand and to store it in time, so that, he is able to mentally recall and decode it.

Daniel R. Montello, professor at the California University, complements this idea by highlighting three general aspects on which the spatial orientation depends: “perception of the structure of the environment, the knowledge stored in memory, and the processes used to access that knowledge.” [3] Therefore, it can be said, that the orientation skills are influenced by the individual memory and by the storage capacity. For seniors, the “sense of direction” diminishes as a result of ageing and memory problems, memory loss or the blur of the intellectual capacities in general, which automatically obstruct cognitive mapping. Frequently, the resident has the feeling that he is lost in a relatively new, unknown space, in an unfamiliar environment.

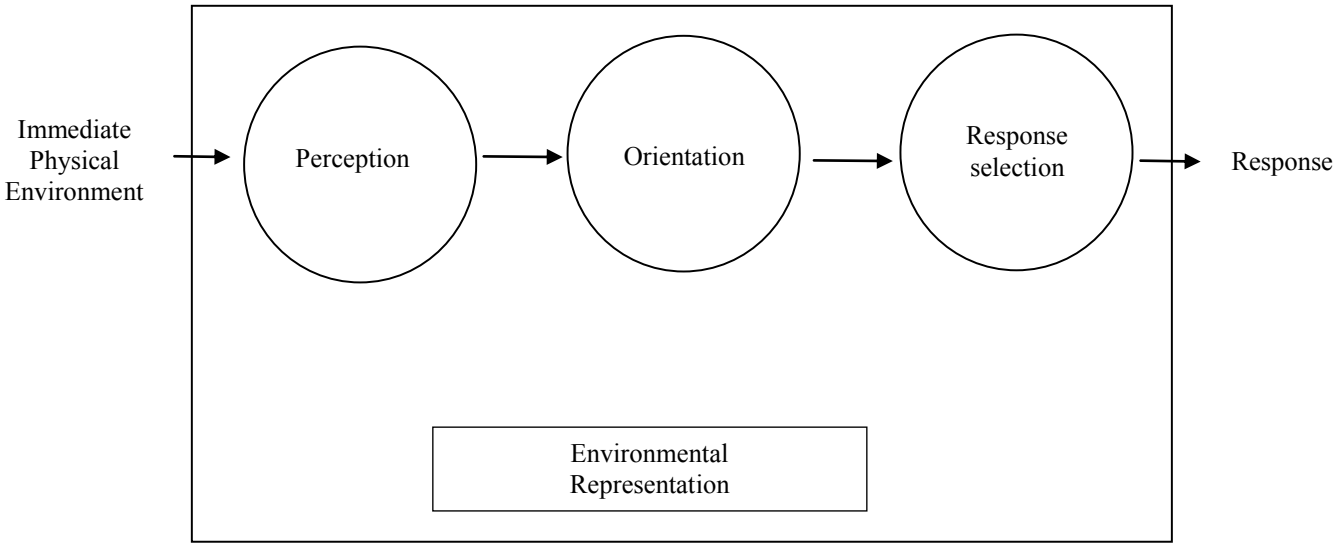

Figure 1 – An information processing model of spatial orientation (remade) [2]

For a good orientation it is important to create a quite environment. Another important issue for spatial orientation is to number the rooms and to use distinctive colors for the rooms and the doors of the residents.

A simple configuration of the building can facilitate spatial orientation. In straight circulation systems residents can orientate better than in any layout that features a shift of direction. As shown in the studies conducted by Marquardt and Schmidt (2009), in the straight circulation systems, orientation was further enhanced, if the whole corridor could be overseen from any point of the living unit. [4]

2.1. Wayfinding

The word "way-finding" was created and used by Kevin Lynch in *The Image of the City* when he referred to "way-finding devices: maps, street numbers, route signs, bud placards" [5] and more than that, it was defined as "the original function of the environmental image." [5] Later, the concept was expended and the architect Romedi Passini referred to architecture as a wayfinding support system [6], which, by the use of the cognitive and behavioral abilities, resumes itself to finding the path to the destination, to achieving a certain goal or to finalizing a certain action [1] Taking into consideration the wide range of limitations, of differences concerning the fundamental resources, that vary from one individual to another, we must ask ourselves: how does architecture solve this problem for people with disabilities or for seniors, for which spatial orientation is a real challenge? The efforts of seniors to orientate into space are enhanced by the diminishing of the memory capacity, by the slower capacity to process the information, or by the movement limitation. People with movement disabilities are assisted both "by declarative knowledge of environmental features such as curbs cuts, ramps, functional doors, and elevators, as well as procedural knowledge required for maneuvering in wheelchairs." [7]

Assuming that the orientation and the spatial configuration are connected through movement and environmental knowledge, basically, the combination between perception, knowledge and information-processing abilities results in a range of interactive [7] resources. (Figure 2). Landmarks, integrated paths, orientation based on cognitive maps; all these imply the reference to specific previous knowledge, declarative or procedural, especially when the environment is a familiar one [7].

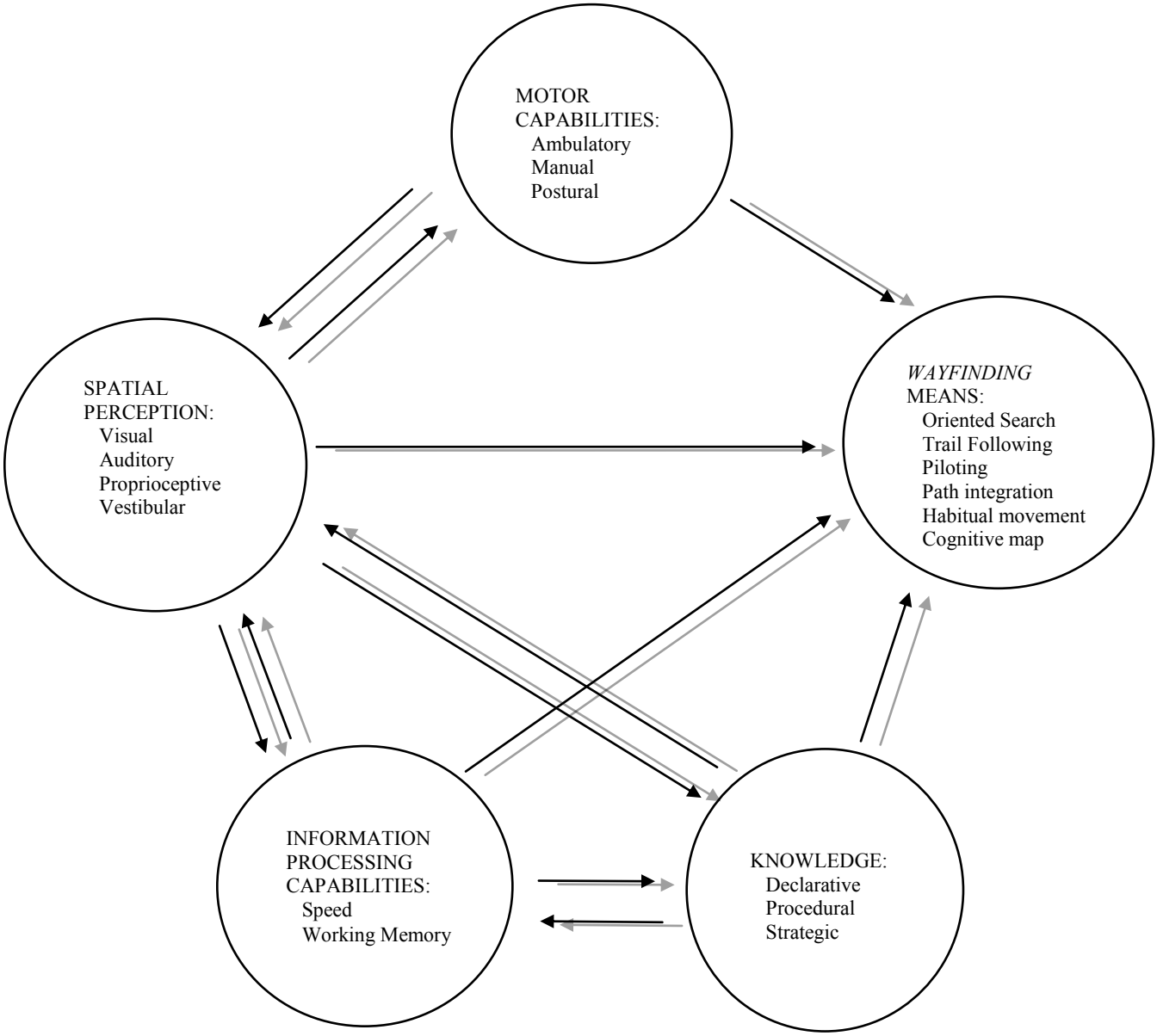

Figure 2 – Speculative model of relations among interactive resources (spatial perception, previously acquired knowledge, information-processing capabilities, and motor capabilities) and wayfinding means (remade) [7]

Although there are many levels of disorientation, mainly due to the various responses to the different properties of the space, concerning each individual module, we can establish some general rules in order to facilitate seniors orientation in their existential environment.

2.2. The layout

American architect Kevin Lynch defined some groups of features, which are useful for a better orientation, and these elements must be easy to remember and easy to read, in order to be memorized and mentally represented as cognitive maps. In Lynch's vision, the concept of legibility is in essence, the ease through which people can understand the appearance of a place, through mental representations defined as a network of landmarks – external physical objects that act as reference points, helping in orientation as a way of establishing and comparing the facts, the paths – channels for orientation, nodes – characteristic points of the paths, which give an accent to the space, districts – sections of the space, which have their own identification character and borders – limits that are not included in the targeted area. [5].

We always need landmarks, set points, even if they vary according to the situation or circumstance. In residential centers for seniors, a major landmark through which they guide themselves is the

central hallway; starting from there, older adults begin to develop metal maps for other locations, representations that become less accurate as they are far apart from the landmark. Because they are considered reference points, the hallways should not lay on long alignments and they should have many doors on each side, arranged in such way as not to become a maze.

The design focused on facilitating spatial orientation and wayfinding is critical in an environment where seniors diagnosed with Alzheimer live, a disease characterized by a condition of chaotic confusion regarding the time and space framing, the personal identity and the identity of those around, a state of pathological disorientation. The studies on spatial orientation, initiated by Passini and his team in 1998, point out the difficulty of persons suffering from Alzheimer, to build cognitive maps if the space has to many characteristic elements; hence, it must be concluded that the layout must be a simple one, so that it allows patients to walk along paths which are rich in stimuli and reference points. [8] All these studies suggest an alternative, namely the creation of the "natural maps", based on the principle that the image (diagrams, signs, models, colors, photos etc.) has a greater impact and that the visual accessibility of the space could facilitate a better understanding.

Gesine Marquardt and Peter Schmieg state that a smaller number of residents per living area would facilitate a better orientation and better wayfinding and that persons "with moderate-severe stages of dementia need well-defined, geometrically simple structures to orientate themselves, and to succeed in wayfinding", and also that, guiding elements like a straight wall running through the whole living area, can be a supportive features.[4]

2.3. Visual orientation. Lights, colors and patterns

The lighting is a major factor in facilitating orientation which, together with colors and materials, moves from being considered simple aesthetic elements to becoming necessary for a different perception of the space. In this sense, crossing the hallway may not be comfortable to do for a person with visual deficiencies, if the windows or the access to the windows is missing, so during the day the doors of each room should be opened for maximizing the amount of natural light [9], and the lighting should be set on motion sensors.

The artificial light should not be very intense and should not cause many shadows, which can create confusion in orientation, in the perception of shapes and depths. Christopher Alexander outlines that the spatial structure consists of a sum of individual elements and in order to understand the whole structure, it is not enough to understand the components, but also the relation formed between them.[10] Therefore, the strong contrast light-shadow can be replaced with contrasting colors, using saturated, warm, bright colors that seniors distinguish much better or fine shadows, so that the variations between the different levels of a room and the limits between the surfaces become much easier to differentiate.

For example, considering that the buffet countertop is viewed from above, and after its edge, in the background, appears the floor, the use of the chromatic contrast between the buffet and the floor will help the user, which, having sight difficulties, can distinguish the pattern from the blurred background. [9] Thus, having the possibility to choose from a wide range of colors and patterns, the floor, ceramic, wood, vinyl, linoleum or carpet, he can use other design elements from the house for create the necessary contrast. So, the walls, the cupboards, and the textures can become elements that help the resident to recognize rooms that have different functionalities. But, it should be noted that the floors with complex patterns, with lines or dark surfaces, can disorient even more and can cause anxiety.

Psychologists have shown that the benefits of playing with colors and the benefits of the chromatic contrast are important tools for focusing and improving the orientation abilities of seniors suffering from Alzheimer, both in space, by creating the spatial depth and the differentiation of the various plans, and in time, the colors being the indicators for seasonal changes, enabling them to perceive and to assimilate the changes during the year. [8]

2.4. Tactile orientation

The human mind and body are inseparable as the subject and the object, a materialized relationship through cognitive maps, which are mental images, the projections of a real space into the mind of the resident. The perceptions and sensations are correlated with the behavior and the environment. Ageing brings the weaknesses to light. So, under these conditions, it is necessary that the space dedicated to seniors is the one that guides them. And, without the sharp visual sense, seniors get to know the space through touch, considered to be a fundamental sense, so we could say that the contact is visualized after the pattern of touch, sight or sound, taste or smell. [11]

Czech philosopher Jan Patočka defines the tactile space as "un noyan sans périphérie" (a core without outskirts) [12], that is about tension, action, weight and passion. The design must provide flexibility, accessibility and attractivity, and it must be a sufficient impulse for the memory in order to make it function. At some point, the senior will instinctively know what is in his left and right, a so-called spatial routine being used; he will know that if he reaches out, touching the bedside, for example, he will find his medication box or other important objects, because he is used to put them there, just as he will know the distance between the bedside and the door or between his room and the bathroom. We are talking about orientation through learning, through focusing on the sensorial aspects not yet affected by illness or old age, through creating cognitive maps based on landmarks, so, in the end, the initially unknown space becomes a familiar one.

3. Safety

Beside orientation, safety is an important aspect that must be taken into account. The removal of the barriers through design and the transformation of the space into an accessible one facilitates the spatial and temporal orientation of each resident, according to its needs and through its specific individual knowledge. Once the background for a good orientation is provided, the favorable conditions for everyday life are created, regardless of the abilities and activities of each resident. The binder of all these aspects is the design, more precisely the *universal design* and its principles, which are safety and comfort, and it is important to note that the additional purpose, beyond utility, is to make the dwelling more attractive. [13]

It is important for residents to be protected and to live in a safe environment. A supportive and well designed environment can increase their safety and can considerably reduce some risks like: falling, infections, wandering and unsafe exiting, as well as accidents of all kind.

The reasons for these risks or accidents are many and the environment can be one of them. Therefore it is important to adapt it and to transform it from a risk into a helping element. For example, in order to reduce the risk of falling, a few interventions can be made such as: repositioning the furniture in a more adequate way, adding floor mats to cushion falls and antislip mats to improve footing and traction, so that walking can be more easy and, of course, improving the lightning by providing nightlights. [14] Also, shortcuts to the spaces that are visited more often, like the bathroom, can be helpful in reducing the risks of falling. [15]

For reducing the risk of infections, private rooms for the residents with infections must be designed. [14] In order to reduce wandering and unsafe exiting, several strategies can be implemented. Among them are the use of a two-dimensional grid pattern on the floor – due to problems regarding depth perception, the persons with dementia perceive the two-dimensional pattern as a three dimensional barriers, disguising the exit panels and restricting the light and views through exit-door windows or providing access to safe door areas. [14]

4. Conclusions

Ageing brings a lot of health problems, physical or mental, and because of that, seniors need more attention. Seniors have orientation problems or mobility difficulties and the environment they live in, can sometimes be on obstacle or, on the contrary, a support. The spatial orientation challenge might be solved or at least diminished by many spatial interventions or strategies. The layout of the building, the lightning, the color, the texture, the pattern, are all means by which architecture can shape the elderly dwelling in a new, practical and comfortable way. They can all make a big

difference especially when we are dealing with residents suffering from mental conditions. We should not forget the security of the residents, an important aspect that can be emphasized by the architectural approach.

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L'eau, élément (re)fondateur d'identités territoriales

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Résumé

L'eau a longtemps été un élément fondateur des villes, elle est pourtant devenue à partir du XIXe et surtout du XXe siècle un objet technique que l'homme a cherché à contrôler et le plus souvent à faire disparaitre de l'espace urbain. Devenue utile, l'eau urbaine a perdu ses valeurs symboliques et d'usages. Les enjeux environnementaux imposent aujourd'hui de repenser sa place et son rôle dans la ville. Aménités et confort urbains, nature en ville, changement climatique… invitent à la reconsidérer comme fondatrice de pratiques et d'identités territoriales. Cette approche nécessite de considérer à la fois les héritages techniques et leur devenir. Elle impose aussi de dépasser les visions sectorielles qui conditionnent trop souvent l'aménagement et la gestion du territoire. Elle invite également à penser les cycles qui traversent et modèlent nos territoires : les cycles de l'eau, ceux des saisons, ceux des usages. Considérée comme un risque (inondation, hygiène), l'eau peut contribuer à redessiner la ville, ses espaces publics et privés, ses architectures. Elle peut aussi être un élément essentiel de liens sociaux, de nouvelles pratiques partagées de l'espace. Cela suppose d'accepter de penser de nouvelles formes d'hybridation, entre nature et gestion technique, et de les intégrer dans de nouvelles démarches de conception, ouvertes et partagées. Ces questions sont au cœur de la politique parisienne et ont aussi tout leur sens dans l'enseignement de projet, tant à l'échelle urbaine qu'à l'échelle architecturale. Ces exemples sont présentés et mis en relation avec des références internationales.

Rezumat

Cu toate că a fost pentru mult timp un element fondator al oraşelor, apa a devenit, începând cu secolul al XIX-lea şi mai ales în secolul XX, un obiect tehnic pe care omul a încercat să îl controleze şi cel mai adesea să îl facă să dispară din spaţiul urban. Devenită utilă, apa urbană şi-a pierdut valorile simbolice şi de folosire. Provocările legate de mediu impun azi o repunere în discuţie a locului şi a rolului apei în cadrul oraşului. Facilităţi şi confort urban, natură şi oraş, schimbări climatice... invită la reconsiderarea apei ca fondatoare de practici şi identităţi teritoriale. Această abordare impune reconsiderarea simultană a moştenirilor tehnice şi a devenirii acestora. Ea necesită de asemenea depăşirea viziunilor sectoriale care condiţionează prea frecvent planificarea şi gestiunea teritoriului. Ea invită în acelaşi timp o reflecţie asupra ciclurilor care ne traversează şi ne modelează teritoriile: ciclurile apei, ale anotimpurilor, ale utilizărilor.
Considerată ca risc (inundaţie, igienă), apa poate contribui la redesenarea oraşului, a spaţiilor sale publice şi private, a arhitecturilor sale. De asemenea, apa poate constitui un element esenţial

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al legăturilor sociale, al unor noi practici participative ale spațiului. Aceasta presupune acceptarea unor noi forme de hibidizare între natură și gestiune tehnică, precum și integrarea acestora în noi abordări, deschise și participative, ale planificării. Situate în centrul politicilor pariziene, aceste probleme sunt pe deplin relevante și în cadrul învățământului proiectării, atât în la scară urbană, cât și la scară arhitecturală. Aceste exemple sunt prezentate și relaționate cu referințe internaționale.

Mots clés: eaux, cycles de l'eau, nature en ville, changement climatique, espace public, aménagement urbain, confort urbain, héritage technique

1. Introduction

L'objet de cette communication est de faire état des réflexions en cours sur les enjeux et les potentiels d'une prise en compte de l'eau en milieu urbain, à la fois pour une meilleure connaissance des territoires, de leur géographie et de leur évolution, mais aussi comme élément essentiel de démarches de projets et de recherches renouvelées.

Ce travail s'appuie sur des études menées dans des cadres différents. D'une part les travaux conduits au sein de l'Atelier Parisien d'Urbanisme (APUR), agence d'urbanisme dont les missions et études concernent Paris et les départements riverains [1]. D'autre part, les travaux pédagogiques menés dans le cadre de l'Ecole Nationale Supérieure d'Architecture de Paris Belleville (ENSAPB), tant au sein des ateliers de projet (licence 3^{e} année, master 4^{e} et 5^{e} années) que d'un séminaire d'initiation à la recherche (master 4^{e} et 5^{e} années) [2].

Depuis plusieurs années, l'importance des questions environnementales et leur inscription dans des cadres réglementaires nationaux et européens, ont conduit à faire de la question de l'eau un élément incontournable des enjeux d'aménagement. Pourtant, cette question est souvent abordée selon des logiques sectorielles et considérée comme un problème technique réservé à des spécialistes (hydrologues, ingénieurs spécialistes des fluides et des réseaux d'assainissement, climatologues, écologues…). Elle concerne encore trop rarement les architectes et les urbanistes, voire même les paysagistes. Pourtant, son intégration dans les démarches de projet, comme dans les démarches de recherches, s'avère pertinente et enrichissante à plus d'un titre. Il suffit de rappeler le rôle historique et fondamental de l'eau dans la formation des territoires, le développement des villes ainsi que dans l'architecture, jusque dans le dessin de la modénature.

Reconnaître l'importance de l'eau en milieu urbain, c'est en faire un élément fondateur et intégrateur des démarches de projets territoriaux, urbains et paysagers, et architecturaux, un élément (re)fondateur d'identités territoriales.

2. L'eau révélatrice de systèmes métropolitains

Depuis quelques années, l'approche la plus immédiatement lisible de l'eau à l'échelle métropolitaine relève le plus souvent des enjeux liés à la nature et à la biodiversité. Plus ou moins fortement articulée aux plantations, elle s'inscrit dans les réflexions sur les trames dites « vertes et

bleues » portées par les documents réglementaires ou contractuels (schémas directeurs, de cohérence territoriale, Agenda 21, plans locaux d'urbanisme, chartes…). L'objectif est de renforcer la présence de la nature en ville et les continuités écologiques en précisant les enjeux qui se jouent à différentes échelles, du territorial au local.

L'intérêt de cette approche est de renforcer les enjeux écologiques en reconnaissant l'importance des eaux de surface (fleuves, rivières, rus, canaux, lacs, étangs, mares…). Son identification à l'échelle des quatre départements du cœur de la métropole parisienne (Paris, Hauts-de-Seine, Seine-Saint-Denis et Val-de-Marne) fait apparaître finalement une faible présence, de 1 à 2,5% selon les départements. Malgré l'existence de trames d'eau naturelles et artificielles, Paris, dont la densité est l'une des plus élevée au monde, reste très minérale.

Pour autant, la prise en compte de l'eau en milieu urbain ne peut se limiter aux eaux de surface et aux enjeux écologiques. L'eau participe aussi des agréments urbains, de dimensions esthétiques et d'usages qui ne sont pas toujours compatibles avec ces enjeux écologiques. Par ailleurs, les eaux de surfaces sont indissociables, jusque dans leur existence même, des eaux souterraines qui restent encore méconnues.

Ces eaux souterraines, ou eaux de nappes, sont aujourd'hui souvent perçues comme une contrainte, particulièrement car elles rencontrent le grand système des infrastructures enterrées que sont les réseaux d'assainissement et les réseaux de transports. Au même titre que les eaux de surfaces, elles ont pourtant conduits, au fil du temps, à la localisation des activités et établissements humains. Agriculteurs et industriels ont largement exploité ces ressources (pompage, forage) et dans certains cas continuent à le faire alors que les villes et villages où dominaient l'habitat et les équipements ont cherché à en éviter les risques (débordement des fleuves et rivières, inondations par remontées de nappes). C'est d'ailleurs en considérant l'eau sous l'angle des risques qu'elle représente, que la richesse et la complexité du cycle des eaux souterraines et de surface ont été oubliées.

L'histoire de la plaine au Nord de Paris (communes d'Aubervilliers, Saint-Denis, La Courneuve, Stains…) est sur ce point exemplaire. Sur ce vaste territoire, le réseau des eaux de surface a été formé depuis le XIIIe siècle par irrigation et assèchement des nombreux marais. Les riches terres agricoles ont pu être exploitées, les rivières équipées de moulins… avant de devenir, à partir du XIXe et du XXe siècles, le lieu d'une des plus importantes concentration industrielle de l'agglomération parisienne, industries elles-aussi attirées par la forte présence d'une ressource exploitable en surface (Seine, canal Saint-Denis, rivières) et en sous-sol (nappes présentes à faible profondeur). Cette transformation, accompagnée d'une densification de plus en plus importante, a conduit à faire disparaître les rus et rivières pour des questions de sécurité et de salubrité. Au milieu du XXe siècle, l'eau n'est pratiquement plus visible, transformant définitivement la relation de l'homme à son territoire. Les rejets agricoles, industriels, humains ont fait des rus des cloaques à ciel ouvert. La forte pression foncière a conduit les pouvoirs publics à buser progressivement les cours d'eau et à les intégrer au réseau d'assainissement. La transformation du territoire s'est alors poursuivie en oubliant la présence de l'eau. L'urbanisation, en imperméabilisant les sols, et ses modes de gestion des eaux pluviales, se sont traduits par des retours d'inondations lors de fortes précipitations (1953, 1955, 1980, 1992, 2005) notamment dans des secteurs qui historiquement n'avaient pas été habités à cause de cette exposition au risque (Fig. 1 et 2). La disparition des

activités agricoles et la désindustrialisation ont aussi conduit à des remontées d'eaux souterraines, puisque ces activités ne puisaient plus dans cette ressource. Les nappes ont aujourd'hui retrouvé leur niveau de la fin du XIXe siècle et jouent un rôle dans les risques d'inondations.

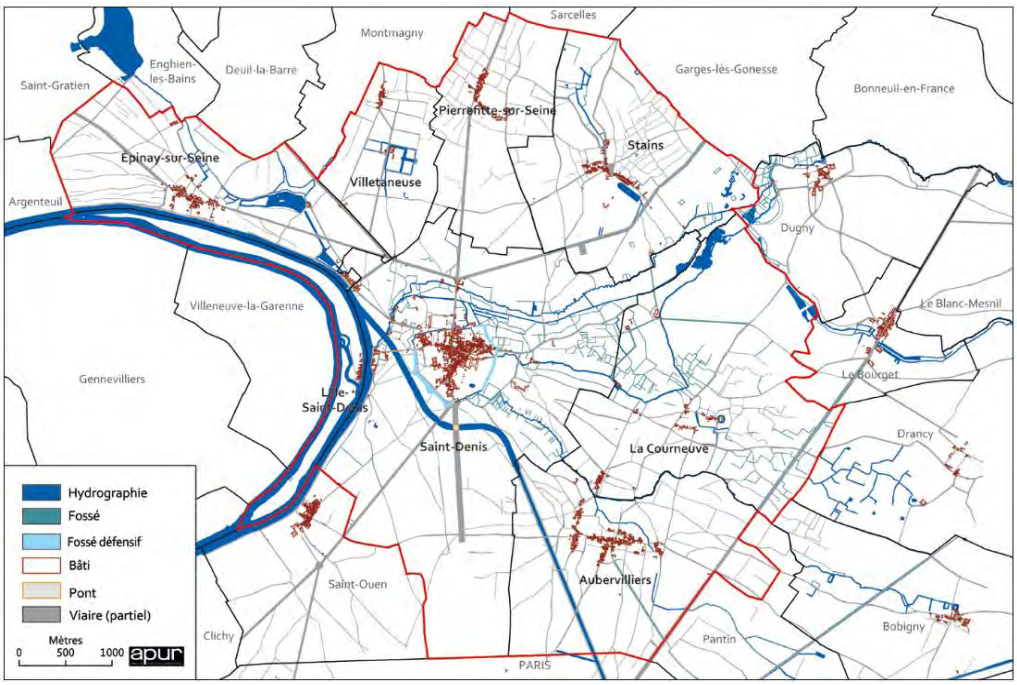

Figure 1. Le réseau hydrographique sur une partie de la Seine-Saint-Denis au début du XIXe siècle
© Apur. Sources : carte Napoléon, Atlas du patrimoine 93, DEA 93, Apur

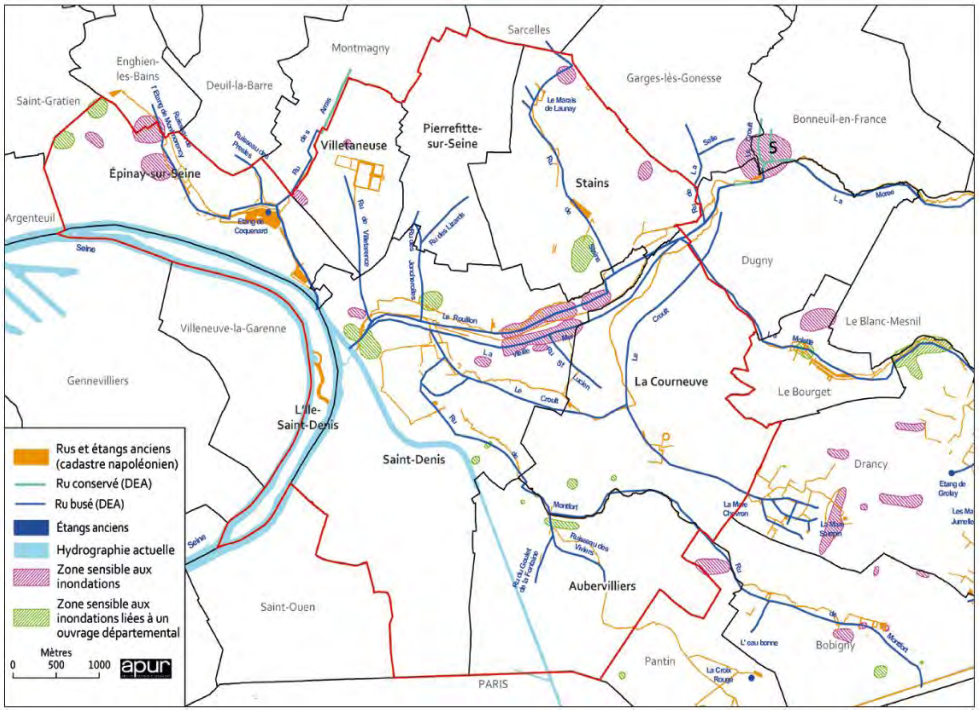

Figure 2. État actuel des rus, rivières et zones sensibles aux inondations
© Apur. Sources : carte Napoléon, Atlas du patrimoine 93, DEA 93, LREP, Apur

Cette situation a conduit à reconsidérer l'héritage d'une ère technique qui a permis des avancées considérables en matière d'assainissement mais a essentiellement procédée par grands travaux d'enfouissement de réseaux d'égouts et d'eau pluviale. Cette nouvelle étape a fait du département de Seine-Saint-Denis, depuis plus de vingt ans, un territoire pilote et exemplaire en matière de gestion des eaux de pluie. En cherchant à maitriser les plus forts volumes d'eau pluviale, la Direction de l'Eau et de l'Assainissement (DEA du CG93) a fait évoluer les techniques à mettre en œuvre. Pour gérer l'eau le plus en amont possible, et donc ne pas saturer les réseaux existants, il y avait différentes manières de considérer le problème. A partir de 1975, les volumes d'eau de pluie ont d'abord été contrôlés par des ouvrages de délestage enterrés ou par de profonds bassins à ciel ouverts dimensionnés sur la base de modélisations sur les débordements. A partir de 1985, un autre mode de calcul a été retenu pour les ouvrages à l'amont : 10 litres/second/hectare imperméabilisé, soit, pour un hectare, 350 m3 de stockage pour une pluie de retour 10 ans. Les espaces de stockage pouvaient encore être enterrés ou en surface. Mais tous ces ouvrages se sont révélés couteux et surtout difficiles à gérer dans le temps et à intégrer dans le paysage urbain. En considérant par ailleurs que la pluie est dynamique, c'est-à-dire très souvent petite, moyenne souvent et plus rarement grande et qu'une pluie de retour 10 ans ne représente en réalité que 4 cm d'eau qui tombe sur le sol, les hydrologues et urbanistes de la DEA, tout en gardant la règle des 10l/s/ha, ont pu dépasser une approche limitée à un calcul de volumes pour favoriser une gestion de l'eau de pluie à ciel ouvert et au plus proche de son point de chute. En rendant visibles les dispositifs techniques, ils ont pu travailler sur leur intégration urbaine et du même coup assurer leur pérennité.

Cette autre manière de voir et de traiter un problème à l'origine strictement hydraulique, implique qu'un ouvrage technique peut être un espace urbain multifonctionnel qui peut s'inonder temporairement mais permet aussi d'autres usages que la fonction de rétention d'eau, même en temps de pluie. Pour assurer la sécurité de ces espaces, il faut dès lors travailler avec de faibles hauteurs d'eau donc de faibles dénivelées. C'est finalement tout un art du nivellement et du dessin des espaces publics qui est ainsi redécouvert et renouvelé. Ces solutions permettent, selon les cas et les contraintes de sous-sol, de retarder les rejets dans les réseaux d'assainissement ou de retrouver un cycle naturel en favorisant une infiltration progressive des eaux de pluies, donc une réalimentation des nappes souterraines. En termes d'aménagements urbains, les formes prises par ces ouvrages peuvent être très variables. Le plus souvent elles contribuent au renforcement de la végétation (gazon et autres plantations basses, arbustes et arbres de haute tige), mais elles peuvent aussi être mises en œuvre dans le cas d'espaces publics plus minéraux (Fig. 3, 4, 5, 6).

Figure 3. Cité Floréal à Saint-Denis
© DEA 93

Figure 4. Square Jean Mermoz – Villemomble
© DEA 93

Figure 5. Clos Saint-Vincent – Noisy-Le-Grand © F.Bertrand

Figure 6. Quartier des 3 Rivières – Stains © F.Bertrand

L'intérêt de ces solutions va selon nous bien au-delà de leur objet premier, la gestion des eaux pluviales et des risques d'inondations. Il faut y voir en effet, un travail de décloisonnement dans les pensées techniques et une manière de réinterroger et de mettre en valeur le cycle de l'eau en milieu urbain. Cela signifie en particulier que la pensée sur le sol de la ville n'est plus dissociée d'une pensée sur son sous-sol.

L'intérêt est aussi de questionner autrement les techniques et la maitrise du nivellement héritées pour une très grande part du XIXe siècle. Cette époque a notamment été celle du développement de la chaussée bombée (la rue nouvelle remplace les anciennes voies avec caniveau central et se compose d'une chaussée centrale circulée et de deux trottoirs latéraux bordés de caniveaux pour collecter les eaux de ruissellement et les évacuer en égouts). Les sols ont été de moins en moins perméables et la pensée hygiéniste a organisé la disparition des eaux stagnantes et une classification générale des eaux qui a rapidement dégradé la valeur des eaux de ruissellement et même des eaux de fleuves, rivières ou canaux considérées comme impures.

Pourtant, malgré son caractère artificiel, le vaste système d'adduction et d'évacuation des eaux mis en place au XIXe siècle a laissé un héritage technique d'une très grande richesse et sophistication. Si l'on se limite à la gestion du sale dans la ville, on peut ainsi noter que même les eaux considérées comme impures, non potables, étaient maîtrisées au service d'un cycle particulier : les eaux de ruissellement servaient à l'acheminement des matières solides en égouts vers les stations d'épuration, la dérivation et la canalisation de rivières, comme l'Ourcq et certains de ses affluents, ont conduit à la création de canaux utiles à la navigation fluviale mais aussi à la création d'un réseau spécifique d'eau non potable destiné au nettoyage des espaces publics, à l'écoulement en égout (systèmes de réservoirs de chasse) et plus largement à l'arrosage des parcs et jardins et à l'alimentation de leurs trames d'eau (cascades, rivières et lacs artificiels). La Ville de Paris, riche de ce patrimoine, a d'ailleurs décidée, en mars 2012, de conserver son deuxième réseau d'eau (eau non potable) pour assurer la poursuite de ses usages d'origine (nettoyage et arrosage). La Ville expérimente également de nouvelles techniques afin d'utiliser ce réseau pour rafraichir ses espaces publics en période de canicule. Par ailleurs, ce réseau, aujourd'hui majoritairement alimenté par le canal de l'Ourcq et plus ponctuellement par la Marne et la Seine, pourrait servir à canaliser et exploiter d'autres eaux considérées comme nuisibles : les eaux d'exhaure, c'est-à-dire des eaux souterraines qui sont pompées et rejetées le plus souvent en égouts afin d'empêcher l'inondation des

ouvrages souterrains (réseaux de transports, parkings et autres sous-sol bâtis). En diversifiant ses sources d'alimentation et en évitant que trop d'eau ne rejoigne inutilement les stations d'épuration, le réseau d'eau non potable pourrait ainsi contribuer à une meilleure gestion globale de la ressource. De même, en diversifiant les utilisations possibles de l'eau non potable pour tous les usages qui ne nécessitent pas une qualité optimale, mais coûteuse, d'eau potable, c'est une préservation et une économie des ressources les plus rares qui sont en jeux.

La question de l'eau saisie sous l'angle des grands systèmes métropolitains abordés ici (trames « vertes et bleues », gestion des inondations et de l'assainissement) invite donc à dépasser le cloisonnement des approches et des pensées sur la ville. Ainsi, à titre d'exemple, un ouvrage de gestion des eaux en surface, souvent considéré strictement comme un ouvrage d'assainissement, peut contribuer au renforcement de la nature en ville, au développement de la biodiversité et à la restauration de cycles naturels de l'eau. De même, le développement de ce type de techniques, dites alternatives, s'il interroge une certaine pensée technique (celle du tout tuyau et des ouvrages artificiels) n'est pas strictement opposable et substituable aux réseaux plus anciens et plus artificiels. Les études pour la redécouverte de la Vieille Mer [3], ancienne rivière, busée et enterrée qui traverse une partie du territoire de la Saint-Denis avant de rejoindre la Seine, illustrent aussi cette situation complexe. Après des recherches tournées vers une découverture de cette rivière, qui malgré leurs qualités restaient contraintes par des questions de nivellement, dues à la profondeur de l'eau actuelle, et un paysage finalement très canalisé, une nouvelle phase d'étude s'est ouverte recherchant plutôt une renaturation de la rivière à découvrir. Cela suppose que le paysage de cette rivière soit moins canalisé, plus sinueux et propice au développement de la biodiversité. Un nouveau type de nivellement s'impose alors, ainsi qu'une plus grande maitrise des volumes d'eau à acheminer donc au final un contrôle artificiel des eaux et la mise en œuvre d'un double dispositif, l'un en surface contribuant au paysage urbain et à son écosystème, l'autre enterré pour contrôler les risques de trop forts apports d'eau de pluie.

3. L'eau comme solution microclimatique

Les villes et particulièrement les grandes métropoles, du faite de leurs fortes densités bâties, de leur caractère minéral et de la faible présence d'espaces plantés, sont plus fortement soumises aux fortes chaleurs. Elles subissent le phénomène dit d'ilot de chaleur urbain (ICU) caractérisé par l'écart de températures entre les zones urbaines et les territoires péri urbains et ruraux. Les épisodes caniculaires sont susceptibles de provoquer une surmortalité importante dans les villes. C'est ce qu'a subit Paris durant l'été 2003 avec 1 254 décès supplémentaires et des écarts de température avec les zones périphériques de +8%. Selon l'Institut National de Veille Sanitaire, une hausse de 1 degré aurait aggravé le risque sanitaire de 80% en août 2003 !

Pour lutter contre ces phénomènes, l'eau s'avère être un vecteur essentiel. La proximité d'un fleuve, comme l'ont déjà prouvées de nombreuses études, contribue à un abaissement des températures mesurable à plus de 100 m de distance en milieu urbain. L'aspersion directe des rues contribue aussi à ce phénomène. Elle est le plus souvent pratiquée avec des engins mécanisés qui servent à l'entretien des espaces publics. Nettoyage, réduction des poussières et rafraichissement se combinent alors. Enfin, la présence de sols perméables et d'espaces plantés favorisent des phénomènes d'évaporation et d'évapotranspiration qui contribuent également au rafraichissement

de l'air et à la création de microclimats locaux. L'eau est ainsi un élément indissociable de la végétation et pourrait donc conduire à reconsidérer les politiques d'économie d'eau en particulier pour l'arrosage en période caniculaire.

La prise en compte des phénomènes d'ICU, dont la fréquence risque d'être plus importante du fait des dérèglements climatiques, semble donc rentrer en contradiction avec une exploitation accrue de la ressource en eau. C'est en effet durant ces périodes que la ressource en eau se fait plus rare et que des restrictions peuvent être imposées. Par ailleurs, les experts s'accordent sur une tendance à l'accroissement de phénomènes de stress hydrique à l'horizon 2050.

Pourtant, certains pays, comme le Japon, ont su développer une politique efficace en la matière. Les eaux non potables (eaux de pluie, de rivière, de stations d'épuration après traitement complémentaire) sont mises au service d'un rafraichissement qui prend souvent des formes très variables : arrosage des espaces plantés par les eaux de ruissellement des trottoirs et des voies circulées, création de rivières artificielles, asperseurs intégrés à des chaussées spécialement conçues pour permettre un stockage d'eau en surface, arrosage manuel des espaces publics par les habitants eux-mêmes à partir d'un réseau d'alimentation spécifique ou de petits canaux en surface… Ces pratiques peuvent d'ailleurs donner lieu à des fêtes publiques spécifiques. Au-delà de la lutte contre les phénomènes caniculaires, le Japon, en préservant ou réintroduisant l'eau dans la ville, parvient à la rendre publique, commune et accessible à tous. A travers des usages tant publics que privés, le cycle urbain de l'eau combine nettoyage et dépollution, arrosage, réduction des rejets en égouts, rafraichissement, aménités, nature en ville, dimensions ludiques et esthétiques (Fig. 7 à Fig. 10).

Figure 7. Tokyo © F. Bertrand

Figure 8. Tokyo

Figure 9. Takayama

Figure 10. Miyajima

En ce sens, le Japon illustre bien un dépassement du cloisonnement des approches et des modes de gestion qui pourrait davantage être recherché en Europe et particulièrement en France. En Espagne, des villes comme Madrid et Barcelone, confrontées à des problèmes de stress hydrique, se sont aussi engagées dans la voie d'un développement accru des usages de l'eau non potable (eau de pluie, eau de nappe et eau de stations d'épuration dites « régénérées ») particulièrement pour le nettoyage, l'arrosage et l'alimentation de trame d'eau de surface (lacs, cascades, rivières).

Les techniques alternatives de gestion des eaux de pluie en surface, présentées plus haut, sont aujourd'hui de plus en plus considérées et aménagées pour leur contribution au rafraichissement urbain. Cette évolution conduit par exemple à dépasser la seule gestion des risques d'inondations et à concevoir des réservoirs d'eau capables de retarder les rejets dans les réseaux d'eau pluviale mais aussi de disposer de réserves supplémentaires pour l'arrosage des espaces plantés.

4. L'eau comme plaisir et comme spectacle

Renouer avec la présence de l'eau en ville ne saurait se réduire à des savoirs et des modes de gestion scientifiques et techniques, aussi vertueux soient-ils. L'eau synonyme de détente et d'agrément doit pouvoir trouver place comme plaisir et spectacle dans la ville.

Les craintes liées à la santé et à la sécurité des usagers, si elles sont légitimes, ont souvent eu comme conséquence de couper les habitants de tout contact avec l'eau. Dans ce contexte, l'attirance pour l'eau se traduit régulièrement par des pratiques considérées comme illégales ou à la limite de la légalité comme la baignade dans les fleuves, rivières, canaux ou fontaines publiques…
Ces dernières années, des installations éphémères, comme Paris Plage, ont permis de répondre aux attentes des citadins en la matière. Chaque été, une partie des berges de Seine est fermée à la circulation et les piscines et autres jeux d'eau qui sont installées attirent beaucoup de visiteurs. Si une baignade a été ré-ouverte sur les bords de Marne, il n'est pourtant pas encore possible de se baigner dans la Seine, alors que cela se pratique dans le Rhin (à Bâle) ou dans la Limmat (à Zurich) pour ne citer que ces exemples.

Ces dernières années, plusieurs artistes contemporains ont aussi exploré, dans le cadre de manifestations ou d'installations éphémères dans l'espace public, le caractère parfois extraordinaire que peuvent prendre les différents états de l'eau [4] : cascades, miroirs d'eau, nuages de vapeur, glace… Signalons à ce sujet les œuvres remarquables d'Olafur Eliasson ou le Blur building, réalisé à Yverdon-les-Bains par Diller Scofidio et Renfro [5].

Ces installations, en dehors de leurs qualités propres, ont l'intérêt de re-questionner la place de l'eau dans la ville et de prolonger, dans un registre contemporain, des dimensions festives et artistiques qui ont existé sur la longue durée. A elle seule, l'histoire des jardins offre un panel d'exemples remarquables et bien connus. Dans Paris même, le XIXe siècle a légué un patrimoine exceptionnel qui est progressivement remis en valeur (cas de la grande cascade du bois de Boulogne, par exemple, qui a retrouvé récemment son faste d'origine avec des lâchées d'eau régulières plus importantes) [6].

Ces exemples invitent à s'interroger sur les actions qui pourraient être mises en œuvre pour enrichir ce patrimoine : redécouvrir des trames d'eau, en créer de nouvelles, multiplier et pérenniser les jeux d'eau, développer la baignade…

Une nouvelle fois, si l'on considère que l'eau, du fait de sa nature même, invite à dépasser les limites, il est possible de penser des stratégies de projets qui mettent en synergie les différents systèmes urbains. A titre d'exemple, la condition pour que l'eau et les citadins puissent à nouveau être en contact réside pour une bonne part dans la maîtrise et l'amélioration de sa qualité. Un tel

horizon n'est pas impossible à atteindre, les cas de Bâle et de Zurich cités plus haut le prouvent. Surtout, cet horizon est indissociable d'une amélioration environnementale, écologique, dont d'autres espèces (faune et flore) profiteront et d'une conception des espaces urbains qui rende compatible ces différents horizons. De même, accéder à l'eau c'est profiter de ses plaisirs mais c'est aussi rendre la ville plus habitable surtout en période de forte chaleur et pour les populations les plus défavorisées qui n'ont pas les moyens de quitter la ville.

5. Un enjeu pédagogique

Face aux différentes dimensions esquissées ici, et aux enjeux d'avenir liés à la ressource en eau, il nous a paru essentiel d'intégrer cette question au sein de l'enseignement de l'architecture et du projet urbain. Il s'agit non seulement de préparer les étudiants à ce qui sera de plus en plus incontournable dans leurs pratiques professionnelles mais également de réfléchir à la richesse que représente la thématique de l'eau dans la manière d'aborder le projet spatial à différentes échelles. Pour illustrer cette question nous aborderons essentiellement ici le cas de l'enseignement de projet urbain en cycle master (4 et 5 années) à l'Ecole nationale supérieure d'architecture de Paris-Belleville (ENSAPB).

En termes d'objectifs, nous considérons que les transformations urbaines restent largement contraintes par des logiques sectorielles et fonctionnelles importantes. Les réflexions sur l'environnement, placées sous le signe du développement durable, peinent, malgré leurs potentiels, à être le support de démarches de projet et de définitions des espaces concrets qui soient véritablement intégratrices.

Confronté à un foncier considéré comme rare et à des territoires en profond renouvellement, la réflexion urbaine est souvent dépendante d'une pensée par fragments dont l'assemblage ou le recollement semble échapper à toute autorité organisatrice.

Il importe donc que les architectes soient capables de se situer dans le champ d'investigation large des études urbaines, dans leurs rapports à des disciplines souvent spécifiques et autonomes. La recherche d'une identification des terrains de l'architecte s'appuie donc sur une exploration des échelles et des éléments fondamentaux où s'élabore le projet spatial de la ville contemporaine (géographie, infrastructures, espaces publics, tissus urbains, usages, perception…).

Le développement du projet, de ses outils de conception et de formalisation spatiale, s'attache particulièrement à intégrer les dimensions de l'espace et du temps ainsi que les enjeux environnementaux qui peuvent s'y rattacher (réchauffement climatique et lutte contre les effets d'ilots de chaleur urbain, maîtrise de l'eau et préservation de la nature en ville…).

Le territoire retenu pour le projet est l'occasion d'aborder plus spécifiquement les enjeux liés aux ambiances (bruit, vent, lumière…) et au cycle de l'eau dans le projet d'aménagement, leur capacité à produire du paysage, de l'espace public et de l'architecture.

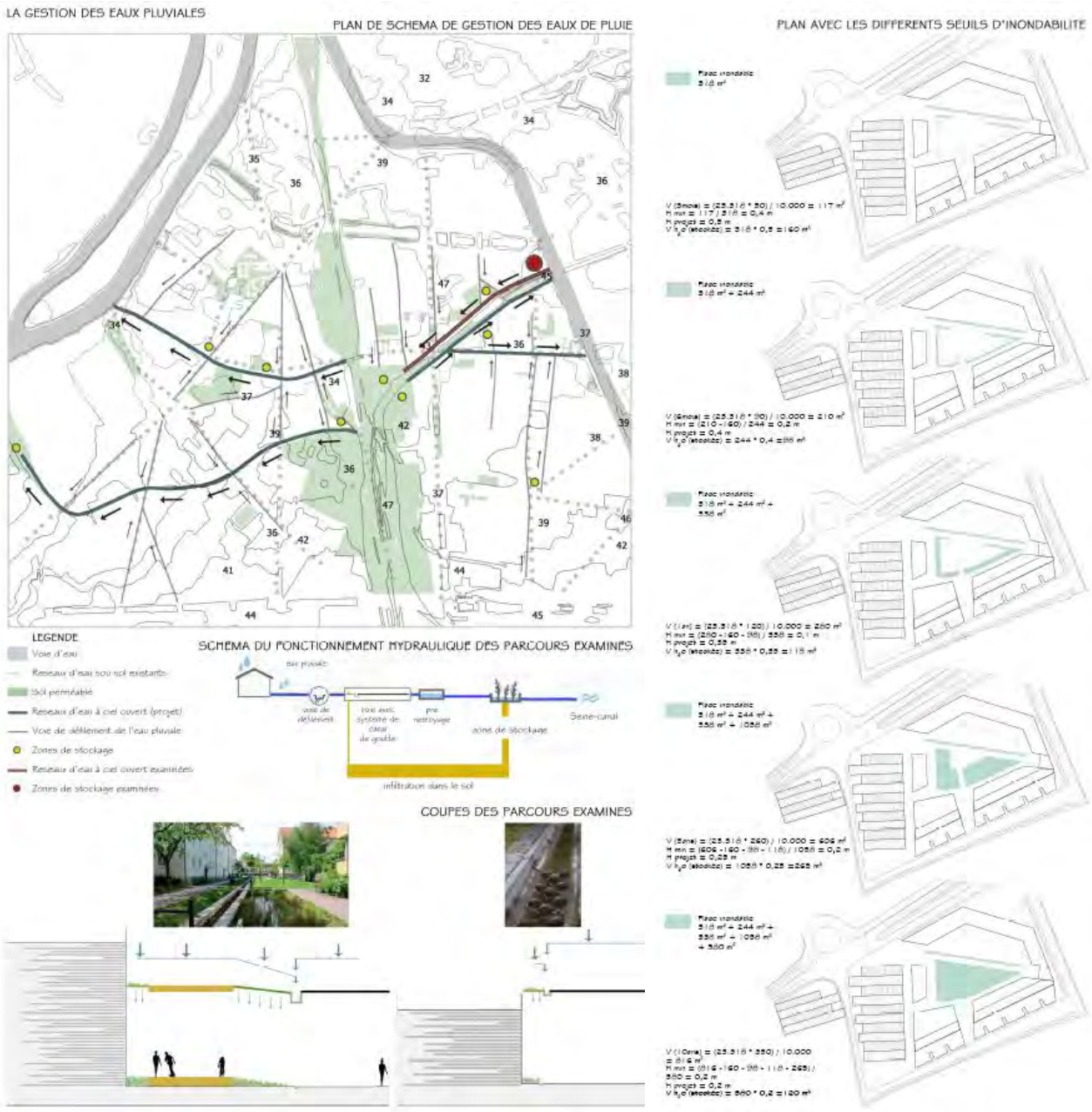

Figure 11. Gestion des eaux pluviales : Projet d'Erica Meneghin et Samanta Tumbarello, master ENSAPB, 2012 © Erica Meneghin et Samanta Tumbarello/ensapb

L'élaboration du projet permet d'explorer différentes approches théoriques liées aux transformations urbaines contemporaines et de se forger une culture partagée des questions sociales, économiques et environnementales qui y sont liées. Cette acculturation au projet urbain conduit aussi à évaluer les stratégies d'intervention sur l'espace en termes de faisabilités techniques et opérationnelles. La rencontre entre architecture et site est l'opportunité d'intégrer les paramètres environnementaux (milieux, ressources, nivellement, orientation, enveloppe, matérialité…). Le projet architectural et urbain doit mettre en relation le sens des transformations urbaines recherchées et les potentialités du lieu. Il doit également préciser les temporalités et la nature des usages possibles (jour, nuit, saisons…).

Au regard de ces objectifs et contenus, et des grands enjeux présentés plus haut, on peut comprendre que si l'eau n'est pas le seul sujet il est pris en compte comme un élément qui peut s'avérer essentiel pour comprendre et maîtriser les questions d'environnement, d'aménagement, de paysage et d'architecture. Il est d'ailleurs un point d'entrée majeur pour une conception renouvelée des espaces libres publics et privés, la définition de leurs statuts, de leur nivellement, de leur matérialité.

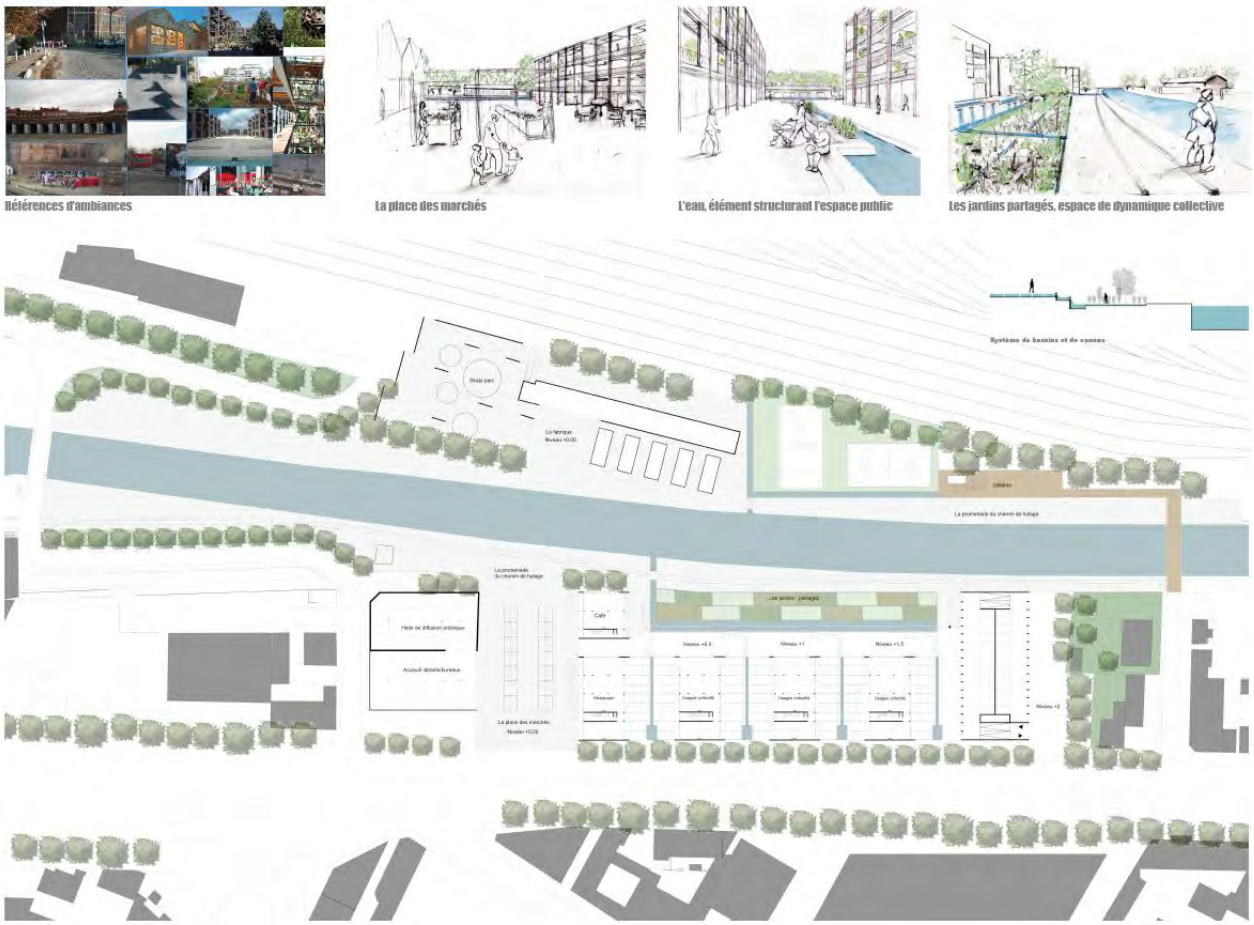

Figure 12. Gestion des eaux à l'échelle d'un quartier : Projet de Marie Monteuuis, master ENSAPB, 2011 © Marie Monteuuis/ensapb

Les extraits de projets présentés ci-dessous (Fig. 11 et Fig. 12) illustrent la manière dont l'eau peut être support de projet urbain à différentes échelles. Les travaux réalisés en 2012 ont porté sur de vastes territoires en mutation, en Seine-Saint-Denis, au nord de Paris, et plus particulièrement sur le devenir des emprises d'infrastructures ferrées nord-sud. La gestion des eaux pluviales a été l'occasion de repenser une géographie de plaine et de mettre en relation deux systèmes hydrauliques différents, le canal Saint-Denis à l'est et la Seine au Sud. L'eau devient ici support de pratiques et de parcours, elle dessine les espaces publics. A une échelle plus fine, elle met en scène les temporalités urbaines liées aux seuils d'inondabilités dus aux variations de précipitations et leur compatibilité avec le maintien des usages de l'espace publics et des programmes qui s'y rattachent (Fig. 11).

En 2011, le territoire d'étude était le canal de l'Ourcq, de Pantin à Sevran, toujours en Seine-Saint-Denis, ici au nord-est de Paris. L'extrait présenté est un focus sur le secteur dit des Quatre Chemins à Pantin. Il illustre la recherche d'une maîtrise des eaux pluviales déclinée à l'échelle d'un quartier, les liens qu'elle crée entre espaces publics et espaces privés, son rôle dans le dessin des nivellements, l'extension dans la profondeur du tissu des qualités paysagères et environnementales du canal existant. Les eaux de ruissellement permettent d'alimenter de nouveaux bassins permanents qui irriguent des jardins publics avant leur rejet dans le canal. Avec cet aménagement, la qualité de l'eau peut aussi être améliorée avant rejet, par phytoremédiation (Fig. 12).

Pour être assimilée par les étudiants, les enjeux liés à l'eau en milieu en urbain sont traités tout au long du déroulement du projet (1 semestre) et doivent être maitrisés tant dans leurs implications conceptuelles que pratiques. L'objectif est qu'ils acquièrent un niveau de maîtrise technique qui leur permettent de devenir des acteurs capables de dialoguer efficacement avec les autres intervenants en charge des transformations spatiales et notamment les ingénieurs. Des cours et un cahier des charges à respecter leurs permettent plus facilement d'intégrer ces questions et de les tester concrètement à partir de règles de calcul et de dimensionnement de base. C'est l'objet de l'exercice présenté ci-dessous :

La gestion des eaux pluviales comme élément d'architecture
Exemple de cahier des charges rédigé par l'urbaniste hydrologue Thierry Maytraud, pour le studio de master de l'ENSAPB, « Interfaces métropolitaines. Transformations urbaines et approches environnementales », Frédéric Bertrand, Mohamed Benzerzour, Thierry Maytraud, 1er semestre 2012-2013.

Dans le cadre d'un site concret, créer un espace qui met en scène les techniques d'assainissement de l'eau de pluie et valorise l'espace produit.
Dessiner un projet à partir d'une contrainte technique.

Objectifs :
La gestion des ressources en eau en général, la prévention des risques naturels et anthropiques, la régulation des eaux pluviales et plus globalement la présence de l'eau en site urbain dense, sont des sujets d'actualités pour les gestionnaires, les élus et les aménageurs de l'espace.
La finalité pédagogique de cet exercice est quadruple :

- Intégrer une contrainte technique dans la démarche de conception d'espace urbain ;
- Inscrire votre réflexion dans une démarche environnementale et urbaine, en initiation aux principes du développement durable.
- Acquérir des connaissances sur la maîtrise de l'assainissement de l'eau de pluie, le dimensionnement des ouvrages,

Sujet :
Sur ce site d'aménagement de la Plaine Saint-Denis, la contrainte de rejet concernant les eaux pluviales ne doit pas dépasser un débit de 10 l /s/ha quelque soit la pluie, ce qui signifie 350 m3 à l'hectare actif (imperméabilisé) pour une pluie décennale. La ville souhaite, comme sur la plupart de ces projets, transformer cette contrainte en élément de valorisation. Elle souhaite absolument que

l'approche technique pour atteindre l'objectif de cette maîtrise des rejets EP soit parfaitement intégrée au tissu urbain et social environnant tout en cherchant à concevoir des dispositifs à ciel ouvert. Le projet concernant le stockage des eaux pluviales devra être lisible, pédagogique, multifonctionnel, esthétique, voire ludique…

C'est à dire que la contrainte de l'eau pluviale ne doit plus être une contrainte mais un élément de valorisation du projet urbain et de paysage. Aussi ce projet doit être « découpé » en plus petits sous-bassins versants afin d'utiliser toutes les opportunités foncières du projet pour les stockages des eaux pluviales.

L'objet de l'exercice est de réaliser un projet d'espaces inondables intégrés au site et au projet d'architecture. Il sera très important d'étudier finement la topographie du site, du futur projet et le raccordement à l'environnement immédiat (la topographie).

Le travail sur la conception des dispositifs de stockage des eaux pluviales doit être particulièrement soigné, tant du point de vue de la mise en œuvre de l'approche d'intégration architecturale des dispositifs de stockage des eaux pluviales que du point de l'intégration sociale, de la pédagogie du système, de sa lisibilité.
Il s'agit de rendre ces espaces inondables tout en permettant des usages urbains, et assurer la sécurité des usagers. Comment transformer une contrainte technique en élément de projet ? C'est le sujet de l'exercice.

Travail à rendre concernant la gestion des eaux de pluie :

- Une notice explicative expliquant, l'état des lieux et le diagnostic de site, du point de vue de l'analyse urbaine, environnementale et paysagère. Puis présentation des intentions de projet de gestion des eaux, de la philosophie du projet, décrivant le parti de paysage (espace extérieur) mais aussi le fonctionnement hydraulique, le fonctionnement urbain et les usages…
- Une note de calcul hydraulique
- Plan masse « Architecture, Paysage et Eau » avec notice explicative et légende
- Plan de schéma de gestion des eaux de pluie
- Plans schématiques du fonctionnement hydraulique : par temps sec, pour une pluie retour 3 mois, 6 mois, 2 ans, 5 ans, et pour une pluie décennale
- Plan de nivellement et assainissement
- Plan plus précis :
    - Plan des sols maçonneries et mobilier… 1/250
    - Plan avec les différents seuils d'inondabilité
    - 2 coupes en travers (présentant chacune état existant et projet avec côtes altimétriques et dimensionnement des ouvrages et matériaux) et les seuils d'inondabilité
    - 2 coupes en long (présentant chacune état existant et projet avec côtes altimétriques et dimensionnement des ouvrages et matériaux) et les seuils d'inondabilité
    - Détail de maçonnerie, sols…
    - Vue axonométrique des ouvrages de stockage
    - Croquis et détail explicatifs

La prise en compte de l'eau est également développée dans le cadre de l'atelier de projet de premier cycle (3^{e} année de licence, 2e semestre, « Habiter la métropole ») consacré à l'habitat. Là encore, mais à une échelle plus architecturale, les étudiants développent une réflexion sur l'eau en articulant

espaces publics et espaces privés et en s'interrogeant sur ses qualités symboliques, environnementales et d'usages. L'eau est également une manière d'approfondir autrement les questions constructives, les détails d'architecture, les matérialités (Fig. 13).

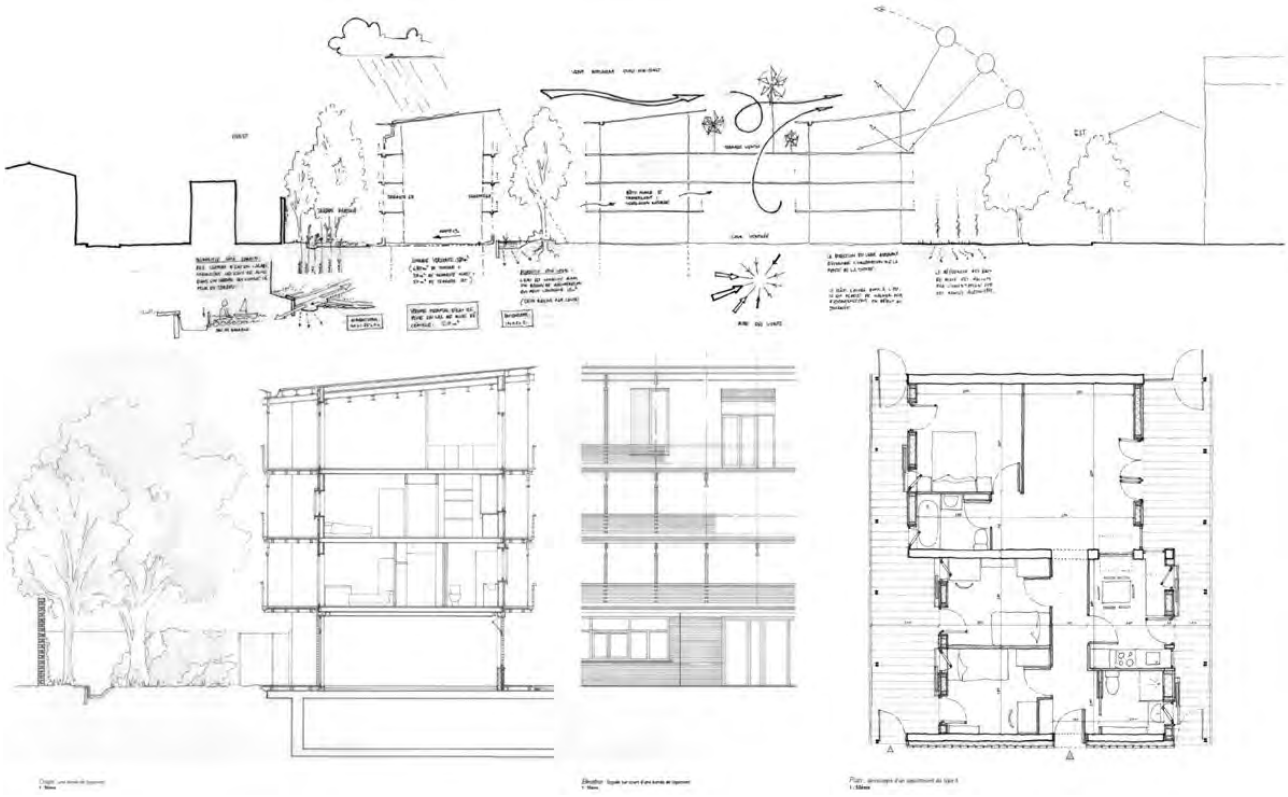

Figure 13. Eau et architecture de l'habitat : Projet de Jean-Baptiste Ramaut, licence, ENSAPB, 2011
© Jean-Baptiste Ramaut/ensapb

Enfin, ces dernières années, la découverte de la richesse des questionnements liés à l'eau dans le cadre des ateliers de projet a conduit certains étudiants à vouloir approfondir ce sujet au sein de l'enseignement des séminaires d'initiation à la recherche (Master, « Territoires en projet : architecture, urbanisme et paysage »). Cela a été le cas de Stejara Timis, étudiante de Cluj, lors de l'échange Erasmus en 2011-2012. Des passerelles enrichissantes ont ainsi pu être établies entre démarche de projet et démarche de recherche.

6. Conclusion

Comme nous avons cherché à le démontrer, il est important, voire urgent, que la question de l'eau en milieu urbain soit approfondie au-delà des frontières disciplinaires et techniques auxquelles elle est souvent limitée et qu'elle prenne place dans l'enseignement et la recherche au sein des écoles d'architecture.

Plus largement, des liens entre pratique opérationnelle (ou pré-opérationnelle) et enseignement/recherche sont à développer et à enrichir au bénéfice de tous les acteurs concernés.

L'eau permet de mieux comprendre et de questionner les systèmes métropolitains et urbains hérités et actuels. En pensant leur complémentarité et leur hybridation, il est possible de dépasser les cloisonnements trop souvent à l'œuvre (politique, économique, technique, gestion, usages…). L'eau n'est pas réductible à l'écologie, l'assainissement, la gestion des risques, l'hygiène, l'esthétique… Sa réalité physique, sa symbolique, ses usages, ses cycles traversent toutes ces questions.

L'eau est aussi un vecteur essentiel pour comprendre, concevoir et intégrer la simultanéité des échelles tant spatiales que temporelles. Du territorial au local, de la géographie à l'architecture, elle pose aussi la question de l'épaisseur du milieu urbain, des liens entre la surface et le sous-sol. Le rythme des saisons invite à réfléchir à ses changements d'états (la neige et le gel par exemple), son cycle mêle histoire et géographie (de la goutte d'eau aux fleuves et mers) [6], sécheresses et précipitations, pénuries et inondations.

Les formes prises par l'eau, ses différentes qualités, ne peuvent plus être réduites aux classifications hygiénistes héritées du XIXe siècle. Les attentes des usagers, en fonction de leurs milieux sociaux ou de leurs cultures, nous interrogent sur les moyens de redécouvrir des identités territoriales et des patrimoines trop souvent ignorés, notamment à l'ère de la mondialisation. Lors de nos cours séjours à Cluj, nous avons pu mesurer le potentiel existant, sa richesse et sa diversité dans la ville, aussi bien dans ses traductions matérielles que dans les usages observés (Fig. 14).

Pour prolonger et approfondir ces questions, il convient aussi de s'interroger davantage sur le potentiel que représente l'eau dans son rapport à l'énergie. Force hydraulique, échange thermiques, stockage d'énergie, structure des grands réseaux et leur rapport au développement de réseaux locaux… sont autant d'aspects qui débordent le cadre de cette contribution mais qui restent fondamentaux à l'ère des changements climatiques et des transitions énergétiques.

Remerciements

L'auteur tient à remercier la Faculté d'architecture et d'urbanisme de l'Université technique de Cluj-Napoca et l'Ecole d'architecture de Paris-Belleville qui permettent que, dans le cadre des échanges Erasmus, des rencontres sur l'enseignement et la recherche puissent se tenir. Mme Dominique Alba qui a autorisé que les travaux réalisés dans le cadre de l'Atelier parisien d'urbanisme puissent être utilisés pour cette communication. Mr Ronan Quillien, de la Direction de l'Eau et de l'Assainissement de Seine-Saint-Denis, qui a autorisé l'exploitation de sources iconographiques, et a bien voulu, avec Mr Thierry Maytraud, de l'Agence ATM, relire ce texte et y apporter des remarques et corrections. Enfin, l'auteur remercie les étudiants de master et de licence de l'ENSAPB pour leur implication dans les projets et recherches liés à l'eau en milieu urbain.

Figure 14. Diversité de patrimoine et d'usages à Cluj. Eté 2012 © F. Bertrand

7. Références

[1] Pour plus d'informations sur les travaux de l'Apur se reporter au site : http://www.apur.org/
Concernant particulièrement les études sur l'eau en milieu urbain voir :
http://www.apur.org/etude/etude-devenir-reseau-eau-non-potable-partie-1-analyse-diagnostic
http://www.apur.org/etude/etude-devenir-reseau-eau-non-potable-partie-2-rappel-nouvelles-pistes-reflexions
http://www.apur.org/paris-projet/ville-visible-ressources-cachees

[2] Pour plus d'informations sur les contenus pédagogiques voir : http://www.paris-belleville.archi.fr/

[3] Ces études ont été commanditées par la Direction de l'Eau et de l'Assainissement de Seine-Saint-Denis. Pour plus d'information sur la gestion de l'eau dans ce département voir : Direction de l'Eau et de l'Assainissement, Service Hydrologie Urbaine et Environnement. *La gestion durable des eaux pluviales en Seine-Saint-Denis*. Seine-Saint-Denis : DEA-SHUE-Seine-Saint-Denis Le Département, juillet 2009.

[4] Voir à ce sujet : Guillerme André. *Aquosité urbaine. Le patrimoine hydrographique de l'Ile-de-France par référence aux rivières de la préfecture de Kyoto*. Paris : CERGRENE-ENPC, juin 1991.

[5] http://www.olafureliasson.net/works.html et http://www.dsrny.com/

[6] Pour l'eau dans le bois de Boulogne et de Vincennes voir : http://www.apur.org/etude/eau-bois-boulogne-vincennes-valorisation-ressource

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Development of a Method to Map and Estimate Urban Stress in Open Spaces with help of Geo-spatial Analysis Techniques

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Abstract

Several cities of the EU are in the process of developing (or have already developed) comprehensive models to estimate their micro-climate of cities and its variation due to the effect of climate change. One of the main goals of these models is the prevention and adaptation to extreme climate events. However, all the results from these models (most of them computing with geo- referenced data) are stored in individualized databases and even individualized data- formats, causing an active use of these results for disciplines of urban planning, urban design or architecture almost impossible. With this paper I intend to introduce a new concept as an integrator between these models, which postulates a simplified conceptual method to help urban designers to make a first assessment of urban micro-climate effects. This is achieved through the application of simple spatial analysis tools, available on all major GIS systems. I present the concept as Urban Stress. The aim of this paper is to define the constituent components of the Urban Stress and possible identification parameters. In order to accomplish this, we have focused our research on quantifying urban stress on open urban spaces. There are three important reasons why we have made our focus on open urban spaces: 1) we can exclude the building envelope; 2) empirical observations and data collection were possible; and 3) the analysis area is considerably reduced. The main results from this paper are: a) the identification of potential parameters that are able to quantify urban stress; and b) to identify the usability of such an approach for the disciplines of urban planning and urban design. This approach intends to help professionals from both disciplines to quickly identify problem zones in an urban area and make a first quick analysis of proposed urban interventions on that space.

Rezumat

Mai multe oraşe ale UE se află în procesul dezvoltării (sau şi-au dezvoltat deja) modele inteligente pentru estimarea micro-climatului urban şi al variaţiilor acestuia, cauzate de efectul schimbărilor climatice. Unul dintre principalele obiective ale acestor modele este prevenirea şi adaptarea la evenimente climatice extreme. Cu toate acestea, toate rezultatele obţinute pe baza acestor modele (majoritatea calculate cu date geo-spaţiale) sunt depozitate în baze de date individualizate, sau chiar folosesc formate individualizate, ceea ce face folosirea activă a acestor date în urbanism şi arhitectură aproape imposibilă. Această lucrare intenţionează să introducă un nou concept integrator între aceste modele, postulând o metodă conceptuală simplificată care vine în sprijinul urbaniştilor, în demersul de a realiza o primă evaluare a efectelor urbane micro-climatice. Aceasta se realizează prin aplicarea unor instrumente simple de analiză spaţială, disponibile în toate principalele sisteme GIS. Scopul acestei lucrări este de a defini componentele constitutive ale Stresului Urban, precum şi posibili parametri de identificare a acestora. Pentru aceasta, ne-am concentrat cercetarea pe cuantificarea stresului urban în spaţii urbane deschise. Focalizarea pe spaţiile urbane deschise are la bază trei motive importante: 1) putem exclude anvelopa clădirilor;

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2) observațiile empirice și colectarea datelor a fost posibilă; și 3) zona analizată e redusă considerabil. Principalele rezultate ale lucrării sunt: a) identificarea potențialilor parametrilor care pot cuantifica stresul urban; b) identificarea relevanței acestei abordări pentru disciplinele planificării și amenajării urbane. Această abordare se dorește un sprijin al profesioniștilor în identificarea rapidă a zonelor problematice ale unui teritoriu urban, precum și în realizarea rapidă a unei prime analize a propunerilor urbanistice pentru acel spațiu.

Keywords: Urban Planing, , Open Spaces, Urban Stress, GIS

1. The Need of an Interdisciplinary Approach in Urban Design

What is: *a*) an optimal data set; and *b*) an optimal tool set, for one task is often seriously flawed for another because optimal in each analysis task implies specialization. For disciplines like urban planning or urban design, for which a wide set of analysis, is needed, the community normally opts for a strong simplification of relevant effects. A multidisciplinary approach should not be an excuse to perform analysis at a suboptimal specification level. The aim of this paper is to present the ongoing efforts towards the development of a framework for the integration of analysis methods and data used -actively and potentially- in the urban design and urban planning community. The need for models that can estimate the effect of planning decisions on both, the environment and its users, is essential for the urban planning and urban design community. In order to design a useful framework that is able to incorporate a wide set of topics and tools, this framework has to: a) be open; and b) make use of a common and wide spread programing language. In order to achieve an open framework, the structure of the proposed system is divided into: *1*) the data needed for the different analysis, aiming to find common data uses between topics and trying to propose a harmonization of data structures; and *2*) the actual "modules" of the system and their interaction, both between them and with the data sources. For the example presented in this paper the *python* programing language has been use. This language is very common among the GIS community having strong and robust libraries to process spatial information.

1.1. Towards knowledge-based design

Disciplines like urban design and architecture have to make use of all available information and knowledge in order to promote innovation. In the past years there has been an attempt to address the design of cities and urban spaces in a more structured fashion. Klaasen [1] states that in the professional field of urban design there has been little concern towards the development of scientific foundations, Klaasen continues her work in an attempt to start such an endeavor. As a key factor to its success she identifies as an imperative the systematic accumulation of knowledge. The definition of "knowledge-based design" is a very abstract concept that cannot be pinpointed to a specific set of tools or methods; nonetheless the used words help to establish a position within the community. In the following sections the presented paper focus on method rather than on the holistic approach towards "knowledge-based design", presenting a comprehensive framework to cope with -in my opinion- the biggest challenge of urban design: *interdisciplinary*.

In this article, I introduce the preliminary research that I have conducted in this field, describing the current efforts towards the development of an integrated framework to quantify and map urban stress. The priorities of this framework and the presented paper are to establish a common base for the further development of similar efforts. In order to achieve a common base that can be developed in an interdisciplinary manner the framework has to be open for a wide audience. In an effort to improve the design of urban spaces I propose the construction of an open tool that can be extended or reduce its "tool set" depending on the planning context. For that matter is it imperative that such a system is

open source and developed in a wide spread programing language.

In a separate development, Munoz & Peters are on the way to develop a toolset for the generation of sociodemographic data at a micro level, that will be compatible with the framework presented here. Such an effort could make an interesting contribution to the further development of the computation of urban stress, integrating a social component into the model. Such a model could take into account features like: *1*) relationship between demographics and stress factors; or *2*) vulnerability to urban stress. Similar to such an approach is the integration of the building stock into the model. Nonetheless, the integration of the building stock would explode the complexity of the model. Not only the simulation process would be more complicated but the data integration would be very difficult making the transferability of the model almost impossible.

1.2. Data and models integration

An important aim of this effort is to prepare a framework under which we can keep track of innovation (knowledge) as well as the vast amount of accessible information (data). With an open framework the integration of new models may be easily integrated into the framework making the track of innovation possible. The integration of data is more complicated because there exists a vast range of data standards that are not compatible. In order to cope with this problem the framework attempts to make use of data available at a high level and available for a large part of the globe.

1.3. A step back

As models mature, the amount of needed data grows, so do the -complexity- of the underlying algorithms, making a reproduction of the results very hard. An integration of models is very hard, not only because of computational power but lack of require knowledge in different disciplines. Mature models are more accurate. But, do we need this level of detail for a first quantification of urban stress in disciplines like urban design and Architecture? For the estimation of urban stress the use of "simpler" models may be attractive and even more effective for the large computation efforts. For this reason I propose a step back into "older" models in order to achieve an integration of this model. A good example of this integration is presented below in section 4, showing the use of a method developed in the late nineties that can be easily reproduced and therefor can be integrated into the framework.

There are many algorithms that are fast, that don't need special data and which performance is 'optimal' for the estimation of urban stress. New models developed to compute the very last uncertainties are more accurate that models developed when we did not have big computers and big data. Nonetheless, the "old" models may be optimal for a model integration. These models have been built to work with simple (nowadays, wide available data) and run fast, making the computation of large urban areas at a high resolution possible. An interesting use of new, more precise models may be the validation and calibration of simpler models. An interesting example of a similar approach has been presented by Buccoliere *et.al* (2010) on their paper: Classification of urban geometries for the estimation of city breathability and pollutant dilution, see [2]. This tradeoff between portability and velocity against accuracy may be applicable if experts of each discipline validate the simple models.

2. Definition of Urban Stress

The aim of this project is to define parameters to quantify and map ranges of urban stress; we focus on open spaces as it is there where the results may have a direct connection to urban design and urban planning. Another reason to focus on urban spaces is the possibility of field measurements. The main goals of the project are: *1*) identify potential parameters able to quantify urban stress; and

2) identify the usability of such an approach for the disciplines of urban planning and urban design. This approach intends to help professionals from both disciplines to quickly identify problem zones in an urban area.

2.1. Stress definition in other disciplines

Other disciplines have used the term of stress intensively. Physics have long used the term to explore material resistance; in biology the term has also been widely used. The use of the term in biology is especially interesting because it analyzes systems with an analogy to urban systems. The term stress had none of its contemporary connotations before the 1920s. It is a form of the Middle English *destresse*, derived via Old French from the Latin stringere, "to draw tight" [3]. It had long been in use in physics to refer to the internal distribution of a force exerted on a material body, resulting in strain. In the 1920s and 1930s, the term was occasionally being used in biological and psychological circles to refer to a mental strain or a harmful environmental agent that could cause illness. Walter Cannon used it in 1926 to refer to external factors that disrupted what he called homeostasis [4].

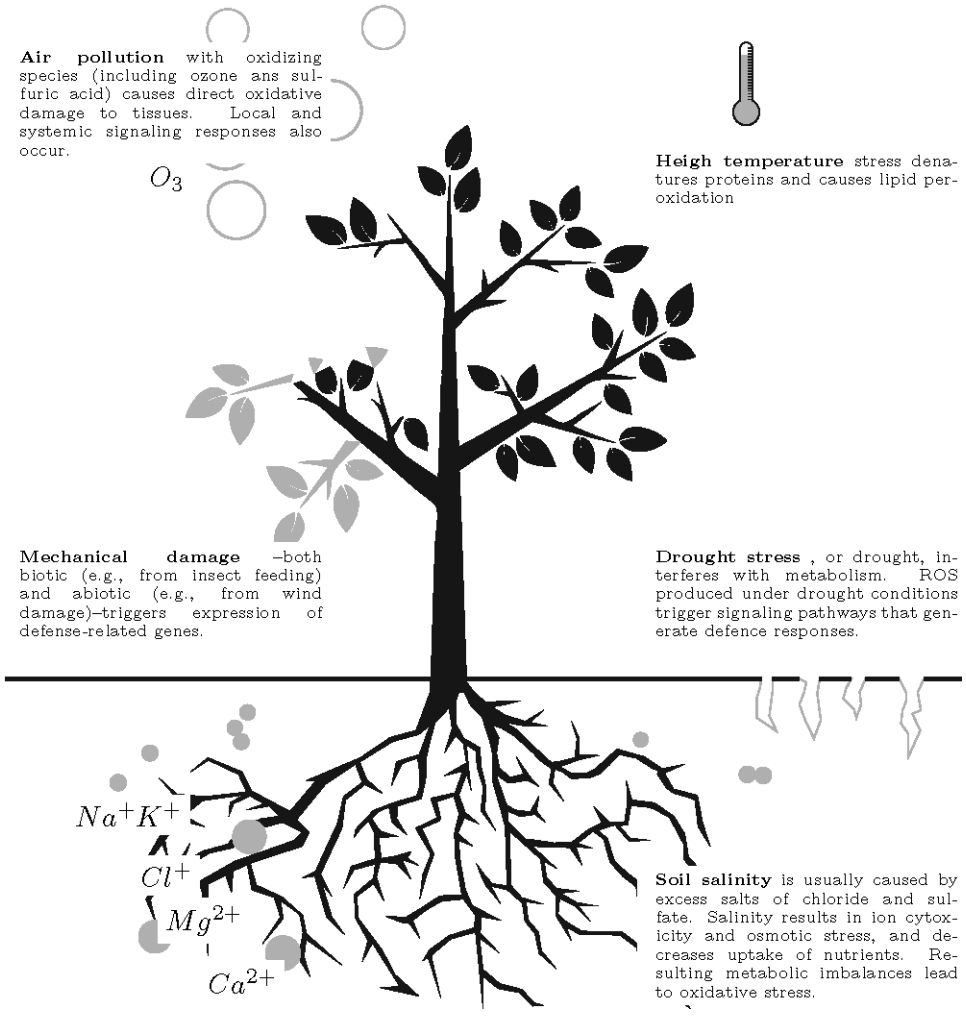


Figure 1: A tree model and the possible abiotic stress factors influencing its behavior. With the author´s permission. Source: [5]

"The condition in which one plant may develop optimally, may be stressful for another. Jones in 1989 defines biological stress as an adverse force or a condition, which inhibits the normal functioning and well-being of a biological system [as qtd. in Mahajan und Tuteja 2005]. Niinemets

(2010b) refers to stress to the sustained deviation of any environmental condition beyond the optimum range, which has as results in the reduction of plant potential productivity. . . . the principle behind stress is the alteration of a condition from its optimum. . . . A change on their balance to a stressful level such as drought and flood or heat and freeze triggers a series of complex physiological responses in plants." [5, p.21] The vision of stress level in natural systems is very clear to see in Figure 1. A model of a tree can be analog to the model of a city, and similar on how stress levels arising from phenomena in the immediate surroundings of the tree influence the behavior of the tree, urban processes may trigger stress of the urban model.

2.2. Stress in urban systems

Our understanding of urban systems is still developing; we need to understand the rules driving urban processes. Urban stress may be a trigger of urban change serve as an estimator to measure pressure in a system that that needs change. The pressure created by stress in certain urban areas may trigger change, both in its build environment - as a reaction - and its residents (e.g. health, migration, etc.). "Urban warming in hot climates exerts heat stress on organisms, including humans, and may influence water resources by changing the surface-energy balances, altering not only heat fluxes but also moisture fluxes near the surface." [6] The influence of these effects on humans is the main motivation to map urban stress in urban areas. The difference between estimating stress levels on single individuals and to map it on urban areas is that the first will estimates the impact of a range of effects of individuals while the second will map their effects rather than the impact.

As a first approach I consider urban stress as factors that have an influence on: *a*) all living organisms -including humans- (e.g. overheat, water scarcity); *b*) visual comfort (e.g. proportions of space); and *c*) supply infrastructure systems (over- or under dimension of infrastructure grids). The measurement of stress level in the case of a) living organisms is not performed on single organisms but the stress applied to them when on site. The idea of using the concept of urban stress is to create a container for topics and ideas that can be expanded base on the individual (interests) and local needs (geography). In this sense this container can be seen as a developing and flexible concept. I have defined a set of topics in order to start with the analysis, presented in section 3. This set of topics serves just as a guide showing possible analysis topics under the umbrella of urban stress. Topics and concepts on how to define particular levels of stress may vary depending on location and on knowledge domain.

3. Urban Stress as an Umbrella

In Figure 2 five main categories are defined: *1*) Heat; *2*) Emissions; *3*) Aesthetics; *4*) Services; and *5*) Infrastructure. Under these categories a set of subtopics is presented. These subtopics are possible topics that are to be developed under the main categories. As mentioned before, this toolbox should serve to create a guide for further development, presenting a possible set of tools to start with. As this paper just presents a first attempt into the development of such a model it only presents a deeper analysis of one of this sub topics (topic number 3, Shadows, see section 4). The figure also shows the needed data for the different subtopics and how different subtopics may share some of this data. The fourth and last column shows a graphical representation of the scripts written for each subtopic, making it like a real toolbox on which we can collect, select, add and take out as many tools as we want. The development of such a toolbox may be in diversification where it may contain various different tools that have the same functionality.

Ideally we would want to run all the scripts or tools with a small dataset; in order to achieve this (or a fist attempt toward this) have been to define a data hierarchy tree. We may be able to generate or

infer low level data (micro data) about individual units (persons, buildings, etc.) out of high level data. The advantage of high level data is that it is very homogenous and available at a high range. There is a strong relation between the data that the subtopics need. For many of the simulation models we can generate the needed data out of high level data. This is a hierarchical relationship between data type and format. A simplification of this relationship can be seen in figure 3. Based on this hierarchy the needed data for the single subtopics could be generated. There are interesting approaches for data retrieval and data generation (see [7]). Such approaches could be used for the homogenization of data. Similar to the tradeoff between time and precision of models, there is one between accurate data and availability of data. Here again a compromise between these two may be achieved if we use the accurate data to validate the models generating synthetic data out of high level, wide available data.

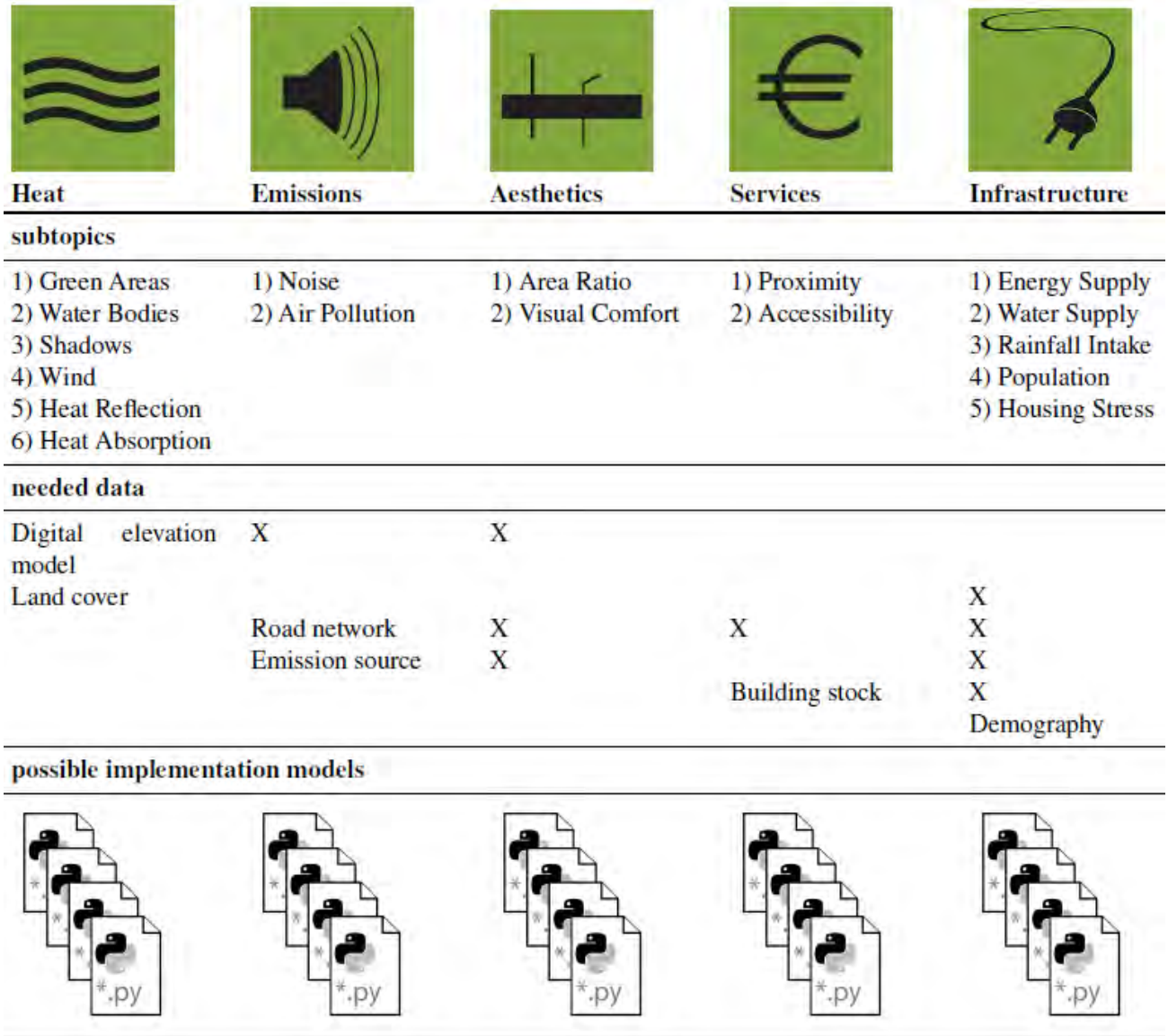


Figure 2: Modeling process using an open tool box

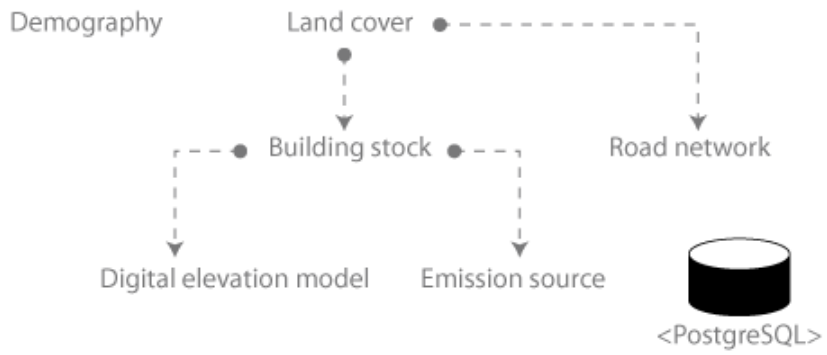
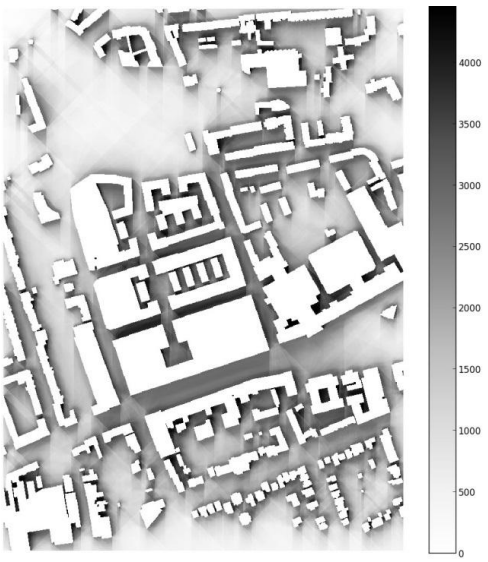


Figure 3: Possible data hierarchy

4. Heat Stress, shadows

One of the most important parameters to compute urban heat stress is the shadow patterns of urban areas. There are many tools that can compute shadow patterns from 3D data. Nonetheless the use of 3D data is complex, that is, if that type of data is available for the current analysis area. Even if data is available, strong difference between datasets are very likely, making generic algorithms may prove difficult. In the other hand, the use of digital elevation models can be interesting for the homogenization and integration of data. The generation of a digital elevation model out of 3D data is not a problem at all. In the case presented below, a digital elevation model was generated out of GIS data. The single buildings in the data set are stored as single 2D polygons; one of the polygons attributes is the number of building stories. For the construction of the digital elevation model, an image for each building story was exported and integrated into a building elevation model. A small script to join the images was easy to develop. There is a big advantage of using images as an input for any kind of computation. Almost any software is able to export data as images, making it the perfect format for a model aiming to integrate a wide set of tools and disciplines. The calculated shadows, are calculated as total number of shadows in a year, see figure 4b. This makes a very good example on how the "umbrella" of urban Stress may be helpful. If we think about the computation of urban stress rather than the computation of shadows, we may want to compute the number of shadow hours just for a specific time frame (e.g. rush hours) rather than the total hours of shadows in a year.

(a) Digital elevation model for a small urban area



(b) Total shadow hours for small urban spaces

Figure 4: Calculated shadows for urban spaces based on a digital elevation model

For the computation of shadows in urban spaces, a script to compute a digital elevation model and a script for the calculation of shadows was developed. The second script was developed based on the proposed model by Richtens in (1997) [8]. A big disadvantage of using a digital elevation model for an integrative analysis of urban areas is the inability of modeling in an object oriented fashion. A simulation in an object oriented fashion may be interesting to simulate urban processes taking into account the attributes of individual buildings.

5. Conclusions

The presented framework may be able to enable the comparison of different planning strategies and quantify possible outcomes of these strategies. Such a comparison (and the quantitative effect) may be extremely useful for urban planners and architects, taking decisions regarding our cities. This paper does not present an "out of the box" solution but aims to promote a systematic and knowledge-based approach towards the design of urban environments. This approach provides a mathematical measure of urban space quality here under the concept of Urban Stress.

"In one sense, cities are slowly beginning to be subject to the methods and approaches of 'big science' as data sets get ever larger and as teams of different experts are required to put together requisite models to engender this new science." [9]

"It should be emphasized that the theory does not predict density profiles or socioeconomic differences inside the city, but the scaling for the properties of the city as a whole." [10]

We may see urban stress as a triggering mechanism for the simulation of urban processes helping us understand how our cities work. The integration of urban stress in urban models could follow the principle of a Pressure State Response (PSR) system. In such a system high stress levels create pressure in the system, this pressure is interpreted in the system as feedback, the system can react to such feedback. This may be an interesting contribution for the dynamic simulation of urban processes -Urban Dynamics-. Other possible application of the development of such an endeavor may foster are: *1*) environmental injustice may be analyzed by merging stress levels and demographic data; *2*) health risk assessment has a relation to stress levels in the city; *3*) identification of most impacted urban areas within the city; and *4*) analysis of new urban interventions and policy measures.

"As to the professional field, there has been very little concern to develop a scientific foundation for urban & regional design . . . Widely held notions, such as the uniqueness of each design and each design situation, or such as urban design being an artistic activity based on individual creativity or focused on conserving cultural heritage, have hitherto left little room for thinking about urban design as a science." [1]

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Public Space Versus Technology: Interaction, Communication, Community

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Abstract

Public space is where we go to meet others and express our opinions regarding matters concerning the community. It is where we can take part in certain events or activities open to everyone regardless of age, social status, religious beliefs or political affiliations. It is a place for social interaction and encounter. In this day and age we cannot properly function without what technology has provided, it has become an important part of our lives. Technological advance made it possible for us to design buildings and spaces in new ways, gave us new possibilities to spend our free time. Along with the internet, came new opportunities to access information and to communicate. The internet, together with the need to interact, gave way to a new type of public space, a virtual one. The social networks that are being used today create relationships similar to what we encounter in physical public spaces of the city. We are witnessing the integration of technology in each and every part of our lives, at home or the office, including our public spaces. How do we use public spaces today? Does technology have a significant effect on the way we use public spaces? Can traditional public spaces keep up with technological advance? This article will point out the way technology changed not only the way we work, communicate or gather information, but also the way we behave and use public space.

Rezumat

Spaţiul public este acolo unde mergem pentru a ne întâlni cu semenii noştri, pentru a ne exprima părerile legate de problemele comunităţii. Acolo mergem pentru a participa la evenimentele sau activităţile care sunt destinate tuturor, indiferent de vârstă, categorie socială, convingeri religioase sau afilieri politices. Este un loc pentru interacţiune socială şi întâlnire. În ziua de azi, nu mai putem funcţiona cum trebuie fără beneficiile pe care ni le-a adus tehnologia. Printre numeroasele avantaje pe care ni le-a oferit evoluţia tehnologiei, se numără posibilitatea de a crea prin noi metode clădiri şi spaţii, dar şi noi opţiuni pentru petrecerea timpul liber.O dată cu apariţia internetului, au apărut noi posibilităţi de a accesa informatii şi a comunica. Prin intermediul internetului, nevoia de a interacţiona a dat naştere unui nou tip de spaţiu public, unul virtual. Reţelele de socializare pe care le folosim astăzi creează relaţii între utilizatori ce se aseamană cu tipul de relaţii pe care le găsim în spaţiul public fizic al oraşului. Asistăm la integrarea tehnologiei în vieţile noastre, acasă sau la serviciu, inclusiv în spaţiile publice.Cum folosim spaţiile publice azi? Are tehnologia un efect însemnat asupra modului în care utilizăm spaţiul public? Vor putea oare spaţiile publice tradiţionale să ţină pasul cu evoluţia tehnologiei? Acest articol îşi propune să evidenţieze în ce măsură tehnologia a schimbat nu doar felul cum muncim, comunicăm sau ne informăm, ci şi felul în care utilizăm spaţiul public.

Keywords: Public Space, Community, Communication, Technology, Information and

Communications Technology (ICT), Social Network Sites, Smartphones.

1. Argument

In his book, "Art, technology and public space", Ciprian Mihali expresses his opinion on the relationship between public and cyber space: "public spaces (whichever, wherever and however they'll be) give up more and more room for technological and artistic spaces, or, in other words: technologies and the art of space, finally, using another expression: technical arts of spaces.[…] We all could also acknowledge that the 'poverty' of public space determinations, about which we could more easily say what it is not and when it is not, pales before the abundance of virtual dimensions of new spaces or even the abundance of virtual spaces. The possible that characterized public space (in what is now the futile rehabilitation of the human condition) breaks into infinite pieces under the pressure and efficiency of the virtual." [1]

Most of the events that occur in public space use different types of technology in order to simply play out and properly be perceived by the public – auditory systems in order to assure that everyone can hear the discussion/concert/movie, visual devices (projectors and screens) that allow us to see what happens in the focus point area if we can't get close enough. These are things we probably do not notice, we take them for granted because they have become a part of such events, but still, a concert, for instance, automatically implies using a sound system, using technology. Another example of the way technology made its way into public spaces is artificial lighting. Ever since they became a permanent "ingredient" in the city's streets, we got so used to them we have a hard time when for some reason the lights go out for a few minutes. Artificial lighting has become a new type of decoration whether it's meant to emphasize an important building or just accentuate storefront entrances, office buildings, and so on. During the night, the lights create a different image of the city's streets, squares and other public spaces.

These are probably some of those technologies that Mark Weiser speaks about when he says that "The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it." [2]

These are a few of the elements that make it clear that technology has taken over public spaces. They are, so to say, the *basic* ones – or at least what we today perceive as being basic - but there are more such examples that have become increasingly important in the way we use our cities.

2. Social interaction

Aristotle once said "man is by nature a social animal" and although more than two thousand years have gone by since, nothing about our need to socialize has changed.
Social interaction is something that characterizes our species. No wonder that the technological advance that occurred in various domains of our lives also ended up finding its way to our social activities, changing the way we socialize, providing new means of communication and accessing information.

The invention of the telegraph allowed long distance transmission of messages for the first time, later, along with the invention of the telephone, long distance verbal communication became possible. But the most significant breakthrough that scientists made in the communication technology area was the invention of the internet.

The first idea concerning social interaction through networking was expressed in August 1962 by J.C.R. Licklider of MIT within a series of memos written discussing his "Galactic Network"

concept. The first book on the subject was written in 1964 by Leonard Kleinrock (Communication Nets: Stochastic Message Flow and Delay). In 1965, the first wide-area network was built, and in November 1969 the first host-to-host message was sent using ARPANET. Due to the scientists involved in the development of this type of technology, in October 1972, the first public demonstration of ARPANET took place at the International Computer Communication Conference. A few months later, the first send and read email message software was written, rapidly followed by the development of other software meant to facilitate email use. These were the first steps made that eventually lead to today's World Wide Web. [3]

The internet itself became a new, technology-based public space: "The Internet today is a widespread information infrastructure, the initial prototype of what is often called the National (or Global or Galactic) Information Infrastructure. Its history is complex and involves many aspects – technological, organizational, and community. And its influence reaches not only the technical fields of computer communications but through society as we move toward increasing use of online tools to accomplish electronic commerce, information acquisition and community operations." [3] This wonderful new invention allows us today to access any type of information in a split-second, we rely on it every day without even realizing, but its popularity seems to have invaded not only our computers or other devices, but our city's public spaces also. How? By allowing us to interact with each other virtually, and even giving us the possibility to become members of online communities, "stealing" some of the roles of public spaces.

3. Community

Traditionally, a community is defined as being "a social group of any size whose members reside in a specific locality, share government, and often have a common cultural and historical heritage" or "a social, religious, occupational, or other group sharing common characteristics or interests and perceived or perceiving itself as distinct in some respect from the larger society within which it exists". [4]

These definitions obviously refer to actual places, actual people, they describe a notion that we are familiar with for hundreds of years, and obviously, we all are members of at least one community. *At least one,* because the internet together with the establishment of Social Media - Social Network Sites (SNSs), has created new types of communities, virtual communities.

We have the tendency to confuse SNSs with virtual communities, but actually SNSs "are not communities in any singular sense, but rather function as social venues in which many different communities may form." [5]

Most of us frequently use Social Network Sites because "like many of their Internet predecessors, SNSs carry expectations of sociability, meaningful connection to others, conviviality, perhaps even empathy and support. Whether the actual interaction on these venues reaches the level of a "virtual community" depends on one's perspective and definition, but there can be no question that "community", with all its affective and historical complications, will continue to frame popular understanding of MySpace, Facebook, QQ, and other SNSs." [6]

The virtual communities, opposed to actual ones, can form between people that do not actually share the same location, only the same convictions, hobbies or opinions. The internet allows us to surpass our cultural differences and affiliate with others regardless of our background.

"Social network sites enable individuals to construct a member profile, connect to known and potential friends, and view other members' connections. Their appeal derives from providing a stage for self presentation and social connection. SNSs provide props that facilitate self

presentation, including text, photographs, and other multimedia capabilities, but the performance is centred around public displays of social connections or *friends*, which are used to authenticate identity and introduce the self through the reflexive process of fluid association with social circles. Thus, individual and collective identities are simultaneously presented and promoted. Online social networks like MySpace, Facebook, Cyworld, Orkut, LinkedIn, and Bebo reinforce the social affordances of online environments, by fostering interaction that is primarily interpersonal, and founded upon norms of everyday interaction adapted to the online setting. Enabling both identity expression and community building, SNS are initially structured around a niche audience, although they frequently expand beyond the target market." [7]

Beside Social Networks, the internet allows us to gain information about anything without having to leave the comfort of our own homes, and it has also given us the opportunity to share with others our experiences and opinions.

4. Public space versus virtual public space

Physical public space is "the stage upon which the drama of communal life unfolds. The streets, squares, and parks of a city give form to the ebb and flow of human exchange. These dynamic spaces are an essential counterpart to the more settled places and routines of work and home life, providing the channels for play and relaxation. There are pressing needs that public space can help people satisfy, significant human rights that it can be shaped to define and protect, and special cultural meanings that it can best convey." [8]

Can we assume that some of these criteria can describe also the virtual realm?

Zizi Papacharissi wrote "a model of networked sociality emerges on online spaces, the architectural affordances of which inform human activity, by suggesting possibilities for interaction. Working in ways similar to the architecture of physical spaces, these affordances «organize an ensemble of possibilities and interdictions», which are then left to the individual to actualize or reappropriate (de Certeau, 1984, p. 98). The architectural environment presented through these affordances place the individual as the centre and source of all interactions, which typically emanate from a locus that permits online connection" [9]

Considering the way we use not only SNSs, but all other resources the Internet provides, we can say that other than face to face encounter, many of the fore mentioned can actually describe a *virtual public space*.

Pramod K. Nayar points out, "new information technologies, in short, actually resonate with, and are bound up in, the active construction of space and place, rather than making it somehow redundant" and "material spaces are increasingly being produced together". [10]

And we can confirm this simply by observing the virtual information that is freely available to us. Some sites (Norc, Google Maps) or software (Google Earth) even allow us to visit virtual versions of real places we have never actually visited before using our computers or other appropriate devices. Technology has given us the freedom to create our own virtual worlds. An example of such a world is Second Life. By accessing the game's home page, we can find a short description of what it is all about. "Second Life is a 3D world where everyone you see is a real person and every place you visit is built by people just like you". [11]

It is made up of virtual lands, buildings, streets, public spaces, pretty much everything that is available to us in real-life, even money.

It was launched in 2003 and quickly became popular, in 2008 it had "more than 13 million registered users (or «residents»)". [12]

The game (like other Social Media), is also complete with means of written or verbal interaction with other players, according to a study conducted by Educause, "the application really does – or has potential to – effectively combine electronic communication with the equality of a shared space" [12]

Like most online multiplayer games, this one also involves real money, it has also given the opportunity to actually make money. In 2006, the first "Second Life" millionaire (in real American Dollars) was announced. [13]

According to BBC News, the popularity of the game wore off, it is now not as "crowded" as it once was. [14]

Still, in May of this year, MIT Technology Review released an article stating that the creator of the game intends to build a follow-up for Second Life that will be operated using "gestures and body-tracking hardware". [15]

It remains to be seen whether or not this version will be as successful as the previous one.
Considering all of the above, it is safe to say that internet, more precisely, Information and Communication Technologies are actually allowing us to mimic real-life behaviours and recreate real places within the virtual realm. These new possibilities also affect the way we use public spaces in the city by making us spend more time in front of a device, or enjoying the large palette of apps our smart phones have been endowed with rather then engaging in, so to say, "old fashioned" human social activities. It is known that social platforms also function as means of informing others (our *friends*) about events that are going to take place in the city's public space.

The issue has become the focus of many scientists. So much so, that extensive research has been conducted in order to identify how it affects the city and if the way we use public space has changed because of what ICTs have provided.

Smithsonian.com featured an article addressing the relationship between public space and ICT from a sociological point of view. In 2011, sociologist Keith Hampton conducted a study that concluded that the actual use of social networks "have more close relationships and are more likely to be involved in civic and political activities" and that "the types of interactions that people are doing in these spaces are not isolating. They are not alone in the true sense because they are interacting with very diverse people through social networking websites, e-mail, video conferencing, Skype, instant messaging and a multitude of other ways"; in other words, they have the type of discussions that "we'd like to think people are having in public spaces anyway." [16]

The same article presents some ideas of Susan Piedmont-Palladino (curator at the National Building Museum in Washington) which we should consider: "Our design world has different rates of change. Cities change really, really slowly. Buildings change a little faster, but most of them should outlive a human. Interiors, furniture, fashion—the closer you get to the body, the faster things are changing. And technology right now is changing fastest of all. We don't want the city to change at the rate our technology changes, but a city that can receive those things is going to be a healthy city into the future." [16]

So we should acknowledge the fact that social networks actually are not a bad way of interacting with others, but we also need physical public spaces that can "house", support these new tendencies of social behaviour. Keith Hampton also stated that "about 25 percent of those he observed using

the Internet in the public spaces said that they had not visited the space before they could access the Internet there." [16]

We are all more than familiar to the fact that in order to access the Internet we need proper devices such as a laptop, a tablet or a smartphone.

4.1 Smartphones in Public Space

Smartphones are becoming more and more popular. This is probably something we are also starting to notice just by spending time in public spaces. The sight of people sitting around a table or on a bench being absorbed by their smartphones (rather than speak to each other) is becoming a day to day reality. According to a study conducted in March 2013 by comScore Data Mine in Spain, Germany, Italy, France and the UK, the number of smartphone users "grew by 30 percent over the year" (Fig.1).[17]

The great number of smartphone users is also encouraged by mobile phone service providers. They are trying to convince clients to embrace all the benefits a smartphone can provide and somewhat implying that it is better, necessary even, to get a smartphone in order to communicate and interact with family, friends, and to have fun. Their catch phrase is "A smartphone for every Romanian". [18]

This marketing tactic offers even more arguments to support an updated attitude towards public spaces in the city. The more people start using ICTs in public spaces, the greater the need to find a way to make them accommodate such activity.

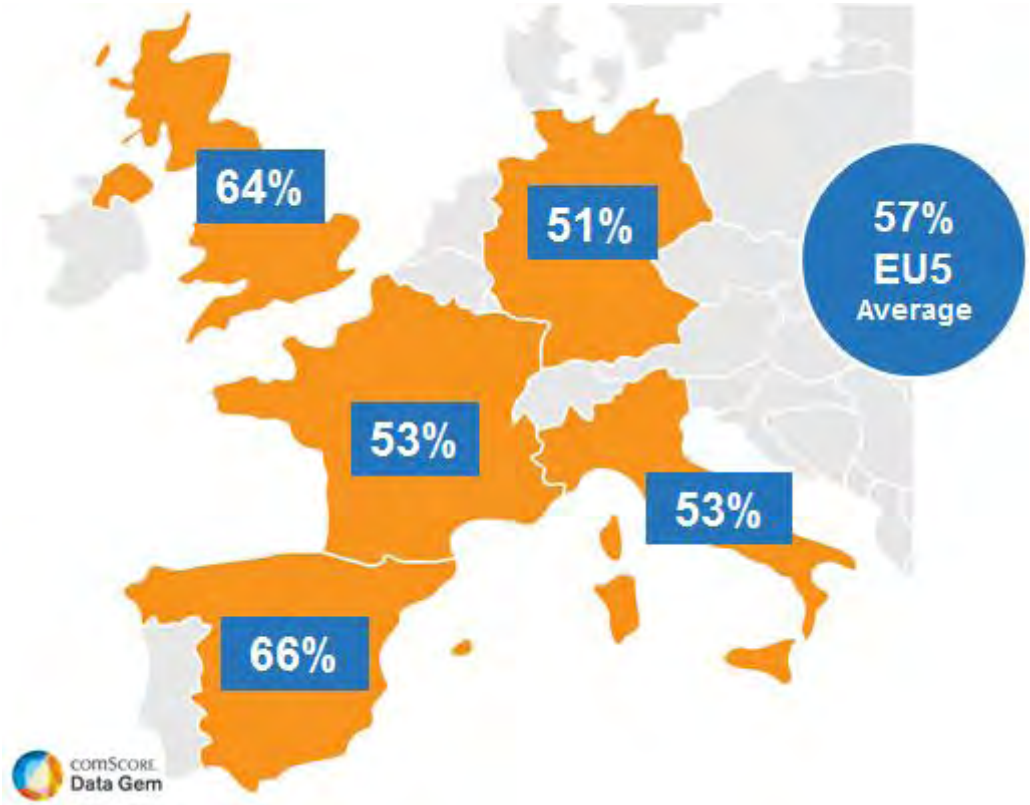

Figure 1. Percentage of Smartphones in EU5
(source: http://www.comscoredatamine.com/2013/03/smartphones-reach-majority-in-all-eu5-countries/)

In order to point out the exact problem that public spaces face since the development of ICTs, Dr. Tali Hatuka (architect and urban designer, Head of the Laboratory of Contemporary Urban Design, in the Department of Geography and Human Environment at Tel Aviv University) and Dr. Eran Toch (member of Tel Aviv University's Industrial Engineering Department), started in 2010 a scientific project called "SmartSpaces" intended for identifying exactly how using smartphones impacts the way we use and observe public spaces. The hypothesis is that "ICTs, with their flexibility and vast options are also a disciplinary technology that re-structures space, time and relations among activities, thus modifying judgment and perceptions. In particular, this has a changed dialogical practices and joint actions between subjects, in turn modifying the use and scope of public space." [19]

The study has not yet been finalized, but primary data collected suggests that smartphone users tend to ignore their surroundings and be more focused to what their gadget provides in terms of social activity, rather then what actual human interaction can offer. [20]

"Dr. Hatuka says that smart phones create the illusion of «private bubbles» around their users in public spaces. She also believes that the design of public spaces may need to change in response to this technology, not unlike the ways in which some public areas have been designated as «smoking» and «non-smoking»."[21]

4.2 Future City – Future Public Spaces

Others also have noticed a problem in the way public spaces are used in the era of Internet Communication Technologies. The Current City Foundation approach intends to use this new behavioural tendency in the way we use public space in order to "address long-standing city management problems in unconventional ways". [22]

The data collected from our mobile devices allows researchers to asses the number of people present at any given time in any given place of the city in real time. This can be useful for: "crowd management-«how many people are there in a given area?», mobility analysis and forecasting-«where is traffic piling up?», evacuation support and monitoring-«what percentage of people has left the critical area?», public transport efficient allocation-«what is the current demand for public transportation?», marketing and city advertisement-«how many people will look at that billboard?», urban planning-«what is the pattern of inflow and outflow of people from the city?», entertainment-«what's the hottest spot in town right now?», tourism-«where do tourists come from and where do they go next?»." [22]

This idea could be easily interpreted in ways that respond to public needs in terms of safety, comfort and so on. Such an interpretation was made by Giuricich Ryan, student at the Ryerson University in Toronto, who proposes a solution that can give citizens the opportunity to control the appearance of public spaces using the virtual world. He argues that "through a constant interaction with the virtual world, individuals can share experiences and memories to other members of their city and share input into the current needs of the surrounding area. This gives insight into the interesting possibility that the invisible cloud of information can be used to give character and connect people to the culture of the nearby surrounding. These moments and expressions of cultural interests in the virtual world can be cumulated into a physical place." [23]

He calls it PAVEMENTUM and it consists of triangular shaped pieces, connected together to form a mesh. The triangular modules can move in order to respond to the needs and interests of the public, data collected from open source web sites (Facebook, Twitter, Youtube, etc.).[23]

In other words, this would be an adaptable structure that is based on the data collected using ICTs.

5. Conclusions

Not all of us own a smartphone (at least, not yet), but the number of smartphone users is increasing. Due to the fact that in order to actually influence the appearance of public space you have to own a smartphone, this interpretation raises some issues. Still, who can say for certain that they will never buy such a device? Will we actually be able to create a space of our own liking at any given moment in any given space of the city?

Only time can tell if "public space hybrids" will actually become a wide spread reality, but what we know for sure is that the first steps towards something new have already been taken. Until now, our cities have tried to keep up with new technologies, with the good and the bad. There are still problems in the way public spaces present themselves today, and we will probably be dealing with some of them in the future as well. It is not yet possible for us to provide a solution to all problems, but we have to try to at least be aware of what goes on around us. At this point, we have to acknowledge that Internet Communication Technologies are so wide spread that it's impossible to ignore them and their impact on us. Since everything is evolving, it makes sense that our public spaces do the same in order to "survive".

It is rather early to predict a precise matrix on which the design for our future public spaces will be based on, but it seems that imagination is the only limit.

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Relations between Travel Behavior and Sense of Community in New Urbanist Neighborhoods: A Short Synthesis

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Abstract

The New Urbanism paradigm is known for advocating both sense of community and walkable, pedestrian oriented neighborhoods, but mostly for counter-fighting suburban sprawl. The purpose of this paper is to examine whether the features of the New Urbanist designs influence the much desired sense of community and also travel behavior in these developments and what is the relation established between the two possible effects of this kind of neighborhood design. By reducing sprawl and car dependency, by encouraging people to walk, use bicycles, and public transportation, by placing people to live near where they work, shop, and are entertained, by diversifying the street networks of the cities, even by mixing functions, land uses, and categories of people, the New Urbanists believe that the residents of adequate designed neighborhoods will interact direct, thus building a heightened sense of community. The two complementary questions of the research that should be asked are: how does New Urbanist neighborhood design influence and determine travel behavior and, secondly, how does New Urbanist neighborhood design influence and determine the sought sense of the community? The resultant derived from answering both of these questions will indicate the relation established between sense of community and travel behavior, which is one of direct correlation.

Rezumat

Paradigma New Urbanism este cunoscută datorită pledoariei ferme pentru sentimentul de comunitate şi pentru cartierele orientate către utilizatorul pieton deopotrivă, dar în primă instanţă pentru contracararea sprawl-ului suburban. Scopul acestei lucrări este de a examina dacă caracteristicile designului marca New Urbanism influenţează sentimentul de comunitate şi de asemenea comportamentul itinerant în aceste dezvoltări şi care este relaţia stabilită între aceste două posibile efecte ale acestui tip de design urban. Reducând sprawl-ul şi dependenţa de automobil, încurajând oamenii să meargă pe jos, să folosească bicicletele şi transportul public, amplasând rezidenţii aproape de locurile unde muncesc, fac cumpărături şi se distrează, diversificând reţelele stradale ale oraşelor, chiar mixând funcţiuni şi categorii de indivizi, Noii Urbanişti cred că utilizatorii ale unor cartiere proiectate adecvat vor interacţiona direct, prin aceasta construind un sentiment al comunităţii mai intens. Cele două întrebări complementare ale acestui studiu care trebuie puse sunt: cum influenţează şi determină designul marca New Urbanism comportamentul itinerant şi, a doua întrebare, cum influenţeză şi determină dezirabilul sentiment al comunităţii? Rezultanta derivată din răspunsul la ambele întrebări îndică care este relaţia stabilită între sentimentul de comunitate şi comportamentul itinerant, una de corelaţie directă.

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Keywords: New Urbanism, travel behavior, sense of community, neighborhood design

1. Introduction

Contemporary America is experiencing nowadays a new way in which her communities are designed and built. The official trigger of this urban revolution for a future less accelerated evolution is the architectural and urban planning movement called New Urbanism, whose paradigm militates for a more traditional way of seeing the city [1]. A part of the movement's credo is that the act of designing communities like those from the end of the 19th and the beginning of the 20th centuries will lead to a stronger sense of community among residents on one side, and, on the other, will reduce car dependency and encourage alternative means of transportation like transit, biking and walking. This research focuses on the relation between the travel behavior in New Urbanist neighborhoods and the sense of community to be perceived in these kind of developments. This relation is established by composing vectorial two deterministic relations (see Figure 1). On the one

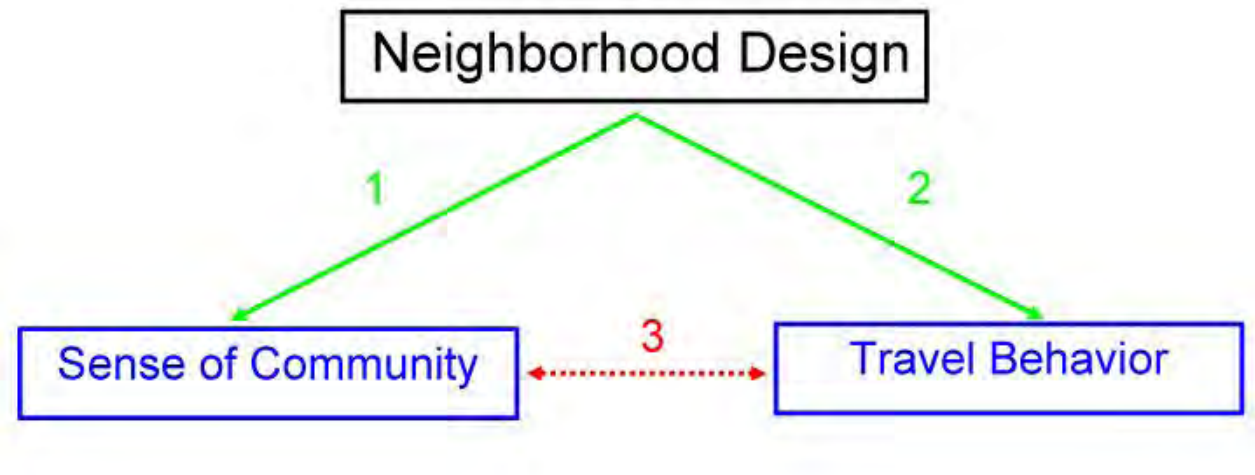


Figure 1. Diagram presenting the triad of relations

hand is the relation between neighborhood design and travel behavior and, on the other, the relation between neighborhood design and sense of community. The two following chapters address these double deterministic relations taken separately, by firstly analyzing the causality issue (whether cause precedes the effect, or the other way round), followed by the conclusions that focus on the resultant relation, between travel behavior and sense of community. For start it is examined the relation between the built environment and travel behavior, with the question asked as subtitle whether it is a causal relation or just correlation.

2. Relation between built environment and travel behavior: causality or only correlation?

All previous studies which address this issue compare a traditional or neo-traditional in the New Urbanism manner designed neighborhood and a typical car oriented suburbia. Though at first glance they might look very much alike, New Urbanism neighborhoods contrast sharply with

conventional suburban developments. While the New Urbanist trademark stands for walkable neighborhoods, high densities, mixed land-use and mixed functions, diversified and interconnected narrow streets and narrow lots, with an emphasis laid on public space, the typical suburban pattern is quite the opposite (see Figure 2).

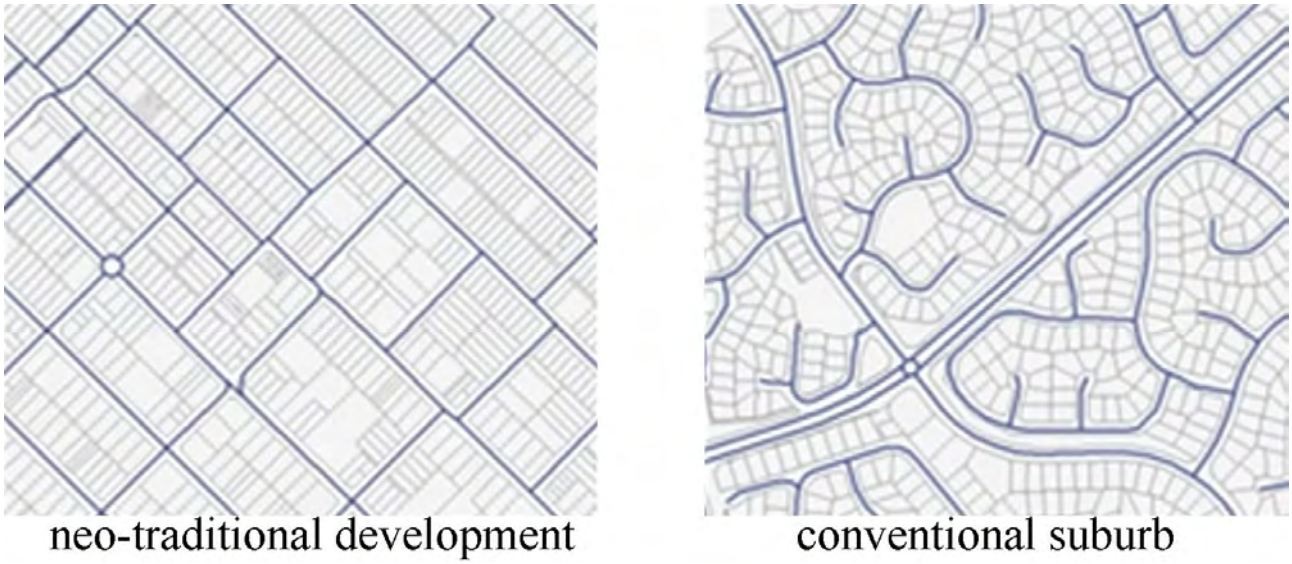


Figure 2. Comparison between a neo-traditional development and a conventional suburb

These studies indicate that living in neighborhoods with higher densities, mixed land-uses, transit accessibility and pedestrian orientation leads to less driving than in the case of neighborhoods with lower levels of these characteristics. It is a statistical certitude that residents of traditional neighborhoods drive an eighteen percent average level of miles less per week compared to the typical car freak suburbanites and they walk to shops twice as often [2]. Starting from this point, the solution to this problem seems very simple: redesign the suburbs in order for their residents to walk more and drive less and the problem is solved. But here pops up the hot spot of this issue: Does the New Urbanist neighborhood framework really determine travel behavior or do the residents choose to live in a neighborhood with these properties? Simply put, do people who like walking and biking prefer a New Urbanist development and do people who enjoy driving pick up a typical car oriented suburbia? It is clear that there is a correlation between urban form and travel behavior, but is really a causality established? And if the answer is yes, which is the real direction of the causal relation? (see Figure 3). Here arises the process of self-selection bias, which is a statistical anomaly, caused by the situation in which the individuals select themselves in a group causing non-probability sampling. The deterministic relation of neighborhood form on travel behavior should be valid even when self selection is taken into account, that is preferences and attitudes of the residents.

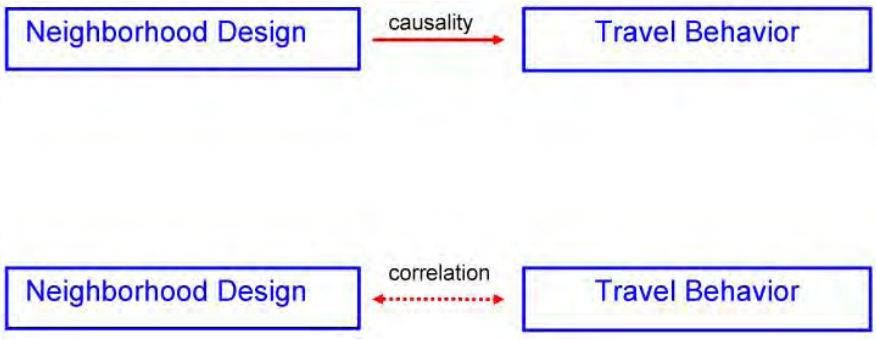


Figure 3. Relation between neighborhood design and travel behavior

Not only does urban form differ when comparing New Urbanist colonies and suburban developments, but also does travel behavior. While New Urbanist residents value attractiveness and sociability as a result of walkability, the suburbanites lay accent on the safety conferred by the automobile. Thus, characteristics of the neighborhood are linked to preferences of travel behavior and, by taking self selection into consideration, one might find the proof of causation, not only correlation. It is necessary at this point to sketch a short review of the research about the impact of neighborhood on travel behavior.

Already in 1963, Levinson and Wynn [3] showed that neighborhood density reduces vehicle trip frequency and Pushkarev and Zupan in 1977 [4] agreed that density and proximity to central business district is a positive reason for investments in transit. However, Susan Handy, in a more recent study (1993) [5], concludes that what really matters is not density, but the things that come along with density, such as improved transit and shorter distances to activities. In another comparative study, Handy (1996) [6] discovered that residents of the traditional neighborhoods walk five times more to nearby shops than those living in conventional suburbs and that walking trips may substitute or supplement car trips. Handy and Clifton [6] found out in a study in Austin that walking attitude was different associated with the neighborhood type, but also marked the role of the process of self selection. Ewing at al. (1994) [7], by pointing how differences in residential densities, mixing retail and residential land uses (accordingly to New Urbanist principles), revealed the fact that traditional neighborhoods generate two-third hours of travel less per person than sprawling developments and so does Jennifer Dill (2004) [8]. Khattak and Rodriguez (2005) [9] prove that neo-traditional dwellers substitute driving trips with walking trips, even after controlling for resident self-selection. They create a regression model linking trip-making behavior to neighborhood type. A regression analysis is a statistical process which is used for estimating the relationship between variables. There are more variables, but the focus is on the relationship between a dependent variable and one or more independent variables. It shows how the typical value modifies when one any one of the independent variables is varied, while the other independent variables have a fixed value. The formula of the regression is the following:

$$NTRIPS = \alpha 0 + \alpha 1*NTD + \alpha 2*NVEH + \alpha 3*NPER + E$$

where NTRIPS = household trips in a day, NTD= location in the neo-traditional neighborhood, NVEH = number of vehicles owned by the household, NPER = number of persons residing in the household, and E = error term [9].

The formula provides a link between a spatial index (NTD – location in the neighborhood) and the regression model measuring the number of trips.

Putting the self-selection variables aside, the literature pertaining to the relation between travel and built environment refers, according to Ewing and Cervero (2001) [11], to five topics: neighborhood and activity center designs, land-use pattern, transportation networks, urban design features, composite transit or pedestrian design indices.

Regarding the first issue, neighborhood and activity center designs, the main findings of the studies [11] [12] [13] are: First, in traditional central urban locations, trip lengths are shorter, because land-use mixture, grid like street networks produce shorter trips. Second, in the same ultra urban settings, walking and transit substitute longer car trips. So, the replication of central urban areas, in a New Urbanist fashion, does reduce length of automobile trips and these are simultaneously supplemented by walking and biking trips.

The second issue, the studies related to land-use pattern [5] [14] [15] [16] reveal that trip lengths are shorter in places that have higher densities or/and mixed uses. Also mode choice is the most

affected by land-use patterns. But, as a component of the general vehicle miles traveled index (VMT), trip frequencies are not correlated with land-use variables, depending instead on socio-economic features of the households. Also, transit use is firstly related to density and secondly to land-use mixing, but walking is connected to both in the same degree. New Urbanism doctrine should further promote mixed land-uses, but one should be careful that mixed-use developments like isolated islands don't offer major regional benefits.

For the transportation networks, the third issue, there is a lack of studies treating particularly this topic [15] [16] [17], so the relation is inconclusive. However, "grids with skinny streets, short blocks, and traffic-calming measures are hardly conductive to long distance car travel. Conversely, grids with six lanes of fast-moving traffic, long blocks, and no medians or pedestrian refuge islands are no help to pedestrians." [10]. New Urbanist design features all these characteristics that help to stimulate residents interaction and thus lead to sociability.

The fourth related issue, urban design features have to do with building orientation, pedestrian amenities and so on [18]. A first conclusion is that parking is neglected in travel studies, but the New Urbanism Code has a whole arsenal of solutions for parkings, in order not to hinder the walkability and and increase sociability in the neighborhood. The other conclusion is that urban design characteristics do have a minor effect on primary trips (trips with a precise destination), but more important for secondary trips (trips by foot or by car).

Concerning the fourth issue, composite transit or pedestrian oriented design indices [19] involve variables which are objectively or subjectively measured: Planned by New Urbanist Peter Calthorpe, Portland is characterized by index entitled "pedestrian environment factor" (PEF), developed for use in its regional travel model , including four elements: sidewalk availability, ease of street crossing, connectivity of street/sidewalk system and terrain. Similar indices are "transit serviceability index" in Montgomery County, Maryland and "transit friendliness factor" in Raleigh, New Carolina ""Ease of street crossing" has a higher degree of subjectivity than "typical building setback""[10] argue Robert Cervero and Reid Ewing, meaning that composite indices require further empirical investigation.

A partial conclusion for this first part would be that different types of analysis lead to different answers regarding the causal relationship between the built environment and travel behavior. All the studies compare neo-traditional neighborhoods with sprawling developments, but they present important variations in levels of walking, biking and driving. So, the residents of New Urbanist manner planned developments, do own fewer vehicles, drive them less and walk significantly more than residents of typical suburbs, even if self-selection occurs by some percentage and other socio-demographic factors must also be taken into account. Taken separately, changes in the built environment seem to have a greater effect on changes in walking than on changes in driving, but, the partial conclusion is that the built environment does influence travel behavior, and that there is a direct causal relation established. In the next chapter is to be researched if there is a similar deterministic relation between neighborhood design, as a component of the built environment, and sense of community.

3. Relation between the built environment and sense of community: alternative interchange of cause and effect, a reciprocal loop?

Sense of community is a difficult to define and to measure term, it resembles more a phenomenological perception of collectivity, a sentiment of "we-ness" [20], a feeling of common belonging. However, there are several definitions of the term, mainly social aspects, like mutual aid, neighborhood security, as stated by Nasar and Julian (1995) [21], neighborhood cohesion [22],

or key component of social capital [23].

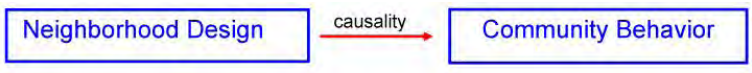
As in the chapter concerning travel behavior, there are certain common characteristics of New Urbanist design according to the Charter of New Urbanism that are said to foster sense of community [24]. These features range from a well defined form of the neighborhood (clear center and edge) to mixed-use (land-uses, activities, residential), from density (compactness and small lots) to pedestrian friendly design (using of front porches and balconies, shallow setbacks, absence of garages on the front facade, using of large sidewalks, tree-lined streets, interconnected street network) and public space (parks and open spaces).

Emily Talen synthesizes the typologies to measure sense of community: shared emotional connections, neighborhood or place attachment, membership, influence, reinforcement, and, most important, sense of place – from a spatial/architectural point of view [25]. For Talen, place attachment has to do more with different emotions like beauty or social contentment or symbolism. For it has been mentioned symbolism, although sense of place might seems directly connected to the social doctrine, the term has more to do with subjective meanings than with objective environmental characteristics. Still, from the same spatial perspective, Skjaeveland and Garling (1997) [26] discovered that the openness of the neighborhood is related to the engagement of the residents in neighboring behaviors, together with the existence of intermediate spaces like porches - a trademark of New Urbanism and the presence of street trees and vegetation [27].

There are several studies supporting the idea that the structuring characteristics of buildings [28], carefully placing of the houses [29] and common areas [30], can enhance interactions between residents and thus help to build sense of community. However, the studies that relate New Urbanist design to sense of community are contradictory, though the majority supports the main idea of this research.

Comparing a famous New Urbanist Community – Kentlands –, and a traditional suburban development – Orchard Village, Kim and Kaplan [31] discovered a higher degree of sense of community in Kentlands and that the pedestrian zone was more intense used in the same location, the same discovery being made by Lund [32].

The second category of studies asserted no relationship between neighborhood design and sense of community. Lee and Ahn (2003) argued that the New Urbanist interconnected grid did not improve walkability compared to a typical garden suburb with segregated pedestrian and vehicle paths [33]. Nasar (2003) found no correlation between reduction of auto use and sense of community [34].
The third group of studies report mixed evidence. Rodriguez, Khattak, and Evenson (2006) suggested that even though residents of New Urbanist neighborhoods were not much more physically active than conventional suburbanites, still they exhibited a larger amount of walking activities [35]. The study of Brown and Cropper (2001) measured the sense of community in a New Urbanist development, compared it to a typical suburb, and reported equivalent levels of sense of community, but the New Urbanist residents presented more neighboring behaviors together with more outdoor activities [36].



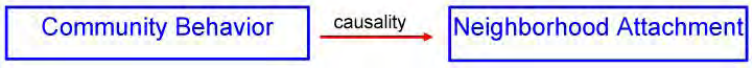


Figure 4. Relation between neighborhood design and sense of community

Like the precedent part, the main hypothesis is that the New Urbanist neighborhoods will trigger and maintain higher levels of sense of community than their suburban sprawling counterparts. But the complete hypothesis consists of a double determination with alternative interchange of cause and effect, a reciprocal loop: namely that the built environment (neighborhood design) will foster community-oriented behaviors, like walking and biking, and, conversely, these behaviors will in return support community-oriented attitudes, such as neighborhood attachment (see Figure 4). And again, as in the case of travel behavior, there is still the issue of self-selection, of accounting for preferences and attitudes for a communal lifestyle. There is also the influence of non-environmental, social factors to be taken into consideration.

In another study, the Lund cuts into three parts the dual relation, by studying the triad formed between neighboring behavior, local access and pedestrian travel [37]. Regarding the first relation, local access and pedestrian travel, her study supports the New Urbanist belief that local access determines increased levels of pedestrian travels, but found weak support for the relation between local access and strolling trips, presenting the exception of strolling trips in neighborhoods with local access to retail than in neighborhoods that don't have that kind of access. In the case of the second relation, between pedestrian travel and neighborhood behaviors, the New Urbanist dream is fulfilled: residents who walk more are probable to engage in unplanned interaction with neighbors and form new social ties. However, and this is contrary to the New Urbanist credo, that the destination trips (not strolling) which are influenced by urban form. And last, the third relation between local access and neighboring behavior, the discovery is that neighboring behaviors are more likely to occur among residents who had local access to parks or shopping area. These terminus points serve independently as a place of contact, no matter how the individuals traveled to these destinations. However, for all three relations, the individual behavior is related to another subjective attribute: the mental perception of local environment, but, in generally, self selection does not appear to be a decisive factor. So, beyond the influence of social processes, design plays an important role in shaping sense of community.

Again, as partial conclusions for this second part it can be stated that the answer is affirmative, neo-traditional neighborhood residents do have a higher sense of community than those living in modern suburbs. For the second formulated hypothesis – that neighborhood design develops community oriented behaviors and, conversely, these behaviors enhance neighborhood attachment – it can be argued that there is a link between residential interactions and physical environment. This is the interchange and alternation of cause and effect that represents this double deterministic relation. However, the affective component of sense of community is problematic, because it is accomplished through some intermediate variables like population homogeneity or affluence. It is true that creating a sense of community through neighborhood form represents a radical enterprise of social engineering, but, for New Urbanists, it is clear that their design increases social interaction which leads to the formation of what Mark Granovetter has called “weak social ties“[38]. These interpersonal ties among neighbors – casual, random, brief – contacts potentiate social cohesion, an important aspect of sense of community.

The following final chapter sets the resultant relation between travel behavior and sense of community as an expression of composing two causalities.

4. Final conclusions – spatial determinism, or more likely possibilism or/and probabilism?

Both of the main parts regarding to the two relations, between neighborhood design and travel

behavior and between neighborhood design and sense of community pose the spatial determinism problem as a result of an established causality. This is also one of the main critics of New Urbanism theories in general. The partial conclusions of both parts indicated that there is not a strong causality between built environment on one side and travel behavior and sense of community on the other, but something leading to this direction can be done by the planners. According to the Charter of New Urbanism, its partizans state the following: "we recognize that physical solutions by themselves will not solve social and economic problems, but neither can economic vitality, community stability, and environmental health be sustained without a coherent and supportive physical framework." One might associate to spatial determinism the derived terms of architectural *possibilism* or/and *probabilism* which, according to Strange and Banning (2001) [39], represent spaces that define sets of acceptable behaviors chosen by the user, respectively sets of behaviors which are more likely to occur than others. Nevertheless, designing a neighborhood in a New Urbanist fashion will not impose a behavior or lifestyle on the residents that they do not desire to partake in. Unless there are no other alternatives, even the new urbanites are free to use their cars as much as the common suburbanites do, or they can shop at the mall outside their neighborhoods.

The presented studies show that residents of pedestrian oriented neighborhoods do exhibit higher levels of neighboring and weak social ties than the common suburbanites, and that is a result of the design factor. Conversely, even a "mild" sense of community contributes to the attractiveness and walkability of a neighborhood, shaping sociability and travel behavior. So, between travel behavior and sense of community resides a direct correlation, as being both the effects of neighborhood design. The high amount of requests for neo-traditional developments indicate that behavioral characteristics like more neighborly interaction, more walking and biking, and sense of place/community are very much valued nowadays and that ecology, in two of its forms - environmental, social – is the ultimate scope of New Urbanism.

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Main Approaches of Ephemeral Architecture in the 20th Century

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Abstract

The twentieth century brings together basic concepts of ephemeral architecture. The birth of new materials, inflatable or demountable structures, cardboard or paper houses, combined into mechanisms beyond the imagination and using innovative techniques lead to spectacular structures with diverse usage. In terms of use and relationship with the site, ephemeral architecture developed three branches: portable architecture, architecture mobile and temporary architecture. Portable architecture includes transportable architectural forms. These structures are usually designed in such a way that it can be easily installed on a random site. We classified these structures into the ephemeral architecture category due to the temporary relationship they have with the place where they are located. Mobile architecture includes permanent structures adaptable as needed. Unlike portable architecture, mobile structures do not change their location in terms of geographical coordinates, remaining on the same site. Changes occur in the same site. It is an architecture that can be in constant motion, being able to transform it according to your requirement. The last category is the temporary architecture. It refers to structures that remain in the site for a short period of time, up to several months. This category does not include structures that change the location or that transform over time. They are designed to serve a purpose for a definite period of time and after that period they will be removed. Ephemeral architecture includes different types of architectural programs with a diversified lifetime depending on several factors. The most important architectural quality of this category is that they are created by the existence of an event. Architectural events often involve several types of users, establishing communication systems that contribute to the definition and development of a social group or even several groups.

Rezumat

Secolul XX cercetează partea futuristă a arhitecturilor efemere. Nașterea noilor materiale, a structurilor demontabile sau gonflabile, viziunea textila sau vegetala, casele de carton, de hârtie, combinate în mecanisme fără limita imaginației și cu tehnici îndraznețe duc la structuri spectaculoase cu utlizari dintre cele mai diverse. Din punct de vedere al utilizarii și al relației cu situl, arhitectura efemeră dezvolta trei ramuri: arhitectura portabila, arhitectura mobilă și arhitectura temporară. Arhitectura portabila include forme arhitecturale transportabile. Ele sunt în general structuri proiectate în așa fel încât să poată fi ușor de instalat pe un sit aleator. Am încadrat aceste structuri în categoria arhitecturii efemere datorită relației temporare pe care o au cu locul în care sunt amplasate. Arhitectura portabila include structuri permanente adaptabile in functie de nevoi. Spre deosebire de arhitectura portabilă, structurile mobile nu își schimbă amplasamentul din punct

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de vedere al coordonatelor geografice, rămânand pe același sit. Modificările apar în cadrul aceluiași sit. Este o arhitectură care poate fi într-o continuă miscare, ea putându-se transforma în funcție de cerințe. Ultima categorie este arhitectura temporară. Ea se refera la structuri care rămân pe un amplasament pentru o durată scurtă de timp, de până la câteva luni. Aceseasta categorie nu include structuri care își schimbă amplasamentul sau care se transformă odată cu trecerea timpului. Ele sunt proiectate pentru a servi unui scop pentru o durată de timp bine definită, pentru a fi, după acest moment, demontate. Arhitectura efemeră include funcțiuni foarte diversificate cu o durată de viață diferită în funcție de mai mulți factori. Cea mai importantă calitate a acestei categorii arhitecturale este faptul că prin existența ei se crează un eveniment. Evenimentul arhitectural implică de cele mai multe ori mai multe tipuri de utilizatori, stabilind sisteme de comunicare care contribuie la definirea și dezvoltarea unui grup social sau chiar a mai mulor grupuri sociale.

Keywords: ephemeral, perennial, temporary, Archigram, Buckminster Fuller, Serpentine Gallery

1. Introduction

Twentieth century ephemeral architecture is influenced by the science and technology boom. The spectacular structures are possible due to the new materials used in constructions: paper, cardboard, textiles. The new demountable or inflatable structures are combined using innovating techniques into mechanisms beyond imagination.

In terms of usage and relationship with the site, ephemeral architecture is divided into three branches: portable architecture, mobile architecture and temporary architecture.

Portable architecture includes buildings that can be moved from a place to another. Usually, these structure are designed in a way that is easy to install or demount on a random site. Their size is generally influenced by how they are transported from one site to another, the type of user to whom it is addressed and the method of transport. This category includes both living structures (after the model of the tent) and special structure designed for special needs such as military constructions, oil platforms, performance structures cultural structures, etc...

Portable structures are located on a particular site for a defined time period. Their use on a site is generally of short duration, from a few days to a few months, but by changing the location and repeated moves they can be considered as permanent. The life span is much larger than the time they are placed on a particular site.

Mobile architecture includes permanent structures adaptable as needed. Unlike portable architecture, mobile structures do not change their location in terms of geographical coordinates, remaining on the same site. Changes occur in the same site. It is an architecture that can be in constant motion, being able to transform as required. The most widespread architectural current is the metabolism. It was spread by the Japanese after the International Congress of Modern Architecture 1958. The building has, in their view 2 parts: a permanent spine and adjacent elements with a shortened life, adapted to the environment as needed. Meanwhile, in the UK, Archigram group begins a series of projects in which studies adaptable structure and intelligent buildings. Across the English Channel in France Yona Friedman completes the triad, by publishing in the late 50s an urban manifesto entitled "Ten Principles of mobile urban planning."

The last category is temporary architecture. It refers to structures that remain in the site for a short period of time, up to several months. This category does not include structures that change their location or transform over time. They are designed to serve a purpose for a definite period of time and to be removed, after the preset time.

The differences arising under this category does not refer to the number of uses or transformations that may occur in a building but about where they are built. There may be two types of approaches: the sites that host a single temporary structure, being an isolated event or the places that have become traditional as location for temporary structures.

The one time temporary structures are the result of an exceptional event. They can appear ad hoc, as required. In this category we can include structures that solve a problem, such as emergency architecture. They are used in crisis situations and solve problems that require immediate attention. The most used are the structures that cover basic needs: the need for shelter, security, and then psychological needs. Along with these types there are other types of structures such as pavilions for different events, spaces with social or economic function.

The other type of site, recurrent, has a different kind of importance. It is not an emergency room; it turns into a place of memory that occasionally hosts different events. The best example is the project began more than 10 years in London. The British capital hosts in Hyde Park a pavilion for cultural events during several months. The time intervals alternate such that the emergence of the new pavilion is an event each time, and the user does not perceive it as a permanent building.

Ephemeral architecture includes diverse functional typologies with a lifespan that can vary depending on several factors. The most significant architectural quality of this category is that by its existence it creates an event. The architectural event often involves several types of users, establishing communication systems that contribute to the definition and development of a social group or even several groups.

2. Richard Buckminster Fuller

Richard Buckminster Fuller (1895-1983) - known for designing the geodesic dome, he developed an entire philosophy about innovative architecture, conceiving a manifesto about the housing mass production, the role of mobile shelters in human behavior. The most famous prototypes he develops are Dymaxion House, in 1929 and geodesic dome designed 1948. He is in fact the author of one of the first attempts to create prefabricated houses, assembled on site and suitable for any type of terrain and any kind of climate.

From the point of view of lifespan, Dymaxion House is not a part of ephemeral structures, but the relationship it have with the site is of variable length depending on the needs. The purpose of which Buckminster Fuller designed this house is about prefabrication and transportability. All components of the house can be inserted in a cylindrical container 4.8 meters 1.3 meters. It can be mounted in 200 hours or disassembled as needed. It is also possible for it to be moved using air transport ways. The house was designed to be autonomous, with its own sewer and electric generator.

The novelty of the Dymaxion House is the concept of individual insulated house [8, p.84]. Immediately after the war the concept of mobility acquires a new dimension. With the ease of access to car use, the individual becomes increasingly mobile. The need of movement makes architectural practice to develop a field borrowed from new style of life: house-car. Dymaxion House is a response to this need, but pushes the concept further, based on sustainable principles and using technology to reduce waste of resources.

Over time the concept began with the Dymaxion House expands, becoming a full line of structures and machines. The term originated in the three words that underlies all concepts created by Buckminster Fuller: dynamic, maximum and tension. Among the structures designed by him under

this name are: Dymaxion Car, Dymaxion Bathroom, Dymaxion Deployment Unit.

The realization of this concept, however, has to suffer. After passing through several concept stages, the attempt of mass production ceases because of the disagreements between manufacturers and architect. Thus, while having a solid concept, Dymaxion House and other projects remain only at the drawing board.

Unlike the Dymaxion House, the geodesic dome designed in 40s has a much higher success, it is even today a structure used in constructions. He lays the groundwork for tensegrity structures, a category that today includes more complex structures.

Although the first geodesic dome was designed by Walter Bauersfeld, chief engineer of the Zeiss Optical Company, Richard Buckminster Fuller is studying and developing this type of structure. As in the first case, the importance of the structure is not the temporality of the building itself but its mobility. There are examples of geodesic domes used in areas of armed conflict zones that can be easily moved from one place to another. Another application provided by Buckminster Fuller in the design is about creating climate controlled areas pose problems in this regard. One example he offered was the realization of such domes in the Arctic. Also, the most common category is the temporary pavilions.

3. Archigram

Archigram is considered one of the most important avant-garde movement of the second half of the twentieth century. The team composed of Peter Cook, Warren Chalk, Ron Herron, Dennis Crompton, Michael Webb and David Greene manages to produce over time ideas that have revolutionized the architectural thinking. Although the group has not left a large number of built examples, the theory and their designs influence today, after half a century, contemporary architecture. They became visible with the release of a publication, 9 numbers over 9 years, from 1960 to 1970. Peter Cook says about the first issue of the magazine that emerged as a reaction against traditional attitudes that perpetuate in Europe against architecture without nerve calling itself "modern", but who betray much of the initial ideas of the current [9, p.11].

Archigram imagines architecture as a "scene-machine"[9, p.93], in a continuous motion of reconstruction and reinvention. In this process, the user has the role of the actor, and the architecture has the mission to stay open to user needs. It expresses in the interpretation of Archigram, the alleged desire of people for change. Buildings that do not have this quality, they say, "can only become slums or ancient monuments." [9, p.94] In creating structures adapted to the requirements of the time, the interest is on the use of new technologies after the war.

Although they have been considered as having a fantastic vision of architecture [9, p.94], the way of working, of investigation the problems and the graphic expression led to unique solutions of unique problems that were becoming increasingly acute with urban development that occurred after the war. They raise the question of large-scale city development under a new style of life and turn toward the user, wondering what they actually want.

Archigram demonstrates that the modernism moved away from the technological branch [9, p.5]. Unlike Buckminster Fuller who designed the architectural portable prototype, Archigram advocates for a mobile architecture, adaptable, saying that architecture should not create fixed volume of space, wrapped in masonry, but should produce equipment for living and being [9, p.5].

They attack the Vitruvian theory that says that a building must meet three attributes: "firmitas,

utilitas and venustas" saying that the first should not be a prerequisite for the other two. One of the synonyms of strength is durability. By extension, firmitas may be associated with sustainability, the theory of the Archigram converting itself into a manifesto for a mobile architecture. Maybe for the first time, they introduce into the close family of architecture, several new categories: tents, caravans, facilities, etc., categories rejected by architects over the centuries due to their ephemeral, everyday architecture.

All Archigram projects are like a chameleon. They are in constant motion, evolving for an indeterminate period. Among the projects the group, the most common are Plug-in City, The Walking City, Instant City Tuned City. All were described in the nine issues of the group magazine and insist on a new organization of cities. Their concepts overlap in some measures the metabolist theories developed in Japan in the same period, but the interest falls more on the city and solving macro urban problems and less on the building itself. As proof lies and that the vast majority of projects have remained level tablet.

The fascination of Archigram generation for Engineering for new technologies, new forms of energy and new generation materials comes from the desire to bring architecture to the user. An inspiration for the forms designed by architects is based on the "eccentric" structures created in the late nineteenth century, early twentieth century, like Crystal Palace London by Joseph Paxton of 1851, the Eiffel Tower and Machines Gallery, in Paris, in 1898. They are new architectures where the constructive system brought great benefits through large openings and small size structure.

Archigram propose innovative ideas in architecture and urbanism in Europe, focusing on the fact that a city is not just a functional organization of space. They successfully use the modern theories of Le Corbusier which related to constructions like house-machines. The car becomes a keyword in their projects and they are trying to apply it more widely saying the city is "a machine that underlies a culture in constant motion." [9, p.8].

Starting from the car as concept, they push further the research and become interested in creating sets of elements that are "sustainable, independent, portable, interchangeable and extensible" structures [9, p.107]. They develop several prefabricated prototypes including: Monsanto House at Disneyland (1954-1957), Capsule (1955), developed by Ionel Schein or Living Pod by David Greene.

In the 60s context, the actuality of the topic cannot be denied. Creating components kits that could be used universally, consisting of industrially produced parts integrates the architecture in the trends of the time. Projects spread a number of ideas about the essence of spatial freedom, consumerism and globalization policies. Basically, the group proposes a complex architecture in which historical styles are mixed with innovative technological concepts. Style is composed from nineteenth century industrial architecture elements with innovative elements from various fields: biology, electronics, industry.

In 1970, Peter Cook takes the idea of combining technologies further, saying that both the design and the building should have an animal integration after the anatomical model like the links between vertebrae, meat, organs, skin and digestion [2, pg.47]. By this statement he predicts the new era of cybernetics that raised those years and gives it legitimacy by creating links with recognized architectural concepts such as Antoni Gaudi animals influences used in its Art Nouveau buildings.

One of the first proposals of Archigram is the Plug-in City. The concept has as a starting point the operating system created by the Lego Company, which just passed from wooden parts to plastic parts, fact which helped the architects to express their ideas clearly. They design structures with

plug-in/plug-out links similar to the new Lego parts. Sectors that composed an assembly were thought so as to be mobile, encouraging the combination of elements in a three dimensional space. According to the concept, they could be transferred from one level to another, in horizontal, vertical and diagonal.

The project reproduces several patterns of modernism that are combined with avant-garde ideas of the '60s. They are using large structures, mega-structure type with the concept of "building in becoming", the result being a hybrid structure which combines permanent and temporary architecture. This approach promotes the event and tries to actively involve residents by involving the community in the transformation of the everyday space. Starting from the idea of attracting users to create a community, the architects used the idea of interchangeable apartments.

For binding the proposed elements, but also for better communication, the project insists on the integration of fast transport links [9, p.14] Node-link approach brings into question the idea of the network, in which the components are connected for proper operation. The need for this idea comes from the need for shelter, difficulty originated from both wars and rapid growth of the population. Population growth leads to land use issues, increasing the surface of rapidly growing cities with deconstructed areas, sometimes leading to enclavisation. Archigram tries to find solutions to stop the inevitable destabilization of the city by linking all components into a network with fast connections.

Although futuristic Archigram solutions are actually not out-of-scale. In the 60s the social needs were so great that in 1962 the UK Ministry of Housing studies the possibility of filling the needs of housing with temporary buildings. Even if the concept is based on the idea of the house as a machine and on other modern principles, some disputed, it seeks to respond to a concrete problem of the time. Through the plug-in/plug-out principle the architects make the step towards a new concept the mobile man that needs an adaptable architecture and furniture. In the era of globalization, of the car as affordable good the idea of items that can be joined or separated as needed is anchored in reality. Archigram stated in the 9th number of the magazine that a futuristic approach of Plug-in-City project was required to demonstrate that architecture is not necessarily permanent.

4. Serpentine Gallery Pavilions, London

The Serpentine Gallery was built as a tea pavilion in 1934, being converted into an art gallery in 1970. For 12 years, with neoclassical building, there is one temporary pavilion that remains on the site a few months during summer. It is renewed every year by a successful architect, the premises for various activities. The pavilions are very spectacular, based on innovative concepts, using new materials and dramatic structure. Also, contributing to dynamic objects is that the architects of these pavilions are part of different worlds, spread all over the globe. The contribution of these artists pass the boundaries, each of them brings something of its culture, the society they live in, creating a strong possibility of cultural exchange.

The relationships established with the construction of the pavilions from time to time are also different depending on the architect idea and the message that he wants to convey. There are pavilions, as the 2009 pavilion of SANAA, which imagines an aluminum dome that dilates the park and the sky through its reflections, but it also melts into the environment. It has no well-defined limits, as Michel de Certeaux suggests us in one of his explanations on the characteristics space [3, p.119].

We can find contrasting pavilions as Jean Nouvel's pavilion in 2010 which leads to extreme color

contrast between the building (red) and the environment. The idea of this project is double. On the one hand the pavilion color it is inspired by the context. Inspiration comes from the red color commonly used in London's public spaces - buses, fire hydrants, phone booths, mailboxes, and Queen's soldiers uniform[5]. On the other hand, the pavilion is working with the background provided by green park and blue sky. Therefore, it appears like an element that can not be ignored, which do not produce but filters emotions thus emphasizing the experience that we have in this park [1, p.12]. In terms of a formal language „the pavilion is car of the Sun, a way to direct the Sun,". The architect resembles it to a plant that buds the spring, blooms the summer, withers in autumn, so that the winter would make it disappear altogether.

Jean Nouvel said about the design of a temporary pavilion that each architect to leaves here a part of his attitude, like customizing more than ever because the architect is free to be an artist, the rules are not so strict. "It is an architecture of celebration." [5] It prints an impression that remains in the memory of every visitor, creating different emotions every time you remember it.

We could also mention here other types of approaches to this extension, such as the sculptural object created by Zaha Hadid in 2007, which the architect says it is a sculptural installation of organic inspiration (petals of a flower) which allows air, light and sound to pass through it [10]. Also an original approach have Alvaro Siza and Eduardo Souto de Moura, along with Cecil Balmond in 2005. They intended to establish a link between the designed pavilion and the neoclassical building whose importance is intended to be put in value.

Finally, one of the first projects for the gallery is by Daniel Libeskind and Sir Ove Arup (2001). They suggest a concept that is based on origami technique. The most important element created space are materials used (aluminum plated) because through their use the designers wish to establish a dialogue between the building and the natural environment using reflected images.

All the Serpentine Gallery Pavilions are very different both as a concept and as a formal way of representation. They are subjective creation that aims to achieve a dialogue between different elements of the park, resulting in different relationships (denial, positive, causal, etc.) Also, pavilion structure is extremely flexible, leaving room for interpretation, allowing the individual to "invent through countless tactics and strategies, the daily life according an original combination of practice and stories." [7]

5. Conclusions

The buildings above are examples of temporary buildings built over the last century. In the context of new urban directions these temporary structures allow us the study of new insertions in town for a shorter or longer period of time contributing to the evolution and changing city. Also, their reduced lifespan gives the place for bold experiments and sociological and cultural studies. From social point of view these pavilions allow a dialogue between government representatives and users, dialogue that does not involve high costs as did, for example, tearing down and rebuilding the palace in Berlin. Users can give an answer to what designers imagine, temporary architecture being a solution to easily check the functioning of the proposed new space.

Today, many experiments are done using the temporary architecture [6]. This way appears many types of construction that are tested over a few months. One of the most common examples is exhibition pavilions are built in all parts of the globe. There are also invented many the temporary installations whose purpose is very different. All these experiments can only confirm or invalidate the need for certain interventions in a given space, satisfying for a period of time the community needs for which they are designed. Users have the opportunity to form some idea when they use

their senses to know the new space created to give a response accordingly. An ephemeral element helps establish new relations between the place, the space, the time and the citizens.

Interventions need to meet the current needs, but also to allow new ways of making people and activities to converge. The convergences in space and time of the people, activities, business, generate new hybrid elements. These elements allow new convergences and the process continues. This is actually the definition of development. While modern theory discourage the convergences with separation and control accents, contemporary encourages them. Indeed, the diversity of the actors involved in producing this great picture demonstrates the principle ecodiversity over the time limit.

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MEGACITIES- the next age of skyscrapers / from utopias to reality

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Abstract

At the moment, half of the world population lives in the city, and the percentage is growing rapidly. If we take a look at the statistics we can see that the first 100 largest cities of the world are responsible for more than 30% of the world's economy and innovations. Analysts say that the 21st century is not going to be dominated by nations, but by the cities. This rapid growth gives birth to so called megacities, which can survive if they expand only with vertical development, generated by a bigger and bigger pressure on the existing propriety. Unfortunately, in terms of functions, skyscrapers did not approach new concepts since the great vertical schism, as Rem Koolhaas called it in his Delirious New York. This concept refers only to a functional segregation which allows multiple functions within a building. Since then, the society evolved in many ways and new socio-economic needs emerged. The buildings of the future, those which will dominate the skyline, will have to face the contemporary requirements. In this matter we can pinpoint two of them. First one is the lack of green spaces, free of car traffic and pollution and available to everybody. The second one is a consequence of the global financial crisis, and has to do with the initial costs of a building and also low service costs, offering at least the same level of comfort as the existing ones. This article aims to present the need of a new age of high-rises and it tries to explore the possible direction of evolution for these buildings which will continue to dominate our future cities.

Rezumat

La momentul de față, jumatate din populația lumii trăieste în zone urbane, iar procentul este într-o continuă creștere. Dacă ne concentrăm atenția asupra statisticilor, putem observa că primele 100 de orașe, ca mărime, sunt responsabile pentru mai mult de 30% din economia mondială, precum și pentru majoritatea inovațiilor lumii contemporane. Analiștii susțin că secolul al XXI-lea nu va mai fi dominat de națiuni, ci de orașe. Această creștere rapidă va da naștere așa numitelor mega-orașe, care pot supraviețui doar în cazul unor extinderi pe verticală, generate de o presiune din ce în ce mai mare pe proprietățile deja existente. Din păcate, clădirile înalte nu au suferit modificări la nivel funcțional de la marea schismă verticală, după cum o definea Rem Koolhaas în lucrarea sa intitulată Delirious New York. Acest concept se referă doar la o segregare funcțională care permite integrarea mai multor funcțiuni sub aceeași anvelopantă. De atunci, societatea a evoluat în multe feluri, dând naștere unor noi cerințe de ordin socio-economic. Clădririle viitorului, cele care urmează să definească și să domine silueta urbană, trebuie să rezolve aceste noi cerințe. Una dintre cele mai importante probleme, care necesită rezolvare, este lipsa spațiilor publice și semi-publice verzi, lipsite de poluare. O altă problemă stringentă este reprezentată de consecințele crizei financiare, care se răsfrânge asupra costurilor inițiale și de exploatare ale unei investiții, dar cu păstrarea nivelului de dotări și confort, cu care utilizatorii au fost deja obișnuiți. Acest articol dorește să expună necesitatea unei noi generații de clădiri înalte și încearcă să prezinte câteva tendințe și concepte în dezvoltarea viitoarelor clădiri înalte.

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Keywords: skyscraper, megacities, vertical communities,

1. Introduction

In 2006 it became certain that soon half of the world's population was going to live in urban areas. In March 2008, the United Nations, through a special report, announces that by the end of the year the earlier mentioned step will be real and also raises the issue of Asia and Africa. Those two continents have a consistent population which lives in rural areas and only 40% of their population lives in urban areas [1]. In our days the two continents are in first and second place regarding density per squared kilometer for urban areas, reaching 20.000 people/km^2 compared to megacities such as New York with 1.750 people/Km^2 and London with 5.100 people/km^2. Excepting Hong Kong, all high density cities are poor cities, occupied mostly by slums [2]. One of the future directions in city development is marked by skyscrapers, a symbol of welfare and economic growth so far. For now, future vertical growth is associated with high density but the examples show that high density means more or less poorness. On this basis, a future city of skyscrapers and especially skyscraper implementation and functionality needs to change in order to maintain superior living standards. Of course this type of high density living is not a viable answer for every city and is more probably to occur in cities that have high economic growth. In order to understand the changes needed in the design of skyscrapers it is essential to answer a few questions.

2. WHY? – do we need a new age of skyscrapers?

Following the 2008 United Nations report, Foreign Policy Magazine dedicates an issue in 2010 to the future of megacities, analyzing the future economic growth based on GDP. Another two studies made by The Chicago Council of Global Affairs in 2011 and by ATKearney in 2012, develop Foreign Policy Magazine's forecast. All those researches show that only "…100 cities account for more than 30 percent of world's economy and most of all its innovation" and their "…economy alone is larger than 46 of sub-Saharan Africa's economies combined." [3]. Those cities and a few new rapidly growing ones have to adapt and face the demands of a growing society and also its needs.

In our days, a few elements can distinguish themselves as being city growth generators, especially for big cities or megacities. Thanks to them a continuous and more accelerate growth is reflected in the city's development. All elements are sustained by a key component, represented by the economic growth, measured by specialists in GDP (Gross Domestic Product). Generally speaking higher GDP means more and better paid jobs for its inhabitants, which represents the main factor in the relocation of people. Once a better income is realized, other attractive elements come in discussion, elements such as high standard of living, high quality education, well developed health and medical centers, well developed services, infrastructure and public transport and last, but not least, more active cultural and social life. All those elements are in close contact, supporting and influencing each other.

As long as the financial power is present, there is a demand for new, modern investments, meant to rise the standard of life. Bigger cities mean more users and more diversity in their requirements. Investors find here a better market place, more potential clients, building trust and fame.

In today's megacities this system does not work that well, generating a migration effect from city's center towards its less dens areas, once a high life standard is achieved. The users prefer to spend more time travelling from place to place, on daily basis, in order to have privacy, clean air and green space around their homes. This is one of the reasons that will make a change in the skyscraper's development. Another reason, which is building more steps towards rethinking of high-rises, is the financial crisis that occurred in 2008 and its effects on energy efficiency. This

component is leading towards green solutions being used for tall building design. In our days the solutions once used are reanalyzed in order to reduce the initial and future costs and in the same time to maintain the comfort that made them attractive in the first place. Furthermore some new requirements from their users must be fulfilled by the designers of the future skyscrapers. They have to deal with the lack of green spaces at the ground level and reinvent them on higher levels.
If we combine all demands mentioned above, one possible future of the skyscraper can be achieved by vertical community concept. Although is not a new idea, and it was presented by pioneers such as Le Corbusier with "Unite d'Habitation" in Marseille (1952), Frank Lloyd Wright with "One Mile-high Building"(1956)(Figure 1.A) and Ron Herron with "The Walking City" (Archigram, 1964)(Figure 1.B), we must not forget that at that time the city was not prepared for such concepts. Now, the "who has the tallest building" competition between nations and especially their megacities, the height reached by Burj Khalifa and future projects (already approved) of that size and bigger, can only take us closer to future vertical communities. This competition will always go on because the skyscraper, from its birth, embodies economic stability and financial power, being a perfect way for publicity or representing a high living status for its inhabitants.

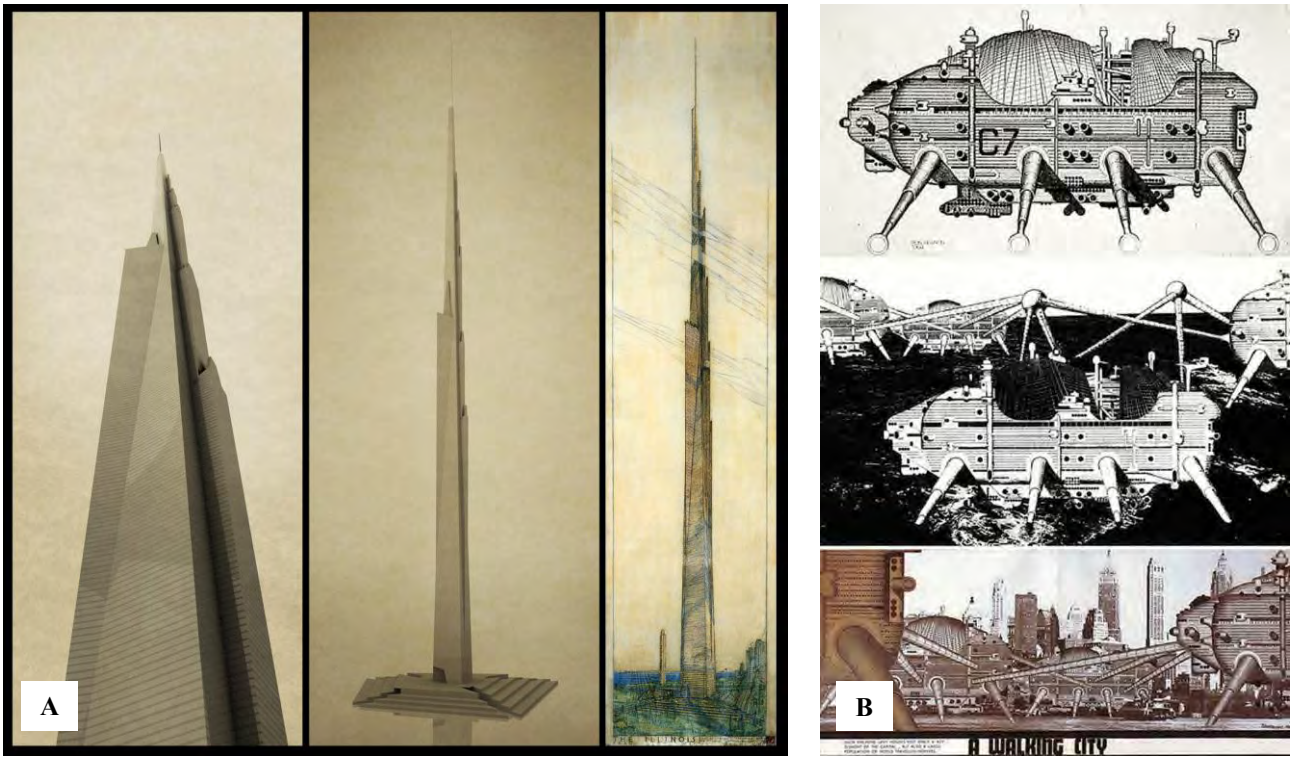

Figure 1: A. One Mile-high Building by Frank Lloyd Wright [4],
B. The Walking City by Ron Herron [5]

3. WHERE? – The new skyscrapers are most likely to appear?

The studies mentioned earlier show that our world's economy and innovations are dominated by 100 big cities. Twenty of them can be called megacities due to the high GDP level and by their large number of inhabitants. Seen as world's financial hubs, which evolved throughout centuries of dominance, megacities already have a strong tradition in modern and innovative architecture. Those cities face a real problem in terms of density and probably here will appear first mutations.

Asian and Arab new financial centers are taking the lead in economy. Their blooming economy and massive investments prove that they reached a stable and constant growth. Eager to impress and attract new investments they use modern architecture as an advertisement an also as a business card.

4. HOW? – The new skyscrapers will look like?

The search of new solutions for our future world was taken to another step in 2005 by eVolo magazine, which started an annual contest for new concepts in skyscraper design [6]. From 2005 until now a few clear directions emerged. First of them is represented by the Morphoteotic design. Here, digital tools are used in order to produce an interactive and changing architecture, using movement as a defining term. In a way is a sort of parametric design developed specially for skyscrapers. A few utopic proposals develop solutions defined by modules, different in size or function, staked on single or multiple cores, being able to attach, detach or evolve as required (Figure 2.A).

The New Frontiers segment includes a series of projects that search solutions similar to skyscrapers as we know them, structures that are located beneath earth, under or above water or even floating in the air. Each project has a defining idea that supports the proposed location (Figure 2.B).

Figure 2:A. eVolo Competition "Auto morpho-tectonic" by Tyrone Marshall [7],
B. eVolo Competition – Special Mention "Water-Scraper" by Sarly Adre Bin Sarkum [8]

A big future direction is marked by the Ecological and Urban Planning chapter (Figure 3.A). In this segment a few revolutionary concepts emerged. Some of them already have been developed in Paolo Soleri's Arcosanti urban laboratory or Masdar city (Abu Dhabi's car-free city). The functional solutions that are trying to integrate gardens and vertical farms in a vertical community concept are present here. The designs are based on sustainable technologies, climate controlled garden systems and renewable energy systems.

At a different level is the Urban Theories chapter. Extreme contemporary urban concepts are proposed here in order to solve high density problems for specific cities around the world (Figure 3.B).

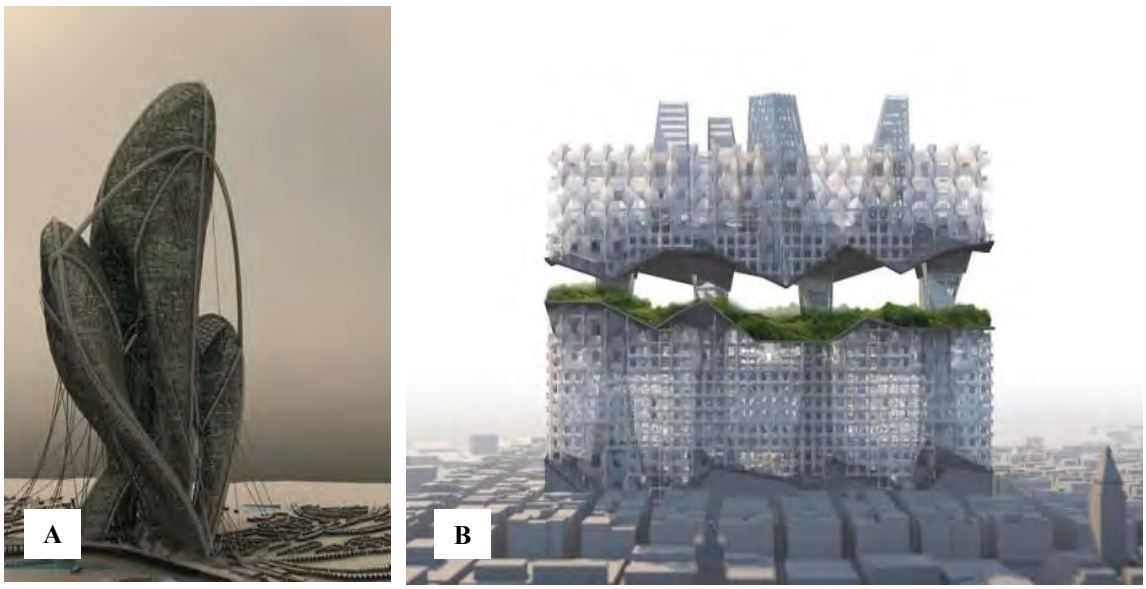

Figure 3: A. eVolo Competition - Special Mention **"**Bio-City" by Stefan Shaw and John Dent [9],
B. eVolo Competition – Honorable Mention "Borough no.6" by John Houser [10]

The link between the possible solutions of the future mentioned above and the skyscrapers that are present in our days in every big city is made through some new projects, already discussed by authorities and investors. Here we can mention Sky City One, a design based on vertical community concept. The building will have 838 m in height and 1.000.000 m^2 used for different functions. It will be 3 times larger than Dubai's Burj Khalifa. The completion time is only 210 days and the building will be made only from prefabricated elements. The design is ready but it still needs the final approval from the Chinese authorities [11].

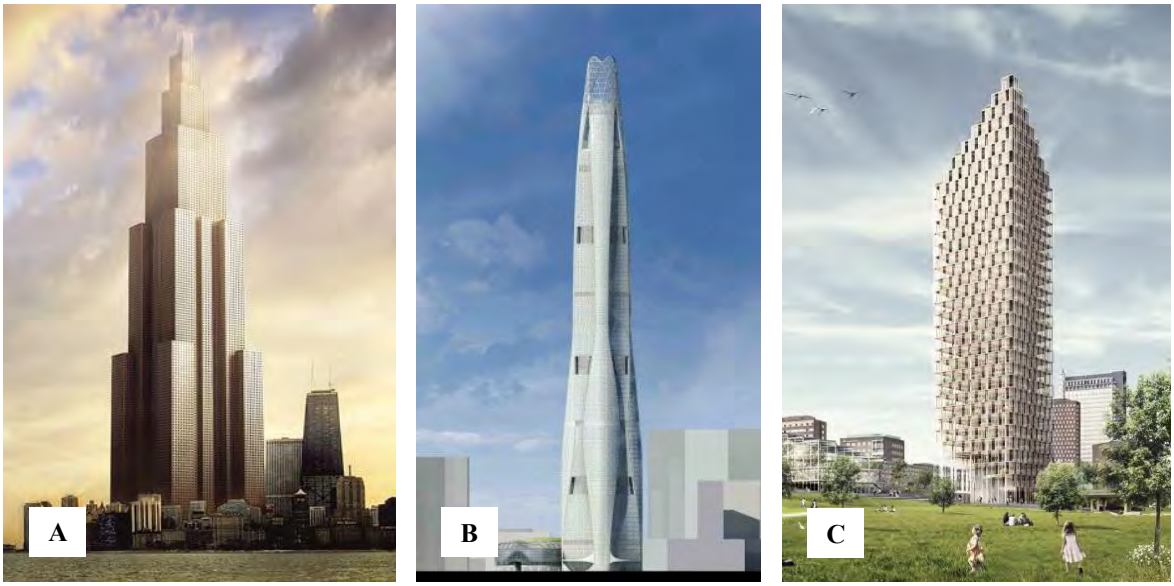

Figure 4: A. Sky City One by Broad Group [11],
B. CTF Tianjin Tower by Skidmore Owings & Merill [12],
C. Wooden Skyscraper by Berg/Moller Architects [13]

Another ready to break ground project is CTF Tianjin Tower, the latest project developed by Skidmore Owings & Merill in China. The main features of this project are its high performance

envelope, optimized day lighting and green landscape areas. The grand opening is programed for 2020 [12].

The last bold proposal is the Wooden Skyscraper. Berg/Moller Architects designed for Stockholm a 34 story skyscraper made from wood. The residential building should be made from a wooden construction attached on a concrete core. Each apartment will have energy saving glass covered veranda while the solar panels mounted on the roof will provide the building's power. The project is seen as a landmark, able to provide identity for the local communities [13].

5. Conclusions

The economic point of view shows us a clear direction towards the trends of the future, meaning possibly the emergenge of a new era. The analysts endorse the idea that the future will be dominated by big cities, instead of nations as it has been until now. The nation's power shifts to the megacities which influence the finances of the surrounding areas [1]. Probably the next level in the design of skyscraper will concentrate more on the society's requirements and needs. Future tall buildings will not be a product of the developer's brands, as they are nowadays, but a higher purpose will be the main factor in high-rise design. Another key element in future of the megacity's development should be the strategy for the implementation of tall buildings. City's skyline will remain the living proof of its economic power but there is a risk that those dense areas will become something like an architectural zoo, where each developer places his own brand. In my opinion, if a new stage in skyscrapers is reached, new rules will be necessary for megacities in order to keep them attractive and raise their standards.

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WINDMAPPER 1.0

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Abstract

The advancement of digital technology is helping architects understand and respond to the complexity of the changing environment surrounding us. The future of architecture lies in its ability to utilize and respond to the energy and the various dynamic fields that exists in this environment.
In order to understand the possible interaction between matter and energy and the emergent responses that this process involves, a two week workshop called Dynamic Fields, was held in Bucharest that was organized by Parametrica, a private educational platform, in which various energy fields that exist in a given environment were identified, analyzed and then simulated through the use of digital computational tools. Based on this simulation, experimental structures were generated and fabricated in such a way that their physical performance acted as a continuous real-time response in the process of adaptation to the environmental parameters. The projects involved computational design thinking and the exploration of the new possibilities of parametric design. This paper describes the thinking behind one of the five projects that were developed during the responsive architecture workshop called WindMapper 1.0.

Rezumat

Evoluția recentă a tehnologiei digitale vine în ajutorul arhitecților care vor să înțeleagă și să răspundă complexității mediului înconjurător, aflat într-o continuă schimbare. Viitorul arhitecturii constă în capacitatea sa de a utiliza și a răspunde eficient energia și câmpurile dinamice care există în acest mediu. Cu scopul de a înțelege interacțiunea posibilă dintre materie și energie precum și răspunsurile emergente pe care acest proces le implică în arhitectură, la București a avut loc un atelier de două săptămâni, - numit Dynamic Fields, organizat de Parametrica, o platformă educațională privată - în care au fost identificate diferite câmpuri energetice care există într-un mediu dat, analizate și simulate prin utilizarea unor tehnici și tehnologii digitale noi. Pe baza aceastor simulări, au fost generate și fabricate structuri experimentale în așa fel încât performanța lor fizică a acționat ca răspuns în timp real în procesul de adaptare a parametrilor de mediu. Proiectele au implicat metode noi de calcul digital și explorarea de noi posibilități de proiectare parametrică. Obiectivele au fost bidimensionale. În prima fază a procesului de proiectare, echipele s-au axat pe identificarea și analizarea resurselor inerente mediului din contextul imediat, dezvoltând astfel o mai bună înțelegere a naturii lor, precum și metode optimizate de utilizare sau răspuns. Al doilea obiectiv a fost etapa generării fizice a structurilor care prin tehnicile de fabricare, prin geometrie sau proprietățile materialelor din care au fost realizate trebuiau să răspundă interactiv, sau să utilizeze resursele energetice indentificate. Această lucrare descrie gândirea din spatele unuia din cele cinci proiecte care au fost dezvoltate pe parcursul atelierului de arhitectură, numit WindMapper 1.0.

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Keywords: parametric design, interactive architecture, computational design, performance based design.

1. Introduction - Objective

The objectives of this workshop were two-fold. In the first phase of the process the teams focused on identifying and analyzing the resources inherent to the environmental context, thus developing a better understanding of their nature as well as possible optimized methods of use or response.
The second phase objective was to generate structures which through their means of fabrication, their geometry and material properties could respond and utilize the environmental energy resources.

Materials, technique and geometry were the three main research fields for this project and *Rhinoceros*[1], *Grasshopper*[2] and *Arduino*[3] were the digital tools used to implement the findings.

In the early stages, physical models and low-tech strategies were used, allowing the participants to gain a greater understanding of materials, fabrication and assembly methods as well as simple, yet pragmatic structural solutions. Later in the workshop these strategies were digitalized, simulated and elaborated using software visualizing tools such as Rhinoceros and the visual algorithmic plugin called Grasshopper. Finally the projects achieved the targeted level of development and incorporated the Arduino platform (a tool which allows a physical realization of digital simulations) to optimize efficiency and structural response.

2. Description of the project - Windmapper 1.0

Project title: Windmapper 1.0
Objective: Generating complexity based on physical interaction between a simple geometry and a dynamic field.
Function: Physical installation that visually maps different intensities of air pressure.
Material: Balsa wood
Technology: Rhinoceros, Grasshopper, Low tech fabrication.
Team: Andrei Kiss, Raya Ani, Amr Ezzeldin, Ioana Georgescu, Yannis Mataillet, Zayad Motlib, Sarah Safoui, Alexander Walzer.

3. Project development

The whole development process of this project was informed from step one with constraints regarding the nature of the physical world in terms of material and interaction that we had at our disposal. We believe that the embryogenesis and further development of our proposed organism has its roots in the few possible ways a sheet of paper can interact under certain circumstances with a *dynamic field*. When we say circumstances we address the issues of possible geometries and techniques that one can use in a given material in order to establish a dynamic interaction with a

given field of intensity. In this case the identified field was *the wind* and the material a simple *sheet of paper.* We were eager to understand what were the extensive properties of this material that arise as a response to an intensive field and also how this quantifiable parameters can affect the outcome of a simple geometry. Although digital computational techniques have their meaning and purpose in searching rich possible spaces that offer an array of solutions, or as DeLanda citing Deleuze puts it the *"space of multiplicities"* [4] they cannot substitute the physical research with experiments that

must be done prior using this material.

Paper has a certain expressivity. That's why we looked from the beginning at possible future states of development when using a certain material with a certain technique and geometry. And because we were assigned in the geometry group at the beginning of the workshop we looked at possible ways of generating geometry by using different techniques in this material.

3.1 Small scale experimentation

So we started working on a small scale using this simple material, the sheet of paper, using simple techniques like cutting and folding and testing the resulting geometry in the interaction with the identified dynamic field - at this scale we used instead of wind small fans.(Fig.1)

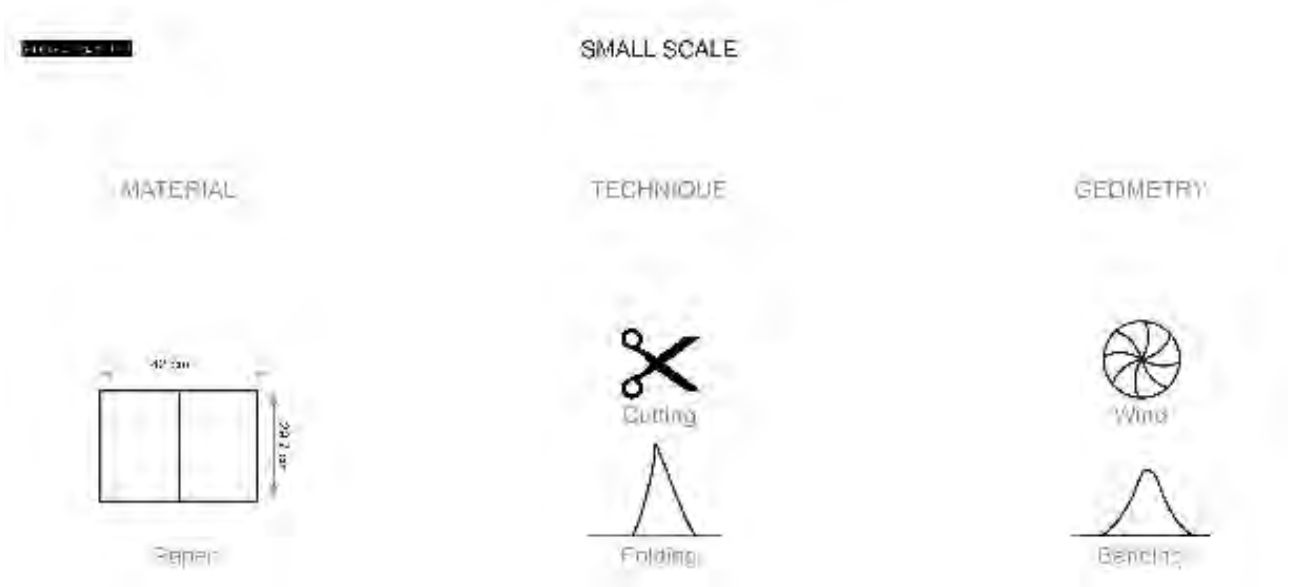


Figure1. Small scale experiments in the search for possible responsive geometries

Basically we used a reverse engineering approach by looking at possible final results in order to understand the complexity of this material. We developed a series of possible states using only cutting and folding in order to understand the geometry that generates this complexity. (Fig.2)

Figure 2. Different techniques of manipulating the paper were developed in the early stage

We developed a series of different models that were all based on cutting and folding techniques in order to extrapolate a common behavior of the models. An analogue catalogue of this step can be seen in figure 3. Testing the behavior in the interaction with the fans, we learned from our physical models and simplified them to a single abstraction that was common to all the proposals - the paper triangle.

We were looking at a basic geometry, a triangle that results as a minimal manipulation by folding a straight piece of paper. This reverse engineering technique provided knowledge by deconstructing

the operations that the final result was already embedded with. A specific feature of a paper triangle and the first parameter that would affect our project up till the end is its flexibility based on the elastic behavior of the thin piece of paper. We saw that the flexibility in a sheet of paper is related to its thickness and we developed models in different thickness with different responsive behaviors to the dynamic field. (Fig.3)

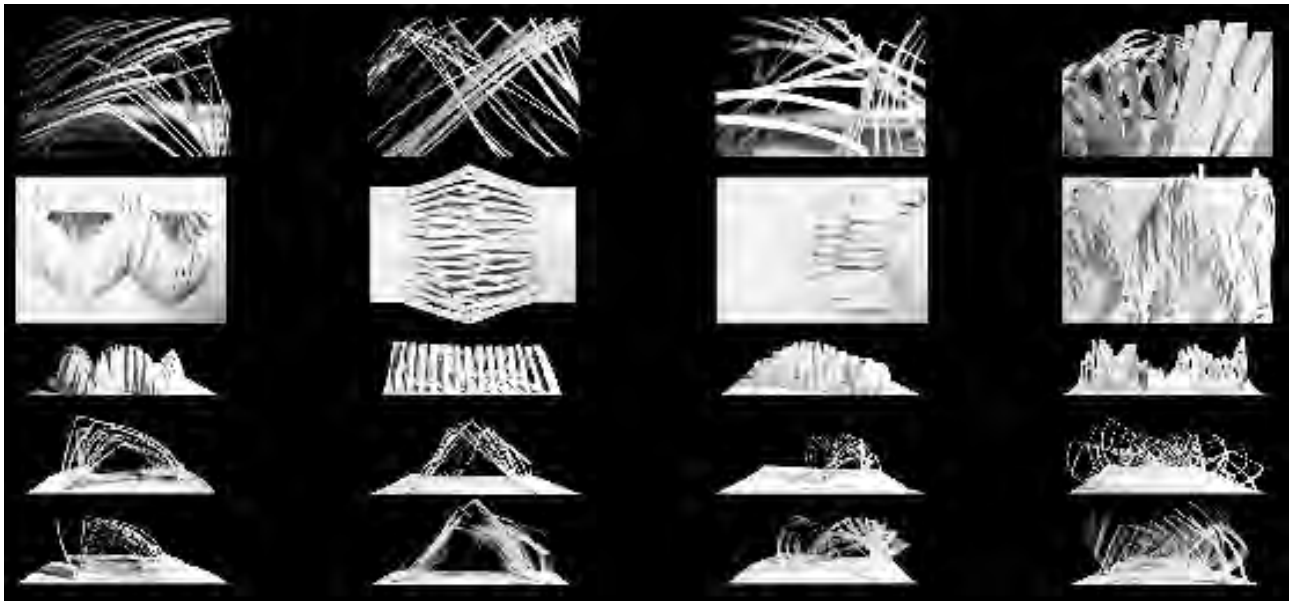


Figure 3. Testing of the models responsive behavior in the interaction with the dynamic field

From the small scale physical models, we extrapolated a triangle that has certain flexible behaviors in the interaction with the dynamic field. In order to better understand the parameters of this flexible geometry and the extensive properties that emerge as a result of the interaction with a intensive field we studied at the possible variables that this system involves and analyzed them through the use of digital computation. (Fig. 4)

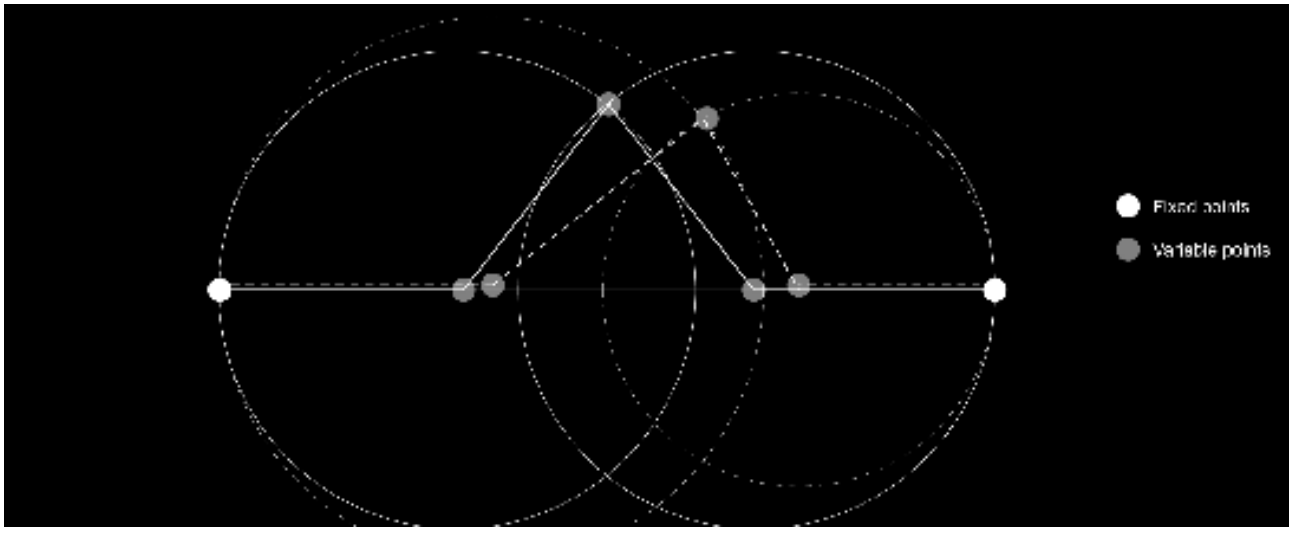


Figure 4. System analysis - fixed and variable points of the triangle and their behavior

The system analysis has revealed that the upper point of the triangle tends to describe a circle in this interaction, and the radius of the circle gets bigger as the two opposed points at the base are approaching each other. By multiplying this triangle and applying a dynamic field we could se different geometries being developed. In order to visualize this multitude of behaviors we

digitalized and simulated this system by parametrizing it in Grasshopper and applying intensive forces by using the Kangaroo[5] plugin. The interaction changed the amplitude and the frequency of the two anchoring points in each consecutive triangle. As a result we generated a digital catalogue with a population of this different behaviors. (Fig.5)

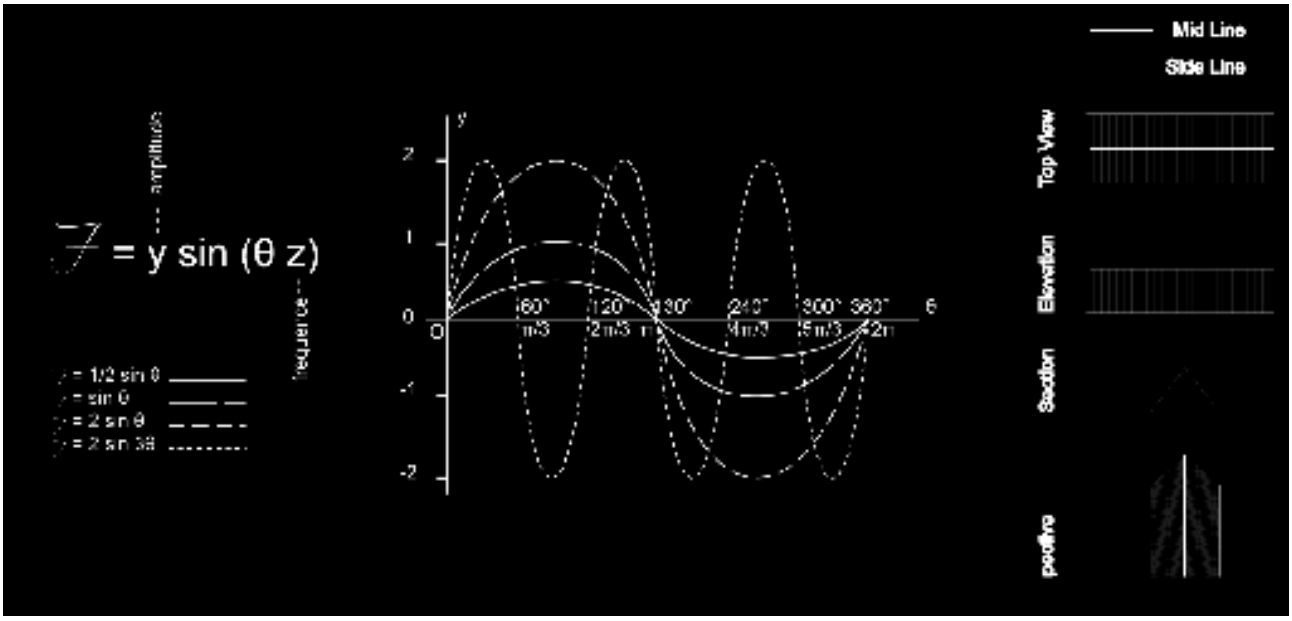


Figure 5. Different amplitudes and frequencies that result in different spatial volumes

We decided to develop a catalogue of behaviors that is based on the sinus trigonometric function as the pattern that emerged from the interaction was consistent and had a intelligible structure. Other patterns were manifesting as also but their reappearance was not consistent. (Fig 6-14) The catalogues consists of plan view, elevation, side view and perspective, in this specific order.

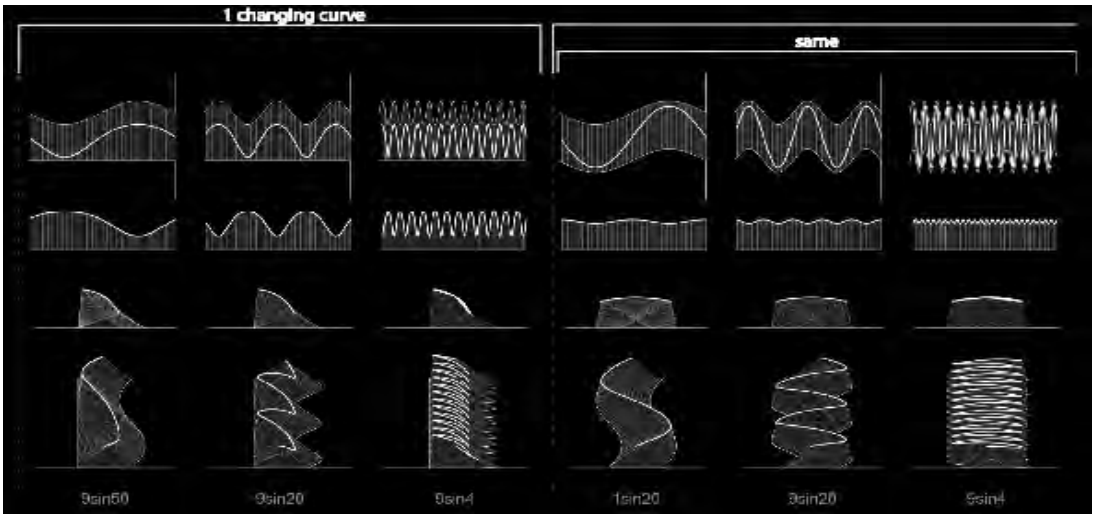


Figure 6. On the left side - only on side of the triangle is subjected to the interaction while the other is fixed - 1 changing curve. On the right side both sides of the triangle are subjected to the same intensive field-same. Each case has three variations of the amplitude and frequency.

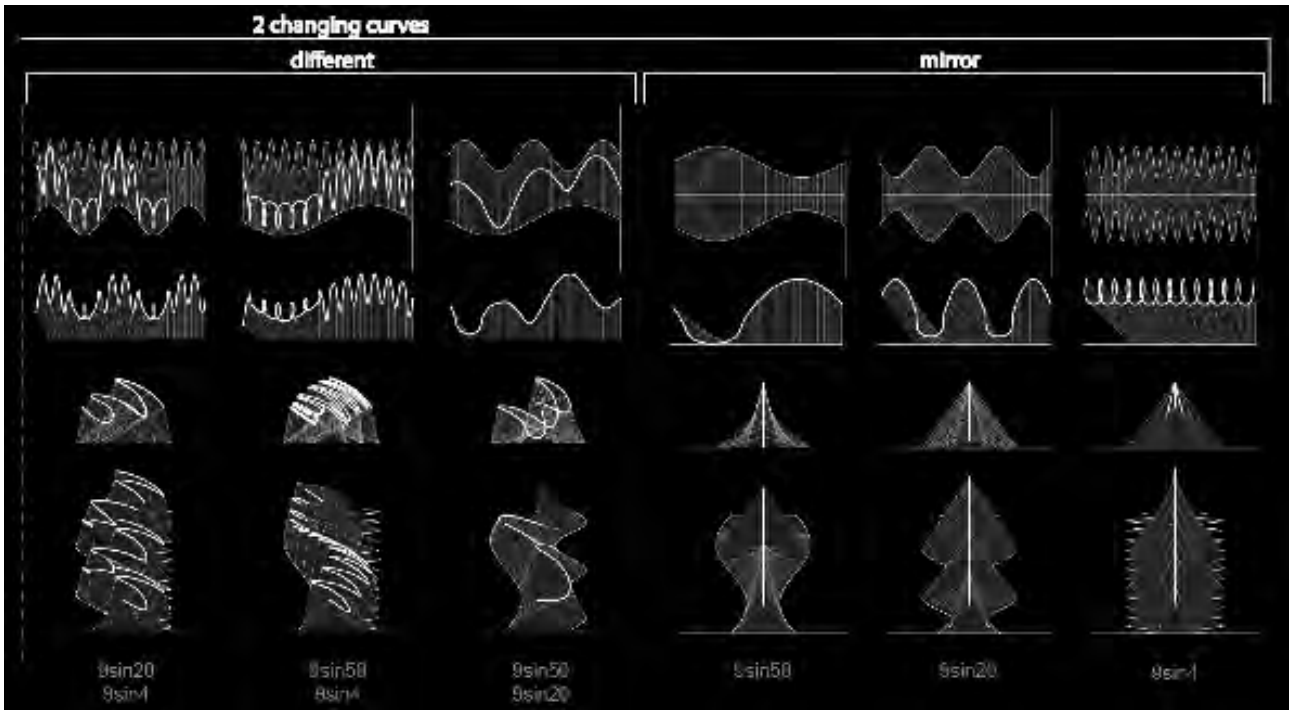


Figure 7. On the left side - both of the base curves change but in different fashion. On the right side both curves change but in mirror. The amplitude is the same and the frequency is different.

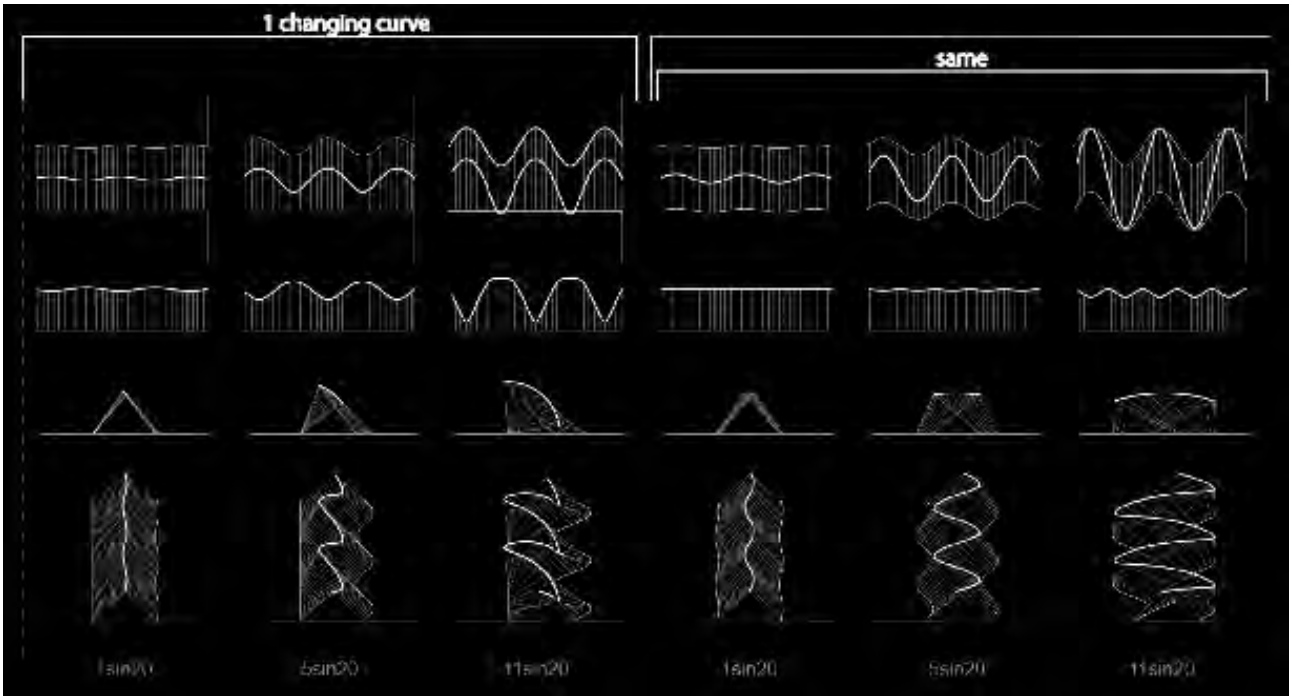


Figure 8. On the left side - only on side of the triangle is subjected to the interaction while the other is fixed - 1 changing curve. On the right side both sides of the triangle are subjected to the same intensive field-same. The amplitude is different and the frequency is the same.

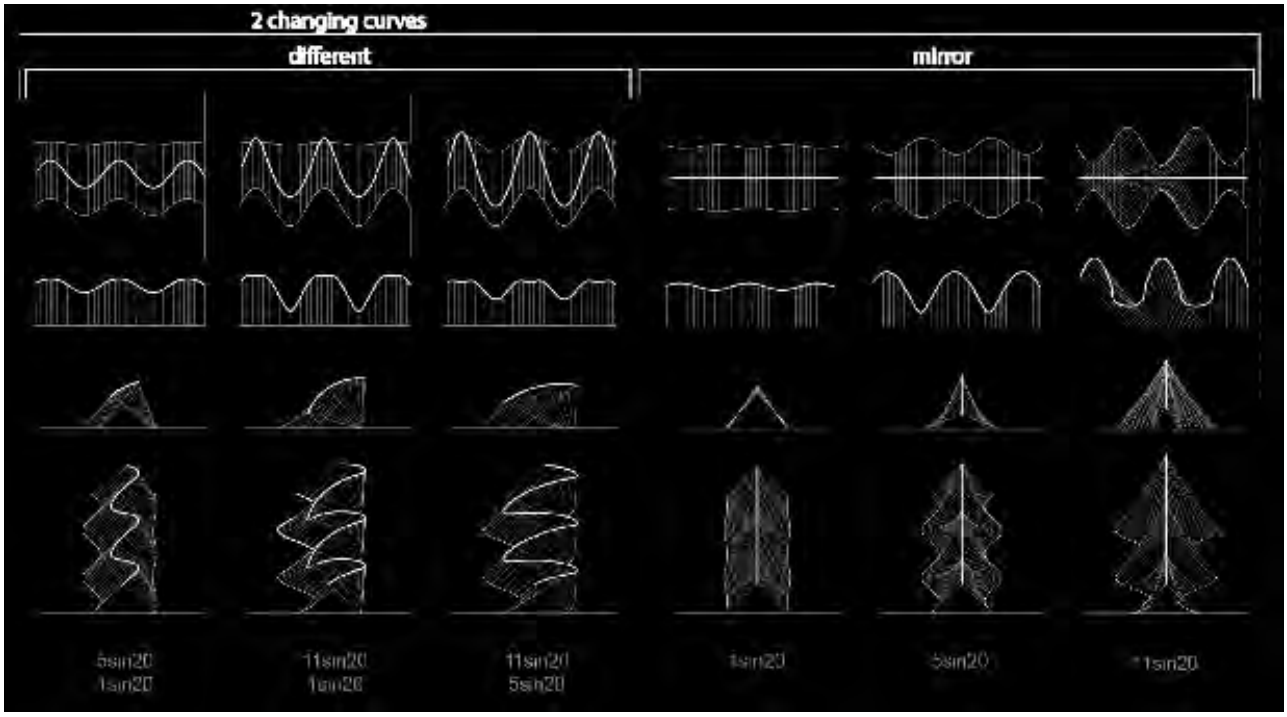


Figure 9. On the left side - both of the base curves change but in different fashion. The amplitude is different and the frequency is the same. On the right side both curves change but in mirror. The amplitude is different and the frequency is the same.

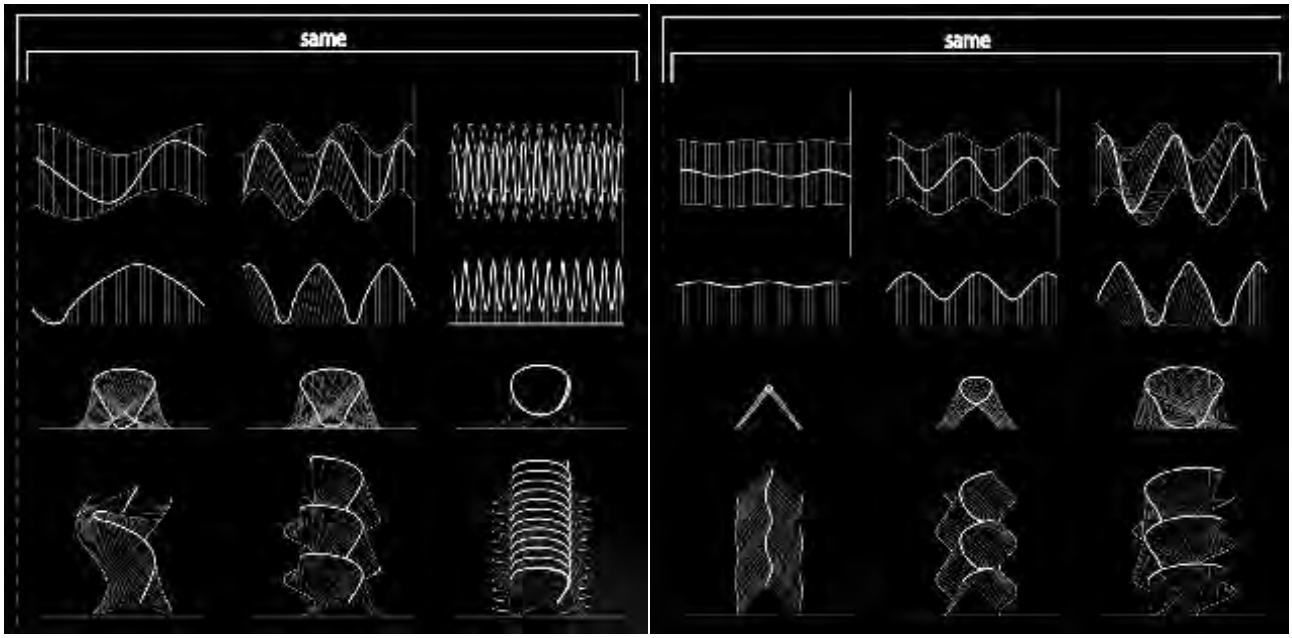


Figure 10. On the left side - both of the base curves change in the same fashion. On the right side both curves change but not exactly in mirror. The amplitude is different and the frequency is the same.

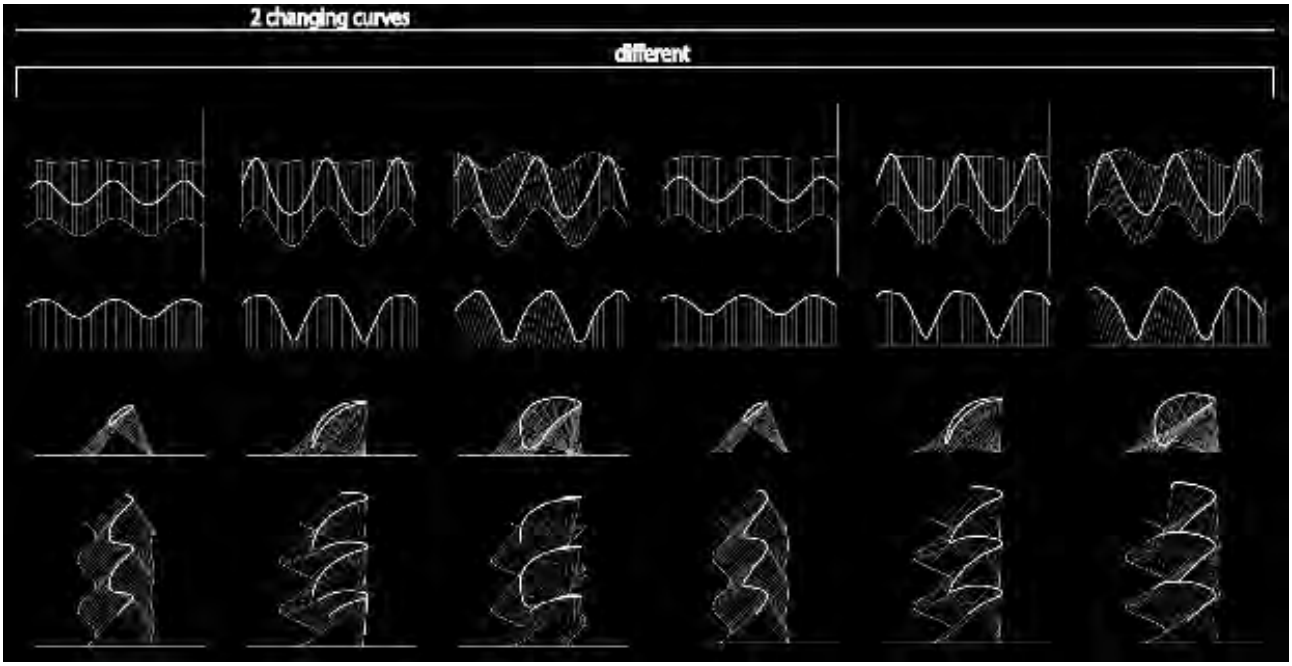


Figure 11. Both of the curves are changing. Both the amplitude and the frequency are variable.

The paper models that we developed in small scale informed our digitization process and also the next phase that meant changing the scale and the material as paper losses its responsive elastic behavior after a certain thickness.

3.2 Medium scale experimentation

From the small scale that used A4 and A3 paper sheets we reached a medium scale of one meter height that meant looking at other constraints as we changed the material for wood. Before deciding on the balsa wood that has a certain flexibility we experimented with other materials as plastic sheets and thin metal sheets. (Fig.12)

Figure 12. Medium scale experiments with balsa wood - sheets of 2x100x1000 mm used

We changed the material for balsa wood and we understood that it was a natural choice because basically the geometric properties of the paper and wood are material specific, and both paper and wood have elastic behavior embedded in them that activates under certain intensive fields.
We used balsa models at different scales in the interaction with the wind and we learned that as we expand the model we need to change the section of the vertical elements so that the system keeps its equilibrium in a responsive behavior. Although we weren't looking at many parameters the system was expressing at this scale different types of behavior. In order to understand the flexibility of the new material we made several analogue bending tests that reflected different behavior based on the location of the surface where the dynamic field was targeted. We used stronger fans this time as we were approaching step by step the human scale.(Fig.13)

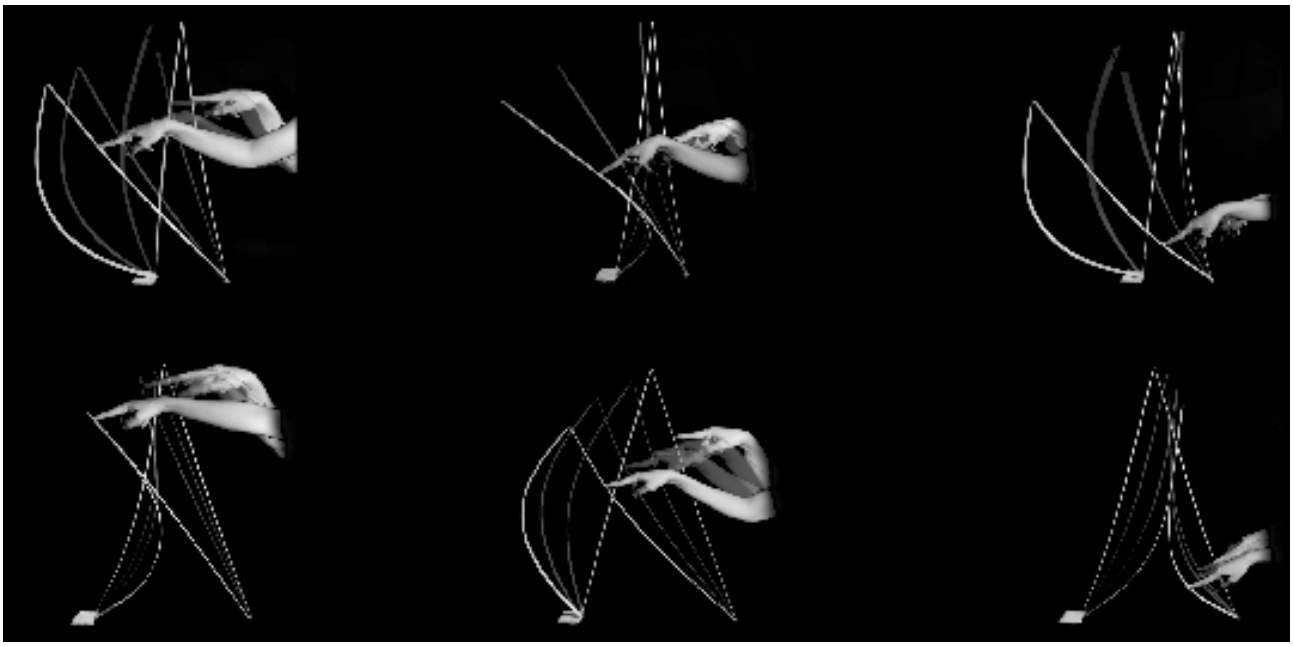


Figure 13. Bending tests made with a targeted variable location of the dynamic field.

The wood system expresses different behaviors. Technique used - chronographing. We digitized this behavior using Grasshopper and Kangaroo in order to understand how the behavior changes as the thickness of the material increases. (Fig.14).

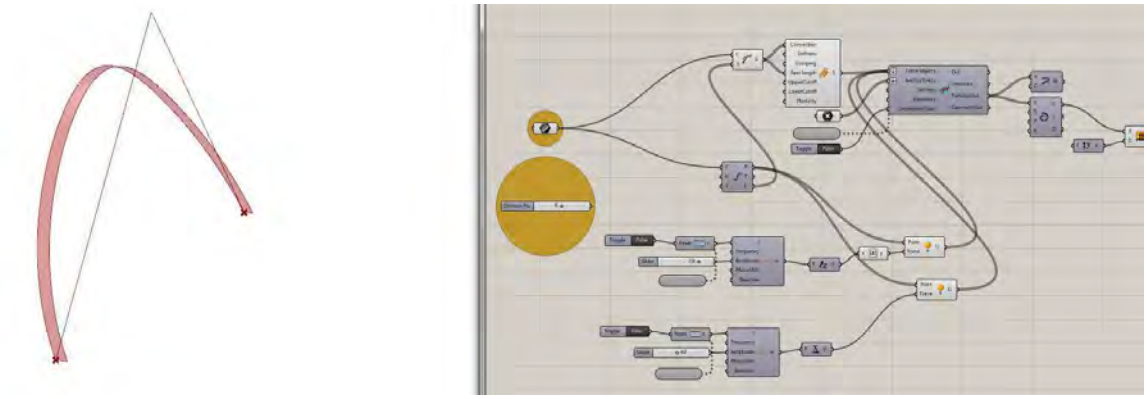


Figure 14. Bending tests made in Grasshopper using the Kangaroo physical engine.

By difference and repetition we expanded the systems surface and analyzed if it responds in a adaptive manner in the interaction with the wind. (Fig.15) A video with the behavior of the medium system can be visualized by visiting the following web address:

http://www.parametrica.ro/projects/2013-2/windmapper-1-0-new/

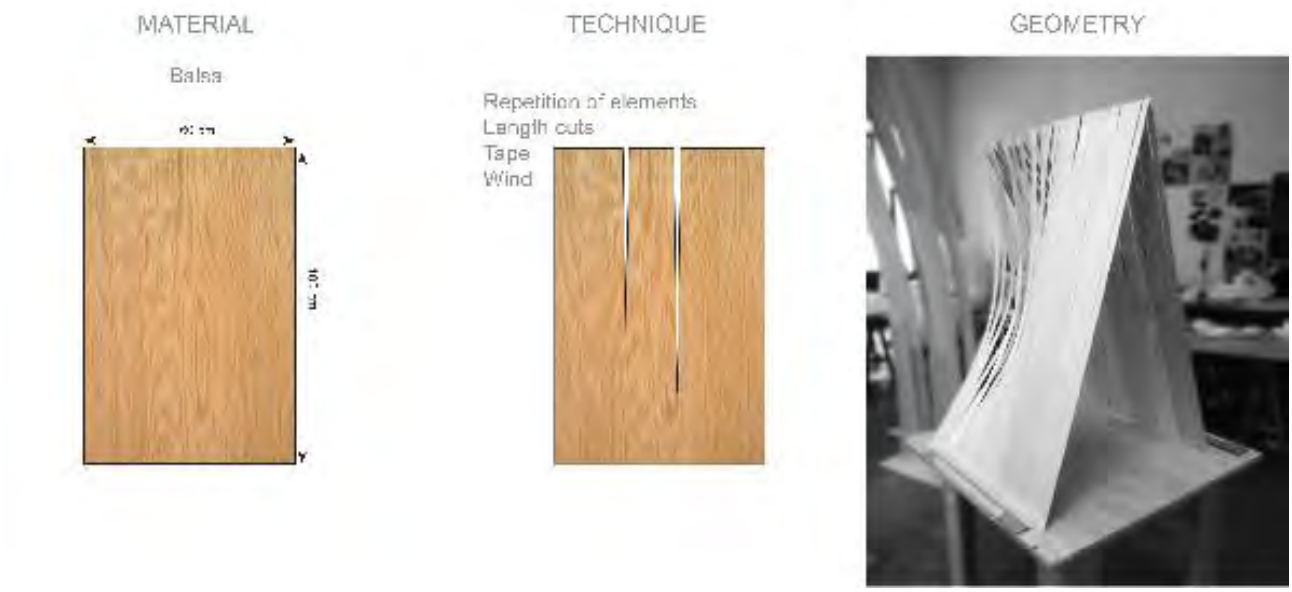
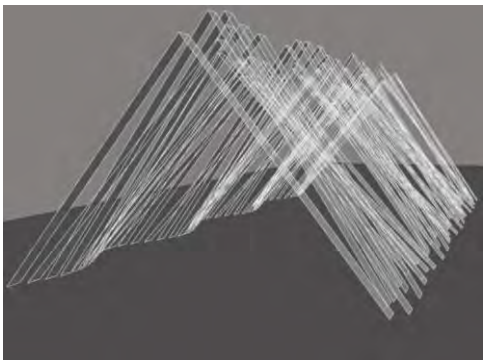
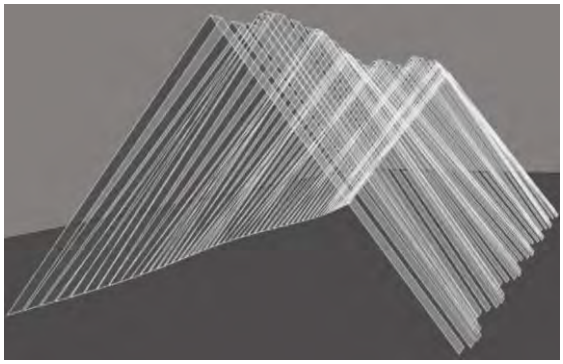


Figure 15. Medium scale experiments with expanded surface and different length cuts - 6 sheets of





2x100x1000 mm were used. One of the sides systems side was moveable while the other fixed.

3.3 Human scale experimentation

The medium scale informed us that as we increase the scale, the thickens of elements is crucial in maintaing an responsive elastic behavior so they need to be optimized in a structural fashion.
Because of this we decided to use for the final scale pieces of balsa wood that have different thicknesses of 3,4 and 5 mm and thus optimized vertical behavior.
At the human scale, we developed a physical installation with 3 meters in height that has a elastic responsive behavior and is also structurally stable in the constant interaction with the wind.

Figure 16. Human scale experiments with one element - optimization of the elastic behavior

At the human scale, we ended up with a physical installation that graphically maps different intensities or air pressures and further informs its environment with intelligent data. Its basically a mapping process of an invisible force on a physical model that informs us and also aesthetically stimulates our visual senses. An extensive way of looking at intensive processes.

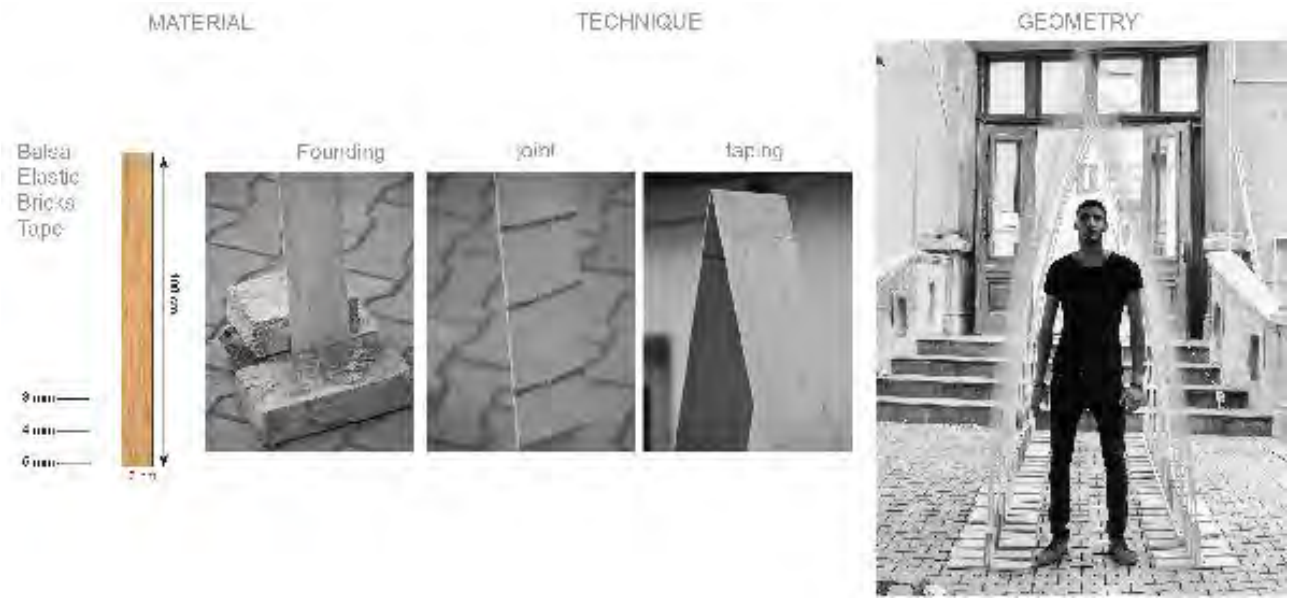


Figure 17. Human scale installation mapping the intensive field around a participant

4. Conclusion

The digitization process was informed with real world data based on the analogue tests we did and we were able to visualize a multiplicity of states and behaviors from which we extracted a few in our diagrams. These diagrams with possible behavior, informed the bigger scale experiments. In a way, the whole development process can be seen as going back and forward from the analogue medium to the digital one in order to acquire information and better understand the project.

The goal of this project was to understand how complexity is generated based on the physical interaction of a simple geometry with a dynamic field. We called this simplexity. (Fig 18).

We reached the conclusion that these techniques and technologies are considered quite useless if the designer could foresee what forms will the interaction between the material and energetic fields would bred!

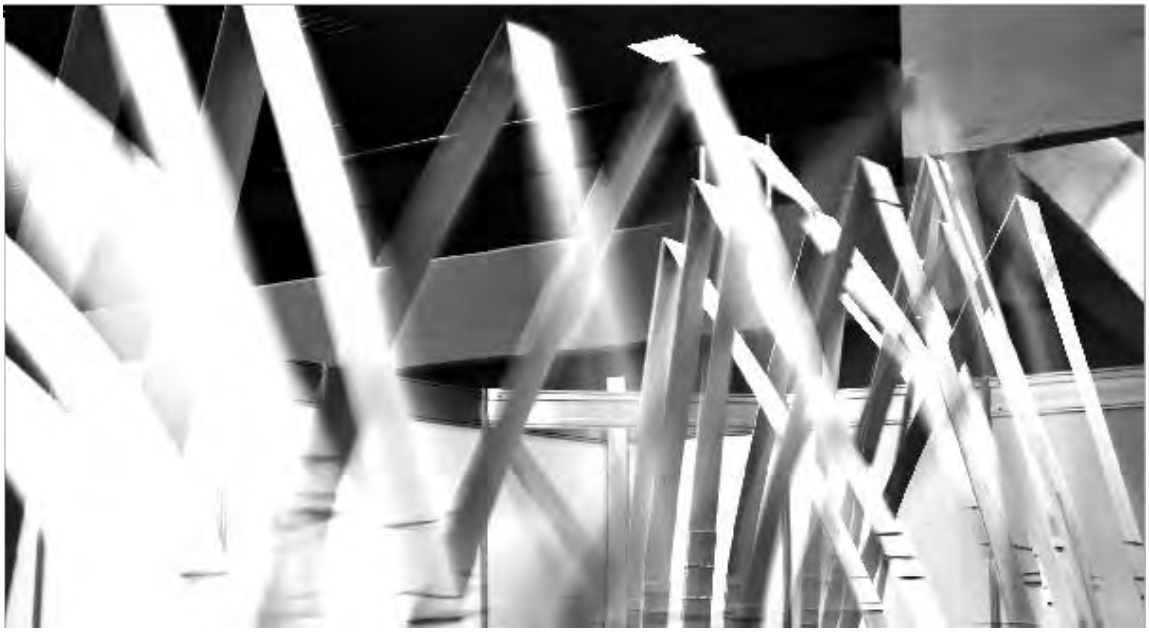


Figure 18. Responsive behavior of the physical system - detail with the flexible modulated elastic structure made out of balsa wood.

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[1] Rhinoceros - Robert McNeel Associates. Rhino is a stand-alone, commercial NURBS-based 3D modeling software commonly used for industrial design, architecture, marine design, jewelry design, automotive design, CAD / CAM, rapid prototyping, reverse engineering, product design as well as the multimedia and graphic design industries. Rhino specializes in free-form non-uniform rational B-spline (NURBS) modeling. Like many modeling applications, Rhino also features a scripting language, based on the Visual Basic language, and an SDK that allows reading and writing Rhino files directly. Rhinoceros 3d gained its popularity in architectural design in part because of the Grasshopper plug-in for computational design. Find more on, www.rhino3d.com.

[2] Grasshopper - David Rutten Robert McNeel Associates. For designers who are exploring new shapes using generative algorithms, Grasshopper® is a graphical algorithm editor, tightly integrated with Rhino's 3-D modelling tools. Unlike *RhinoScript*, *Grasshopper* requires no knowledge of programming or scripting, but still allows designers to build form generators from the simple to the awe-inspiring. Find more on www.grasshopper3d.com.

[3] Arduino is an open-source electronics prototyping platform based on flexible hardware and software. It's intended for artists, designers, hobbyists, and anyone interested in creating interactive objects or environments. Arduino can sense the environment by receiving input from a variety of sensors and can affect its surroundings by controlling lights, motors, and other actuators. Find more on www.arduino.cc.

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The Role of Perception and Dialogue between the Architect and the End-User in the Process of Imagining the Home

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Abstract

The built environment that we inhabit today is the environment in which we move, think, feel, it is the environment that we shape and that shapes us and our future experiences and demands as well. The distinction between what architects define as quality architecture and what the profane perceive as beautiful architecture is obvious. Starting from the premise that we all live in subjective worlds, shaped by our own perceptions, and that those perceptions are the result of sensations and emotions associated with our former experiences, the study further shows that the most of the disharmonies of the built environment come from the disagreements on the meaning of a beautiful home. Imagining and inhabiting are subjective experiences, such that a solution about these disharmonies could be a further understanding of how each of us shape our demands related to architecture. The paper advocates for a form of dialogue in which there is a thought process "together", in which the other no longer imagines his own point of view as the final point of the discussion and argues that the dialogue can establish contributions from both sides: profane and professional, from the perspective and experience of both actors involved, that can make the user feel included.

Rezumat

Mediul construit pe care îl locuim zi de zi este mediul in care ne mişcăm, gândim, simţim, este mediul pe care îl modelăm şi care ne modelează pe noi si viitoarele noastre experienţe si exigenţe. Este evidentă distincţia între ceea ce definesc arhitecţii ca fiind arhitectură de calitate şi ceea ce percep profanii ca fiind o casă frumoasă. Pornind de la premisa că trăim cu toţii în lumi subiective, modelate de propriile noastre percepţii, că, aceste percepţii sunt rezultatul senzaţiilor si al emoţiilor asociate cu experienţele noastre anteriore, studiul arată că cea mai mare parte a dizarmoniilor din mediul construit provin din dezacordul cu privire la ceea ce înseamnă o casă frumoasă. Imaginarea şi locuitul sunt experienţe subiective, astfel încât, o soluţie in privinţa acestor dizarmonii ar putea fi aprofundarea înţelegerii modului in care ne formăm fiecare dintre noi exigenţele legate de arhitectură. Articolul pledează pentru forma de dialog in care există un proces de gândire „împreună", in care celălalt nu-şi mai imaginează propriul punct de vedere ca punct final al discuţiei si susţine că dialogul poate stabili contribuţii din ambele direcţii: profan si profesionist, din perspectiva şi experienţa ambilor actori şi poate face ca utilizatorul să se simtă inclus.

Keywords: perception, dialogue, built environment, residential environments, quality architecture,

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architect-user

1. Introduction

Newly built urban and residential environment plays an important part in our daily life. In Romania, 59.5% of dwellings are individual and semi-detached houses. Romania is experiencing the highest rate of housing deprivation in the EU (31.8% compared Ro 7.1% EU average). Compared to previous years, in 2012 the population trend is to opt for a single-family dwelling to the detriment of the collective housing. The factors that encourage this trend are related to negative perception of collective housing and a number of factors perceived as benefits of individual housing: privacy, larger living space, high quality environment, personal safety. The residential flows are migrating from urban to suburban and per urban villages [1].

Therefore we may presume that in the next period there will be a significant increase in the built stock consisting of individual dwellings. The presence of this stock, well represented also at present, will become even more important in the general context of the built environment in the near future.

2. The existing built environment is what mostly shapes our requirements for our future home

2.1 Decisions between reason and emotion

Each of us lives in environments that make up a personal environmental autobiography, by sedimentation of our experiences and perceptions generated within these contexts. This autobiography is the bearer of the values we cherish or loathe in the evaluations that we make when we watch or desire a house. The built environment we live in and had been living in is the most powerful generator of our requirements regarding our desired image of a house. This visual image of the desired house changes over time, in relation to our experiences [2].

In Romania, the urban environmental autobiography of most of us often consists of precarious living conditions. We have been living in grey neighborhoods consisting of collective dwellings (Fig. 1), in semi-rural housing on the outskirts of cities or in tenement blocks faultily adapted to the increased capacity imposed by the nationalization process.

Figure 1. Blocks of flats in Bucharest, Romania, *Source:* commons.wikimedia.org

There are, of course, exceptions. Thus, the new environment being built at present, copies or vehemently denies parts of the environmental biography of all those who imagine or build a house. The impact of newly built residential environment is extremely powerful, as it draws attention by novelty, by the speed of building and a massive presence (Fig.2).

Figure 2. New residential in Romania *Source*: www.capital.ro

The subject is always in our focus, as it embodies our dream, the dream of home, a dream we want to fulfill and for which we always look for an image and a tangible solution, possible and real.

Each of us lives in a subjective world, shaped by our own perceptions. We perceive reality through senses and emotions associated with our previous experiences. We go on living convinced that we have higher values and that we are detached from the physical world through our conscience, our judgment, our reason, our mind and our self [3].

We believe that every decision we make is the result of our conscious reasoning (mind) and that we are aware of every second, every decision and every action. In reality, we are connected to the physical world and incorporated into it through the brain and body. We've learnt associatively, assigning values to stimuli that are good or bad to us, to guide ourselves towards rewards and to protect ourselves against suffering, without recognizing the deep motivation of most of our decisions [4]. The meanings and significations of the attributes of words and objects are not the same for everybody. Teresa von Sommaruga Howard (UK), practicing architect and psychotherapist, suggests to a client a mirror of water in the garden, but the significance of this presence is radically different perceived by the architect and by the client. For Teresa, the presence of water mean protection, serenity and calm since she was born on sea-side (Fig.3).

Figure 3. Seaside, *Source:* commons.wikimedia.org

For the client the image and the sound of water evoke a deep trauma, since a child from his family has been lost by drowning. For a significant period of time there was also a dialogue not without difficulties until the architect understood why the client flatly refused a landscape element pleasant for most of us. Norm Architects of Denmark (DK) who were requested to design a rustic style restaurant in Copenhagen looked for the valences of this term beyond the common meaning of the word "rustic" and created a unique atmosphere using industrial pendant lights, woollen blankets and reclaimed wood [5].

2.2 Imagining a new home. A home – a project in which the client is deepest emotionally involved

When we live or experience a new home, we integrate it in the set of previous experiences. What is new to us must be accepted through this integration; this is why what is inaccessible through ignorance, it stays alien to us and finally ends up in rejection. The previous experience set of values of end users and of architects differ in the first place from the educational perspective. Perceptions of what is valid or valuable as an image of the house are differentiated by this major experience of the architect: training. This is the origin of some of the major differences between the views of the client and those of the architect. This is where the communication gap between the majority of the public and architects (even those who slightly exceed the conventional approaches). Home is the aspiration dream of an overwhelming percentage of us. The making of a house and the act of living are deeply subjective experiences related to the environmental autobiography and the personal experiences, including educational ones.

Paradoxically, we understand and assume the atmosphere of a room within seconds from entering into it, before we intellectually understand how it's built. In fact, we are completely unable to say anything meaningful about this space, but we have a clear emotional attitude when referring to our feeling of this place [6].

The impact of this bias and emotional impact of the experience of living is at least insufficiently considered, if not completely ignored, by the architect of the house who takes command and imagines it for his client.

Generally, a client wishes to have his personal needs fulfilled and will express criticism based on these needs, without realizing that a project has several dimensions and is part of a whole. He will not be aware of and receptive to the new possibilities which an architect can bring because their quality will be tested only after a longer period of accommodation to the finished product [7].

2.3 Knowledge and recognition of faces and places

There is no knowledge without emotion, even if often we are not aware of this. Perception (regarding the experience of encountering the new house that the architect proposed) and imagination (the one that creates the expectation that we have for our dream house) are located in the same area of the brain. There is scientific evidence related to the field of neuroscience and neuropsychology, proving that imagination and perception share a common processing mechanism, which demonstrates that perceptions are not automatic and direct products of sensory mechanisms, but are creations of the intentional imagination. Some specific areas of the brain activated during the mental process of imagination are dependent on the contents of visual images stored in our memory [8]. This is the fact which from a neuroscientific point of view justifies the difference of opinion and sensitivity concerning a client's and an architect's opinion of what the beautiful architecture of a building is. Moreover, there are specialized areas in the brain for recognition of human faces and buildings. Their mental images activate by stimulation specific regions of the

brain. Viewing the faces and houses produce through perception more intense emotional responses than viewing other objects [9].

An image of the newly proposed house triggers through perception an emotion. An emotion can create an image. Most clients' predilection for fairy tale books houses or for pastiche of historic buildings is well- known. There are positive perceptions of the familiar, of the protection against the unknown, visions of the age where protection was present and palpable, images that once triggered a positive emotion and were associated with this feeling, remaining stored as such (Fig. 4). This may explain the attachment of the clients for stereotype images or for the familiar representations from previous housing experiences, for the infantile atmosphere visions or for the similar to what is found in the immediate vicinity.

Figure 4. Picturesque Houses in Bishop Burton, UK, *Source:* commons.wikimedia.org

2.4 The architecture is a process, not product. The relationship between architect and client

The project begins with the conversation between architect and client; the conversation is intended to reduce the anxiety of both parties and especially that of the client. The conversation can evolve into a dialogue, if the interlocutors are listen, valuing what the other has to say. If they give up imagining their own point of view as a final point of discussion, this dialogue can turn into "thinking together."

The next stage of the relationship can be the "briefing" – a process that implies understanding the customer's priorities and values. The briefing can become the creative resource of the design process and more, it can also include the client in the process, making it natural for the client to accept the future partner solution.

In the competition for M.H. de Young Museum in San Francisco, the architects Herzog and de Meuron were the only competitors who discussed museum collections in presenting their solution. They were also the ones who have won the commission [5].

3. Conclusions

We live in a newly built residential context which works as a reference and resource for our future customers' imagination. We are all aware of the architectural qualities of this context. The massive presence of poor quality homes is a reason for concern regarding the future of architecture, from a point of view lacking awareness at a large scale. And yet, it is the first source, together with previous living experiences and accessible media resources for modeling the image of the future home of regular customer. The built environment becomes a perpetual resource for the demands of

the future dream -homes, in other words, the present built environment generates through the analyzed mechanisms the future built environment, in a perpetual vicious loop.

When we operate with the wishes, requirements, preferences of a client who desires a house, we are operating with something much more complex than the differences between his and our training. In fact, we operate with his emotions and attachments to what the customer has accepted and associated as valuable and as rewarding for a fulfilling life.

The relationship between client and architect constitutes the context in which the project crystallizes. It is necessary for both parties to acquire the operating paradigms of the other party:
-the architect has to be aware of the customer's strong emotional involvement in building a house and that he is experiencing a process that requires time, understanding and transformation. His objections are not threats, but opportunities;
-the client should understand that architecture is not just a form of representation, but is much more than that. It is a process that solves problems, changes behaviour and evolves.

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Architecture and Human Needs

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Abstract

Whether or not modern architecture and urban planning are in accordance to the needs of citizens has been a subject of debate for the last five decades in the West. That debate is somewhat more current in post-communist countries, such as Romania. Modernist ideas in city building have proved to be less than perfect and urban segregation turned out to be a major problem we can no longer ignore nowadays. In addressing these problems, architects and urban planers might feel the need for an interdisciplinary dialogue with sociologists, psychologists and anthropologists. In doing so, perhaps another way to see architecture would be to start from the needs of the individual, rather than from the 3D model of the city landscape, as viewed from the air. No doubt this endeavour would take time and research but it has to start somewhere so this article will try to sum up a few of these "human needs" that should meet their answer in architecture even though they are sometimes ignored in current architectural practice.

Rezumat

De peste 50 de ani au apărut în Occident voci care se întreabă dacă arhitectura şi urbanismul contemporan răspund nevoilor individuale ale cetăţeanului. În ţara noastră, ca şi în celelalte din blocul fost comuinist, această dezbatere este mai recentă, dar ideile moderniste din urbanism s-au dovedit a fi nu tocmai perfecte, segregarea cartierelor fiind doar una dintre problemele pe care nu le mai putem ignora astăzi. Într-o încercare de a rezolva aceste probleme ale oraşului, arhitecţii si urbaniştii ar putea contribui la un dialog interdisciplinar împreună cu sociologi, psihologi şi antropologi. În acest sens, poate un alt mod de a vedea arhitectura şi urbanismul ar putea pleca de la om şi nevoile sale, nu de la macheta la scară mică sau modelul 3D care redă perspectiva aeriană a casei sau ţesutului urban. Fără îndoială, un astfel de demers va dura mult dar trebuie să înceapă undeva iar acest articol enumeră câteva nevoi individuale la care arhitectura ar trebui să găsească un răspuns, deşi de multe ori nu o face.

Keywords: urban planning, architecture, human needs, anthropology

1. Architectural Anthropology – A Solution to the Architectural Crisis?

Crisis is a word that has been on everybody's lips for quite a while now and when speaking of a crisis in current day architecture, one should differentiate between magazine architecture - those few examples that won international prizes and most of what has been built in our cities, almost everywhere around the world. While the first lot is certainly worthy of appreciation, at least part of

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it, the latter and most important, because most of what we see built today falls in this second category, is very different from a qualitative point of view. This gap between the few examples of good architecture and the many examples of poor construction has many reasons and explanations but very few possibilities to mend.

But this major break between the few peaks in architectural practice and the majority of other buildings is somewhat recent. True, there was a great difference between the baroque palace or cathedral and the "slums" of the 17th century but today, those very surviving slums are *La petite France* of Strassbourg, its most renowned attraction, or just about any other historical town centre in Europe that survived to this day. Some of the most beautiful historical sites in Italy are old fishing villages like Portofino, made with cheap materials and very utilitarian in nature, so one cannot but ask oneself how come this great tradition in "small" or vernacular architecture has been forsaken in the wake of contemporary architecture like the Gallaratese neighbourhood of modern day Milan.

A possible answer to this question comes from a science that had very few points of interest in architecture until recently – anthropology. From a traditional point of view, architecture was not one of the most important aspects that anthropologists studied in indigenous cultures because architecture was associated intrinsically with a certain technological progress and most of the societies anthropologists were interested in until recently were non-industrialized or "primitive" as we have derogatorily called them. Furthermore, these societies don't distinguish between architectural programmes the way we do in our occidental culture so for them there would be more socially important buildings and less socially important buildings not hospitals, banks, theatres and kindergartens.

Yet as the interest of anthropology slowly begins to shift towards the neglected aspects of our own culture, trying to apply what it has learnt from other cultures to our own, it discovers a new dimension in architectural approach – man as a human being. Anthropology has slowly learnt that it was through architecture (or pseudo-architecture) that much of the rural population was forcefully accommodated into cities during communism and it is architecture that has a great impact in the subculture of suburbia today. Urban planners and architects were needed to turn many arable land lots into buildable lots whenever the cities grew in size. We are the cities that we build and inhabit.

On the other hand, man has certainly not been the main point of interest in modern architecture, not as long as we still teach our students on architectural models at a scale of 1 to 500 and not while we make city plans disregarding the view from pedestrian level. We take man into consideration simply by their number: how many people in this building and how many cars in this parking lot. What width should then this street have to accommodate that amount of traffic and how many cubic metres of gas, air and water are needed by the inhabitants to sustain their lives. This purely "functional" approach is guilty of some of the most dysfunctional, repetitive and ugly cities – cities built for "useful people" as Konrad Lorenz named them [1], nothing more than hens kept in batteries to lay eggs in the name of efficiency. Its premises are wrong because they take into consideration just the most basic of human needs, the biological ones. The reason we have been condoning this practice is this so called efficiency that resulted from overcrowding and leads to even more overcrowding, one of the main sins of modern day humankind, as feared by Lorenz [2].

Surely there are exceptions to this and we still recall great interventions from the modernist era but they are just that – the exceptions. We have good quality modern architecture as mentioned before but nowadays, because of the nature of building materials employed, good quality architecture is mostly expensive architecture and, therefore, cannot be a long term solution to all our problems. What is probably the greatest difference from building before the 1920's, is that prior to modernism, most people were involved into building their own home. Now, in the name of

"efficiency" we mass produce buildings like cars and then sell them for unreasonable profits. The investors have even more money from this so they simply do it again and the whole process just repeats itself to no end. We cannot help but remember the examples of blocks that were sold without being connected to the sewer network and people falling with their bathtub in their downstairs neighbour's bath because of poorly executed concrete slabs between stories.

Perhaps the financial crisis of 2008 was welcome just for stopping this real estate snowball. Surely wounds in the urban tissue persist, traffic jams and unpaid mortgages still remain. So what can be done in the future to alleviate this and to never repeat it? Perhaps a better understanding of man and his needs in their entire spectrum, a greater implication from the local authorities in the building process and assumption of some responsibilities from them might be a start. Let us hope.

2. Human Needs as an Alternative in Architectural Practice

From the architects' point of view, we should be more concerned about our own problems, namely architecture. But what exactly means to do good architecture? How are we to consider man in all his aspects, precisely since it's again the anthropologists that teach us that humans vary infinitely as their background culture varies. Building a dreamhouse for a German will most certainly not satisfy a Japanese or an Arab. A lot of researchers write about the need for quality architecture but fail to offer concrete directions to follow. So what are we to do in this situation? The very first thing might be to establish a starting point and, despite current architectural practice, we will not start from the problem of funds nor from the problem of traffic, land lots or the city as a whole. These will all be adressed at a later time. We will attempt to start by adressing the problem of the human needs of both the client and the citizen that just hapens to pass by – the receivers and utilizers of architecture and the city in the first place.

Firstly, we need to define some notions. By *human needs*, a phrase that will be recurrent in this lecture, we understand a lot more than just basic human needs or biological needs. Saying that everybody has *needs* might be mistakenly understood in the negative way of being dependent or being *needy*, and we do not by any means want that understanding. On the contrary, the term *human needs* refers to a lot more, from *necessity* to *craving* and *desire*, *goal* or *ideal* (we do, after all, have the need for beauty in our lives).

Secondly, these needs should be identified and we should discern which ones might find an answer in good quality architecture. For this we might start from Maslow's pyramid of needs, Maslow being the first one who sorted and ranked human needs in primary, secondary, tertiary, etc. Of course some needs, especially in the higher level spectrum, cannot be influenced by architecture alone (like the need for morality) but others might be completely inhibited by poor quality architecture (like the need for intimacy or socializing). Before hence, however, we need to enumerate the negative effects architecture has on us and the reasons why they came to be.

Thirdly, we should make an important specification, namely that these needs will be considered human universals. Yet the beauty comes when we try and give answers to them and we find out that every culture on Earth has a different way of providing different answers to these needs. So every individual, no matter whether he realizes it or not, is likely to expect some answer or another according to his cultural background. Things also tend to vary in history as well and that makes it even more complicated. For example Rubens' idea of beauty or that of the Japanese geishas differs very much by today's standards. Thus the idea of a global or international style in architecture seems just as mistaken as considering to repeat the same house on an entire street. Despite both having economical justification, human beings could not and should not be governed by these alone. Otherwise it would be most efficient if we all lived in trailer parks…

Finally, towards the end of this article we should address the problem of the recipient of architecture and that recipient is the human senses for senses are the only way we can interact with the real world. Senses are the ones that make humans feels good or bad about being in a space at a certain time, as Juhani Pallasmaa puts it in *The Eye of the Skin*, his book that is among the compulsory curricula for architectural theory in most Western schools of architecture. Pallasmaa claims that it is a grave error that we consider architecture just from the point of view of sight, not from the perspective of a mixture of all our five senses.

3. Why Is There a Difference Between Magazine Architecture and the Way Our Cities Look Like?

Without further ado, let us start with a brief analysis of the situation in our current building fund. In this present urban cacophony, especially in Romania's newly built neighbourhoods, we have a great advantage: all these negative effects are so easy to exemplify and understand. It is *in situ* didactic material which makes it a lot easier to ascertain these effects than in Switzerland, for example. These current effects would be:

a. The lack of identity of our buildings and cities - Monotony. This is the first one, visible for everyone who ventures by foot in these newly built neighbourhoods. It is a plague present everywhere in the world, resulted from multiplying the same object (whether a house or block) over and over again. Perhaps it was best satirized in Soviet Russia's comedy "Irony of Fate" back in the 70's when a drunken doctor gets on a different plane and lands in Leningrad instead of Moscow but ends up in the same apartment in a similar block on a street with the same name.

b. The lack of vitality. Bedroom districts as they have been called are a direct result of functional segregation promoted by modernist urban planning back in the 30's. They are empty of people during daytime when most of them are at work or at school and very quiet at nighttimes as everybody is sleeping.

c. The lack of civic spaces and facilities resulting from a lack of borders between public and private space. Romania is among the first rated here. Post-communist neighbourhoods have very few urban facilities like kindergartens, playgrounds or sport halls and rarely have urban squares that are little more than car roundabouts. At best you can find the occasional grocer improvised by making a separate (and mostly illegal) entrance at ground floor level in some blocks of flats. Space for these facilities is now scarce and hard to come by since it was not planned for ahead. The only case of public and private space delimitations are found at individual residence levels but, even there, because land is so expensive, the courtyard is transformed in an open air garage for the car or cars. In these circumstances, an idea of community is impossible to develop because of poorly thought out neighbourhoods.

d. The lack of human scale. Everywhere around the world large cities tend to grow even more and the only vertical limit of high-rise buildings is given by structural constraints. We see skyscrapers grow over night in the backyards of small villas. The pedestrian has to make his way through several lines of double-parked cars and a walk is more risky than pleasurable.

e. The lack of intimacy. We all know how it feels to be awakened by the neighbour who decided 6 o'clock would be the best time to start drilling into concrete walls. This would not be a major problem (since he isn't likely to do it every day), but the fact that you can hear him all the time, during his daily activities in his own flat, you can feel the smell of cooking on the staircase, you can

see inside another neighbour's flat from you window.

All these effects are fairly visible and are the cause why a lot of us feel a certain aversion to walk on some streets. These streets are condemned to be passed by only by those who absolutely have to do so, which deprives them of the vitality they should have. The fact that all these effects (with the exception of the last one, probably) are only felt in the new neighbourhoods, never the old, makes one wonder why do we keep building cities this way? A few **possible reasons** might be:

a. The financial/economic reason. Overcrowding, civilized humankind's greatest sin according to Konrad Lorenz, the destruction following two World Wars have inevitably led to the necessity of cheap and speedy reconstruction of buildings that would house more and more people. But this is not enough to justify what followed in Romania or Italy since England and Germany, countries with a higher density of inhabitants than ours, have managed to enforce individual housing in suburbs rather than standardized blocks of flats as we see in our own cities. Lack of money is not an excuse either as we will see in the following sections.

b. The lack of morality and superficial approach of investors, architects and the local authorities. We see three main actors here, all three guilty of the current situation. The investor will not settle for less than 200% profit for his investment so he wants everything cheap but he cannot have his way if the other two would only object. The architect does not object because a free market would only mean that the investor would find himself a different architect who would do his bidding and the townhalls suffer from a total lack of interest (or the mayors suffer from a direct interest, in some cases). However beautiful it may sound, simply trying to educate society without enforcing some rules of conduct is prone to failure.

c. The lack of civic responsibility. Because we mentioned the three actors responsible for the current state of our cities, we cannot omit the general population that fails to take a stand and is not yet ready to live in cities. Encasing your balcony illegally and painting your part of the façade in bright pink even though the rest of the building is pale green means that you fail to understand that the façade belongs to the city and not to you.

d. The difference in opinions between architects and society on aesthetic matters. It is one of the reasons that we, architects, tend to overlook to easily. Besides the good effort of educating clients through a well meant *Guide of Urban Education* [3], we must also understand that we should first answer the client's needs and only then our own aesthetic principles. It is sometimes an endless negotiation on these terms.

e. Modernism and the negation of cultural identity and architectural context. It is perhaps one of the most important reasons. Modernism meant a total break from building tradition. It emphasized the role of the architect as a demiurge, which meant an obligation to "reset from an empty sheet of paper" and to design the city as he saw fit (as in Le Corbusier's plan *Le Voisin* for the centre of Paris [4]).

f. The pride of the demiurge-architect. Directly derived from the above, the pride of the architect is best seen in the fact that he keeps to his principles of life instead of those of the client. He thinks he knows best and that people should be thought how to inhabit. That is why most of the manifest architectural objects in the modernist era are habitation buildings, mainly villas. We can see this point by starting from four such examples[1], all of them architectural masterpieces in their own way. Of these, only one actually came to be long term inhabited by someone. Two of them have become the object of litigations between the architect and his client and three of them actually prefer a natural setting to the built context of a city that would attract some constraints in the making. All of them are treated from a formalist point of view, like beautiful sculptures and are therefore

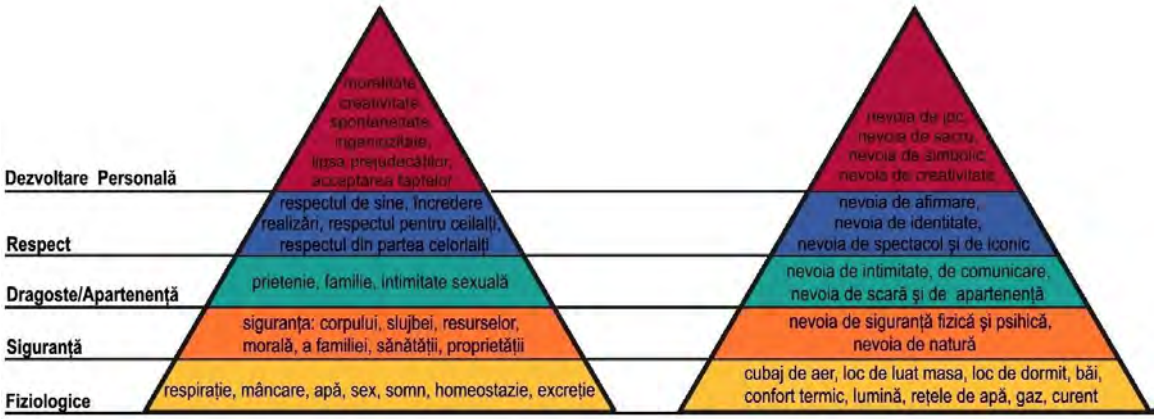
considered iconic for modernism and present in all architectural history books but this is their very problem – most architects nowadays prefer treating architecture as sculpture. Sculptural architecture might look good in a magazine but it lacks when it comes to being harmonious in a certain urban context. The discrepancies between the metaphysical geometry of the iconic house and the traditionally prosaic realities of life are brought under question here [5].

g. Neglecting many of the individual needs. Finally, the last reason is the somewhat shallow perspective we have on architecture, the problem we found out in the first place with the current functionalistic approach.

4. What Human Needs Should Find Answer in Architecture?

The following list enumerates some of the individual needs that architecture should answer. It is most probably incomplete but, hopefully, a starting point:

a. Primary needs (the need to breathe, eat, sleep, for drinking water, sex, bodily functions and hygiene, the need for thermal comfort, natural light or the need to be able to evacuate in case of danger). All these are already normally taken into consideration by architects. The belief that architecture should be primarily determined by answering these needs gave rise to *architectural functionalism*. The problem is that this functionalism is only limited is we take into consideration just these most basic of needs and this is a reason why it had been criticized for the past decades in the West.



b. The need for safety. Jan Gehl discerns between two distinct needs here: *the need to be safe* and *the need to feel safe*. While the first is easily solved by locking doors, fences, alarm systems and video cameras, the latter is inhibited by sensing these security measures as alarm signals for a possible danger. One associates these with a risen criminality in the area and this can only be alleviated by a permissive and well lit public space that is teeming with people. Well lit streets and shop windows during nighttime, a clear distinction between public and private space and the presence of people are but a few ways to make this happen [6].

c. The need for intimacy. We also have two different situations here. Intimacy inside the house should be solved by phonic isolation and cosy rooms that offer a relaxing setting for day to day life. But just as important to this is the need for outdoor privacy in the form of a small garden or terrace just for oneself. This can be the backyard but never the front balcony that sees the busy street and is generally used for drying clothes on a rack. Personally I have not seen anybody use the front balcony for any leisure activities because of the noise and dust that it is subjected to and because it lacks a feeling of intimacy. Public and semi-public spaces could have a certain dose of intimacy

provided by well placed urban furniture and a distance from the main traffic routes. A park like the Central Park in Cluj is not suited because it is clearly too small and overcrowded.

Creating more intimate space is possible by removing illegal garages in the backyards of apartment blocks, thus leading to semi-private gardens in front of ground floor windows that would in term lead to a higher value for these apartments. Children would also have better and safer playgrounds and the back alleys would not look as bad as they sometimes do now. If only we would manage to build garages underground for all our cars…

d. The need for communication. Man is a very pretentious being. He needs intimacy but sometimes he needs socializing. From this point of view, Central Park of Cluj is much better suited as it provides the place for gathering and spontaneous communication between people who happen to bump into each other. Also the aforementioned gardens from the backyard of blocks could provide a place for leisure and sometimes for spontaneous communication.

Jan Gehl is world renowned for his role in the shifting paradigms of contemporary architecture and urban planning. His books all speak of the human as a beneficiary of the city, a city that should be filled with life. For this purpose, Gehl identifies the need for communication as a *resulting activity*, spontaneously derived from the other two types of activity: the *compulsory* and *optional* ones [7]. So, in order to satisfy this need, he finds it necessary that:

- the street front should be permissive, of high quality and should therefore provide plenty points of interest to pedestrians. A commercial street is likely to facilitate spontaneous communication among acquaintances.
- spaces for pedestrians should be sufficiently wide so as to provide opportunities to stop and chat whenever the need arrives (which you obviously cannot do on a crosswalk)
- urban spaces should be furnished correspondingly. Back-to-back seating doesn't favour conversation but inhibits it because people cannot see each other and should be avoided

e. The need for human scale. Is self-explanatory and, in its absence, spaces cannot be appropriated by humans as we saw earlier. Man needs to relate to the surrounding built environment. Because of physical constraints, human fields of view are more developed horizontally than vertically. This in term means that we seldom realize what happens on the upper floors of a building, unless we are a considerable distance away from it.

It is through adequate scale that we can solve the need for intimacy at urban level. Obviously, nobody feels intimate in Unirii Square, Bucharest but a small terrace in Lipscani or in Museum Square, Cluj, places that are more "down to earth", closer to human scale, provide such an opportunity. Thus a pedestrian square with continuous façades becomes a sort of urban room, an ideal place for a small respite during daytime or nighttime.

f. The need for identity. This is also present all around the world. We can differentiate between levels here also. Most visible is at city scale where iconic objects like the Eiffel Tower, Statue of Liberty or the Dome in Florence not only symbolize the city but also leave their mark upon its silhouette, becoming major landmarks for passers by and even being used on car plate numbers.

But identity can also be expressed at smaller scales. Obviously the huge Casa Poporului is not the only possibility to play this role. For the inhabitants of a small neighbourhood, a little church, like Stavropoleos or Biserica Icoanei, provide a certain identity. In Western Europe, where urban communities have an older tradition, even small streets teem with small identity elements. For Catholics in Italy, Spain and Southern France it is common that streets and squares bear the names of patron saints and these saints are sometimes remembered through the use of small statues, often

in niches above a small passageway or in a corner. They not only make the small street or square charming but have had a utilitarian purpose for centuries – that of maintaining the identity of that particular street or square within the city.

g. The need to belong to a community and the need for (urban) context. Architecture has always had a sacred role, besides the more profane use of sheltering man. The village centre or urban square are, before everything else, physical centres of communities. Today it may seem absurd to speak of Defense community in Paris or of Mănăştur community in Cluj. But, up until the interwar years, villages that have turned to urban districts over night or even older neighbourhoods were rigorously structured, most of the times around a central public building like a church or sometimes a townhall. That urban structure was in most cases superimposed on a social structure and thus it was coherent but today we cannot say the same about modern developments. Today, the same building is commonly shared by very different people, from workers to teachers and from retired people to emo youngsters that all came together by chance.

One probably wouldn't feel this loss unless experiencing it in all its vigour in the past (village life of yesteryear is not a myth and, although not ideal, it might have been preferable to what happens in rural Romania nowadays) or present smaller settlements in some parts of the world (we do not mean just the non-industrialized people here but examples can be found in quite developed countries like Italy where community is still strong in some settlements).

h. The need for affirmation. Somewhat connected to the prior need, the need for affirmation involves a certain status or pride. Whether it is the Venetian Palaces on the Canal Grande, or the Gypsy "palaces" in Huedin or the megalomaniac villas in Certeze, the idea is the same. Their aesthetics, as perceived through the filter of today's viewer is obviously not of the same quality but that too might or might not change in the centuries to come. Ugliness comes in the latter two cases from the lack of craftsmanship and utility but this is an entirely different discussion; what stays the same is that they represent the physical manifestation of a personal need – that of affirmation of the social status inside the community. Sometimes, lacking traditional common sense, this need might reach preposterous dimensions like in the case of the aforementioned Certeze village. Most people here immigrated to France to work and live in misery so they can make the money necessary for these futile villas they build in their home village where they will never get to live again [8].

This example is but an extreme side of the need for affirmation. It can take any form, from the desire to have a house more beautiful than the neighbour's, to the pride of caring for one's garden (which has become almost an obligation in German or Austrian suburbs).

i. The need for show and iconic gestures. As one of the seven arts, architecture must convey human emotions and allow for them to develop in the spectator's heart (spectator is preferable to viewer since architecture does not address only sight but most of the other senses as well). Thinking of it as an enterprise, only in terms of profit, or subjecting it to urban ratios like the plot occupying percentage or the ratio between the height of two buildings and the distance between them risks burying architecture, as Schopenhauer viewed it, "under a pile of beams, bricks and mortar" [9] and takes the creativity out from the architectural process.

I remain true to the idea that architecture should not be envisioned as a gigantic sculpture. The Japanese idea of space is closer to reality in this context, as they see space as an object in its own, not residual as we tend to see it. The show of architecture can be better perceived if we imagine architecture as the background, the limits that define a certain square or street or interior space. For this we can refer to the example of a theatre hall. Architecture is perceived at an average of 4 mph, the average speed of walking, and this leads to concave spaces that offer more to view being more appreciated than convex spaces that need a lot of walking around for less information.

j. The need for play and creativity. Architecture is and should be interactive. The architect's need for creativity is no less important than the need for creativity of its user. The first process takes form a few days to a few months but, if done correctly, it can trigger the second for many decades to come. A water filled gutter for kids to play through or a surprise splash of water in the summer will make generations happy.

An urban space that offers flexibility and opportunities for playful thinking to its citizens has all chances to attract a lot more people who come out of pure curiosity and will thus facilitate all those activities that we can sum up with the term "urban life". We can find such examples all around the world, from the *trompe l'oeil* of the Renaissance to the silver bells of Curtea de Argeş monastery church and to Bernard Tschumi's folies in La Villete Park.

k. The need for symbols and sacred. Also derived from the previous need, the need for symbols epitomizes the highest level in a potential pyramid of needs that find their answer in architecture. Although present everywhere around the world as a major difference between human architecture and animal nesting, the symbol, as cultural dialogue between architect and spectator, had a lot to suffer from the misinterpretation of Adolf Loos' manifesto against ornaments[2].

In reality, all major architectural works claim to symbolize something. From Stonehenge and the infinite circle to the pyramids which stand for the primordial mound upon which the Sun first stood, from Heavenly Jerusalem – the *Axis Mundi*, to Sidney Opera House with its iconic sails, architecture has the role to organize the urban landscape, to rank it in importance, to make it different from the amorphous and profane fields that margin the city. As long as it is viable, symbol must not only be allowed but enforced as it is quintessential to good quality architecture.

l. The need for nature. Last but not least, the need for natural environment can be felt in each house and every city. Though deliberately left as the last need architecture addresses, the need for nature is among the most important ones. If all other needs fall in the cultural sphere, being thus a result of man's creation, nature cannot and should never be replaced by the work of man but should harmoniously blend with it (or the other way around, to be more precise).

For millennia, man has been adapting to live in nature and is now prisoner in an antiseptic world, governed by air conditioning and deodorants. Instead of trying to appease the senses with nature's scents and sounds that we are genetically accustomed to, we deprive ourselves of it on the pretext of squalor (dead leaves, poplar fluff, pollen etc.) or allergies (when in fact most allergens are synthetic).

In fact, architects rarely take into consideration other human senses besides sight. One of the reasons we feel Romanian cities are so different from those in the West, particularly from the Mediterranean ones, is the fact that these offer a symphony of fragrances, from the smell of freshly made bread or coffee to oleander, honeysuckle and orange blossom [10].

So it is an unpardonable error to consider architecture as a purely visual art. In his book, *The Eyes of the Skin*, translated in most languages, Juhani Pallasmaa challenges the supremacy of the visual in architecture as well as in daily life, stating that sight alone could not account for much if it didn't work together with the other four senses. Our constructed world would become nothing more than a "hedonistic but meaningless visual journey" [11].

Notes

[1] the four chosen iconic objects are Falling Water House of F. L. Wright, Vila Savoye of Le Corbusier, Farnsworth House of Mies van der Rohe and Schroeder House of Gerrit Rietveld

[2] actually Loos stated his famous manifesto against the excessive ornamentation of habitation buildings that, instead of conferring the intimate atmosphere required, were lavishly and uselessly covered in meaningless motives and ornaments

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[11] Pallasmaa, Juhani, op. cit., p. 22

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Architecture as Tool for Building Social Capital

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Abstract

There has been a long tradition in architectural history of trying to achieve social effects through built space. From the phalanstery to the neighborhood unit, or more recently to New Urbanism and Space Syntax based designs, architects have thought that it is possible to construct a sense of reciprocity, altruism and a general community oriented behavior through certain well defined spatial configurations and functional programming. After the 1960s and the 1970s critique, when these practices were considered forms of architectural determinism, and thus presenting a reductionist point of view, the idea that architecture can have a social role was somewhat lost. This paper tries to challenge both ideas, namely that architecture can have a precise social effects and the idea that architecture has no social effect whatsoever. For this, we rely on a larger view of both the idea of community and architecture. Instead of relying on community we will focus on the concept of social capital, a network of relationships based on trust and reciprocity between individuals. Instead of talking about architecture as object, we will consider architecture as dispositif, an ensemble of factors relating to building space: such as norms, laws, use, function, process, practice, etc. The purpose is to show that architecture, viewed as dispositif and planned as such can have effects on building trust-based relationships between individuals, and thus can stimulate the appearance of social capital.

Rezumat

În istoria arhitecturii există numeroase exemple de practici care își propun să obține anumite efecte sociale prin spațiul construit. De la falanster la unitatea de vecinătate, sau, mai recent dezvoltările New Urbanism sau metoda Space Syntax, sunt dovezi ale faptului că arhitecții au crezut că există posibilitatea ca printr-o anume conformare spațială sau funcțiune specific, să obțină un anume sentiment al reciprocității, altruismului și o orientare către comunitate a indivizilor. După critica anilor 60 și 70, care au privit astfel de practice drept forme ale determinismului architectural, ideea că arhitectura poate avea un rol social s-a pierdut. Lucrarea de față își propune să combată ambele viziuni extreme, și anume cea că arhitectura nu are nici un efect social, precum și cea că arhitectura poate avea un efect social precis. Pentru aceasta vom privi mai larg atât arhitectura cât și comunitatea, care este de cele mai multe or țelul proiectelor cu un scop social declarat. În loc de comunitate vom vorbi despre conceptual de capital social, ca rețea de relații bazate pe reciprocitate și încredere între indivizi. În loc de arhitectură văzută doar ca obiect sau spațiu construit, vom considera arhitectura ca dispositif , un ansamblu de factori legați de spațiu, precum normative, legi, utilizare, funcțiune, process, practica, etc. Scopul este de a arăta că arhitectura, văzută ca dispozitiv și planificată ca atare, poate avea efecte asupra construirii relațiilor de încredere între indivizi și astfel, poate stimula apariția capitalului social.

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1. Introduction

All human activity is localized. Therefore, it made sense to many that human action and behavior has a certain relation to the space in which it is situated. But from this basic relation, things were quickly exaggerated into thinking that architecture can have specific social effects, and that it can be used for precise social purposes. This way of thinking became a rule during the 19th and early 20th century. For once, architecture and built space was to be considered a science in the Laplacian sense, with space as cause and behavior of individuals as effect. Secondly, the Industrial Revolution led to the dissolution of traditional communities and the quick expansion of cities, and thus radically modifying the way of life of all individuals. This change in the lifestyle of individuals was linked to the most visible aspect – spatial organization of buildings and cities. Therefore, architecture was invested by some social theorists and architects with a new role. They thought that if architecture and urban planning was the cause for the ills of the Industrial city and the new class structure, than architecture can be a tool for social change and social revolution. Starting with the socialist utopians of the 19th century, continuing with modernist architects and with some recent echoes even today, architecture was invested with the mission of bringing a new and better society into existence.

Nothing represents better this belief than the *phalanstery.* The phalanstery is the invention of some socialist utopians of the 19th century such as Charles Fourier, Robert Owen or Victor Considerant. This new type of building and the functional innovations it involved, was designed as a laboratory for testing and applying the social theories of Fourier [1], in order to create a new and perfect society. The building complex was supposed to be perfectly isolated from the morally contaminated environment of the city and thus it was placed far away from any city or village. Being isolated from all other human activity, it had to be self-sufficient, providing not only the material necessities for a decent living, but also all the activities that the individual might need. It contained most of the daily lives of its inhabitants, from living spaces to workplaces, from kitchens to ballrooms. Most activities were to take place in common spaces, while private space was kept to a minimum. All these innovative principles have become a true architectural paradigm for conceptualizing the social mission of architecture and architects. The disciples of this paradigm in the domain of architecture were first and foremost the modernist architects of the 20s and 30s. For them, architecture was capable of solving all of society's problems and initiate social change only through changing its built space in general, and residential space in particular. As Le Corbusier stated: "Architecture or Revolution? Revolution can be avoided." [2]

However, creating a perfect world through a very specific tool, namely architectural space or object can be considered a reductionist view of both society and architecture. It is clear today that the effects desired by the socialist utopians or modernist architects did not materialize as they intended. Sometimes, the effects of such projects even had negative consequences. It is a true paradox (one that is found in many if not all utopias), that trying to create a new and perfect society leads to an opposite, perverse effect, that of creating a totalitarian, repressive, socially homogenous society. For assuring order and the perfect functioning of their designs architects tried to assure a climate of constant mutual surveillance and policing between individuals, reducing individual freedom and agency, and replacing social diversity for economic, racial or religious homogeneity. Therefore, we ask ourselves if architecture can or should have a social role, and what precisely should that role be.

2. From community to social capital

The social mission is part of the architectural paradigm of the phalanstery. It was in the phalanstery

where a system of mutual dependence and self-sufficiency was thought to be created through specific building configurations and functional innovations. The small group that used the building was to be perfect, well delimitated, and a small replica of the envisioned perfect society. Since then, architects such as Le Corbusier, Moisei Ginzburg, Clarence Perry or, more recently, Jan Gehl, Bill Hillier, Andres Duany and other New Urbanists, Vicente Guallart, Manuel Gausa and many more, have strived to find the specific building or urban space in which interdependence between users is necessary, and through this, they tried to create a society of mutual dependence and reciprocity. Therefore, the main social role of architecture, as seen by architects (but not only), was creating communities.

Although an honorable goal, the concept of community has been criticized and even considered dangerous starting with the 70s. The criticism is focused on such issues as the fact that communities tend to be closed onto themselves, thus increasing the tribalism of our society, or that they tend to level all individuals that are being part of them [3], [4], [5], [6]. More recent approaches, however, tend to shift the focus from the idea of community, considering the traditional definitions as out-of-date, and are focusing instead on the values that community brings to the individuals: reciprocity, mutual assistance, trustworthiness. Social networks based on norms of reciprocity, mutual assistance and trustworthiness are defined as social capital.

The concept of social capital is not new. It has been a part of social and political science since the 19th century. Currently there are two different approaches of social capital. The first, is tributary to the work of Pierre Bourdieu. He considered social capital as a form of capital similar to economic and symbolic capital. In his neo-Marxist critique, Bourdieu argued that social capital, as all other forms of capital, can be accumulated, transmitted and reproduced over time, within social groups and across generations, sustaining thus, class privilege and power. Persons with a high social capital, can transmit their relations upon their children, thus giving them an advantage for which the children have not worked for. For Bourdieu, social capital is a mechanism through which some social classes maintain their dominance in time over others [7].

The second approach, to which we adhere, is of a more recent date. Starting with the late 1990s, social capital has received renewed attention and was put in a different light, especially due to the work of Robert Putnam, James Coleman and Diego Gambetta. Putnam argues that social capital is not only a form of "private good" that is used by individuals for their own gain and interest, but also a form of public good. He links social capital with the reduction of political extremism, with lower crime rates, with a high altruism oriented attitude, with the improvement of health, etc. [8]. For example, a mental health study regarding suicide ideation in periods of economic recession in post-depression Greece reaches the same conclusion: "the only significant protective factor with respect to suicidal ideation was interpersonal trust. This has been considered for long as a measure of social capital which in turn has been linked to lower mortality rates, including deaths from suicide. Social capital in general and interpersonal trust in particular can protect citizens from developing suicidal ideation, even during periods of economic crisis. This supports recommendations to enhance social capital to mitigate the health and mental health effects of the recession" [9]. However, studies of Orenco Station in Portland [10], Salt Lake City, Diggs Town, Virginia [11], etc. show that built form, spatial configurations, or architecture understood as object has in fact very little impact on social capital. In the study of the decline of social capital in the United States, Putnam considers architecture or urban planning responsible only in a small amount. He considers that urban sprawl has been a negative influence on social capital, but only in a small measure (10 – 20%) [8]. So, if architecture's assumed role is that of creating communities and social capital, can it actually achieve this goal?

3. From object architecture to *dispositif*-architecture

Architects have tried to create a better society focusing on the architectural object, functional innovations and/or on the spatial configuration. They tried to find recipes for creating communities or for solving society's problems. But all social recipes tend to view society through a very narrow and even reductionist perspective. This was the main critique brought to modernist architecture during the 60s and 70s. The modernist social engineering was considered a form of architectural determinism, the belief that: *"Architectural design has a direct and determinate effect on the way people behave. It implies a one-way process in which the physical environment is the independent, and human behavior the dependent variable. It suggests that those human beings for whom architects and planners create their design are simply molded by the environment which is provided for them. It is of a kind with the other varieties of popular determinism – such as the view that national character is determined by climate – which save the layman the trouble and worry of observing accurately and thinking clearly"* [12].

One of the effects of this critique was the abandoning of all claims that architecture can have any social role whatsoever. More than that, creating a social role for architecture could be seen as morally wrong. Architects have passed on the other extreme, from utopian thinking to nihilism. Even modernist architects such as Oscar Niemeyer or Le Corbusier abandoned their social goals and have declared that architecture matters less than life: "It is life that is right and the architect who is wrong" [13] Part of the architects who still believed in the social role of architecture took the same nihilistic turn. Giancarlo de Carlo, member of the famous Team 10, considered that even if architecture and space in general has a social role, it must not be the architect the one who decides it. Architecture, he stated, is too important to be left to architects. [14] However, while it is true that architecture has no magic through which it makes good people out of bad people [12], or power to solve by itself all social problems, this does not mean that architecture has no effect whatsoever on human behavior. We consider that the problem comes from a very narrow understanding of architecture. If we consider architecture only as built object or space, then it is difficult to avoid a deterministic approach.

Modernist architects (just as most of contemporary architects) believed in the power of object architecture. When this power was proven to be exaggerated, the entire social role of architecture was compromised. The problem is that it was not object-architecture which was questioned but the social role of architecture in general. It was a critique of the goal and not of the tool used to reach that goal. We therefore propose another tool for understanding the social role of architecture. Instead of object-architecture, we will talk about *dispositif*-architecture.

Referring to the way architecture was used by power-holders in order to discipline deviant subjects like prisoners or the mentally ill, Foucault does not make the distinction in his analysis between the architectural form and the individuals using it, or the legal system that legitimizes its use. All these elements, as well as others, work together in order to achieve a certain social effect. The concept of *dispositif (apparatus)* introduced by Foucault refers to a "thoroughly heterogeneous ensemble consisting of discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philosophical, moral and philanthropic propositions – in short, the said as much as the unsaid. Such are the elements of the *apparatus.* The apparatus itself is the system of relations that can be established between all these elements." [15] Architecture has always been an ensemble of individuals, plans, objects, models, norms, regulations, laws, institutions, objects and philosophical as well as aesthetic propositions. Still, in general when talking about architecture we tend to see it only as end result, as a unitary ensemble which satisfies needs, shows opportunities, or as a cultural product. In analyzing and discussing architecture, most elements connected to architecture are put aside. A *dispositif*-architecture takes all these elements into consideration, although it might make architecture less tied to a physical place, and look more

like a network which is sometimes expressed into a built space. *Dispositif*-architecture is a relational architecture – it is made out of relations and it generates relations.

The dispositif is a social agent, a social entity in itself and therefore it can be analyzed accordingly. For Bruno Latour, society and the "social" is not restricted to human action and behavior. In his actor-network theory, he criticizes the "sociology of the social", arguing that the "social" is not a thing in itself, but a permanent connection process between human and non-human actors [17] For planning and architecture this means that: "Space, scale and time are rather multiply enacted and assembled at concrete local sites, where concrete actors shape time-space dynamics in various ways, producing thereby different geographies of associations" [18]. For example, when studying the waterfront rehabilitation in Denver, Los Angeles, Phoenix and San Jose, Wessels shows that beyond the multitude of human actors (individuals or organizations), for understanding action we must include the rivers themselves but also the plans done by architects and urban planners. The rivers generate action by coming out of the unproblematic daily situation (in the case of flooding). Plans are actants because they are: "explicit directions of action (…) with the implicit role of enrolling other actants, permitting associations, translating meaning and action (…) The plan becomes a way of offering possibilities, having conversations, communicating objectives, producing images, assuring financing" [19]. Furthermore, the fact that the result of the actions does not follow exactly the intended plan shows that the plan is not an unmediated transmitter of the intention of the creator. We see now how focusing only on the architectural object in trying to observe the social effects of architecture is therefore a reductionist view, which ignores the many other elements of the architectural-*dispositif,* which in fact act in influencing human action. This is one of the reasons for which all methods and practices which are focusing only on the architectural object in trying to obtain a specific social effect, suffer from a form of architectural determinism. In this network of human and non-human actors, architectural form or the architectural object is but one part. Architectural form can, in certain conditions, permit or obstruct certain actions. However, it cannot be studied independently from the entire network.

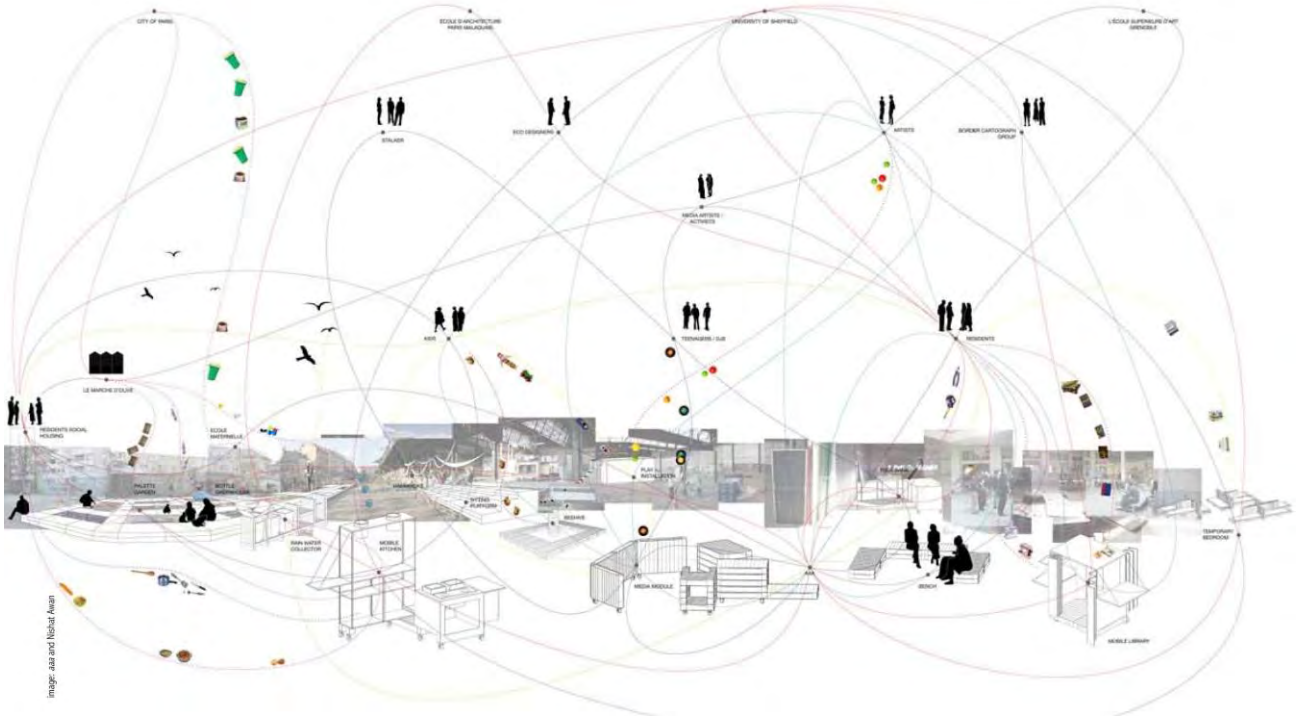

Figure 1 A graphical representation (*mapping*) of a network linked to an architectural project [16]

There are however some risks of using such a method. Firstly, it is extremely difficult to take into consideration all agents involved in a certain action, thus making the analysis to be always

incomplete and hard to control. Secondly, each situation becomes an extremely particular one, being hard to determine a general rule to be applied in all circumstances or even to replicate the result. Thirdly, as a consequence of the previous two, the results can be contradictory. We can have examples in which the same type of actants, based on the same mechanisms, can influence action differently. Although admitting to these possible risks, studying architecture as *dispositif* and as a social actor in itself, based on Bruno Latour's actor-network theory, can provide more intake on the social impact and the social role of architecture, avoiding both nihilistic and deterministic points of view. Therefore, the question becomes: how can *dispositif*-architecture be a tool for creating social capital?

4. D*ispositif*-architecture as tool for building trust

As we mentioned earlier, social capital refers to social networks built on reciprocity and trust. Building social capital thus becomes an issue of building trust based relationships. Trust is a social mechanism at the base of all and any social interaction, consisting of a strategic decision regarding a certain future, in the situation in which information regarding the other are insufficient. Trust supposes an active individual, an agent, capable of taking decision regarding his actions and it is influenced by a set of external and structural factors. When an action is determined by causal laws and is considered normal behavior, trust is not an issue, as the action in itself is unproblematic. But when the action is not part of the unproblematic everyday life of an individual, trust is necessary as the individual is put before the uncertainty of his/her future actions [20]. Trust is dependent on a series of factors and social mechanisms. The most important of these are: the empowerment of individuals, social equality, level of information and knowledge and the quality of previous cooperative experiences. If we consider architecture only as object or space, then it cannot have any role in building trust based relationships. The dispositif however, addresses many of the issues that lead to trust building. Also, in studying the social role of architecture, as John Dewey stated: "building, construction, work designate both a process and its finished product. Without the meaning of the verb that of the noun remains blank". [21]

3.1 Structural conditions for trust building

Trust can be personalized, when it refers to specific individuals, groups, institutions, or generalized, when it is extended upon the general "other". Generalized trust and personalized trust are linked but not mutually dependent, meaning that it is possible for generalized trust to appear independently from personalized trust [22]. The level of generalized trust started to be measured during the 1950s in the United States and it became today a universal practice. Studies based on the World Value Survey and the European Social Survey have shown generalized trust is dependent on economic factors, political and social stability, freedom and democracy, institutional development, legal systems, education.

All these elements which influence the level of generalized trust are linked to the level of emancipation and empowerment of the individual [23]. The more freedom and power an individual has, the more will he be willing to trust another. Economic development is the element which increases the individual ability to practice freedom. It is measured by level of income (GDP/inhabitant), standard of living (a higher standard leads to a decrease in risk perception in the moment of meeting a stranger). The most important economic factor related to generalized trust is income inequality, measured through the Gini coefficient. Income inequality leads to the stronger perception of social inequality, and thus, to mistrust. Inequality leads to an increase in social distances between individuals and to triggering the "us versus them" behavior [24]. The more equitable an economy is, the higher the level of generalized trust will be.

Cultural development strengthens the individual's motivation to practice freedom [22]. The level of

education for example, measured through the education index, has been considered since the beginning a clear determinant of cooperative attitudes in individuals. Education is linked to altruistic oriented behavior and is a clear determinant of the formal involvement of individuals in collective activities, which are effects of high social capital [8].

The institutional framework extends the rights of the individual to practice freedom [22]. At a global level, some parts of institutional development are being measured, such as: good governance indexes, the reports of Freedom House, the degree of justice independence, freedom of press, etc. A highly functional institutional system makes any and all strategic decisions regarding the future to be less of a leap into the unknown by creating a "safety net" provided by the law and those who apply it. In the case of misguided trust, there is a perceived safety provided by the law. Also, a developed institutional system reduced social inequalities and social distances. Totalitarian regimes, for example, tend to rise the individual's dependence towards the State and lower the horizontal cooperation between individuals, reducing the individual at a dependent and infantile state from a psychological point of view. Individuals have little option apart from obeying and seeking rewards only from the state [25].

The level of generalized trust signals the starting level for building social capital. A higher level of generalized trust leads to an easier process of building trust relations. A lower level of generalized trust makes the entire process more difficult. At present, the level of generalized trust is measured at a national level. Thus, it can be said that in Scandinavian countries (highest level of trust) it is easier to build trust through architectural processes than in Romania, Portugal or Brazil (lowest levels of trust). However, considering that architectural interventions are more localized, both as process and as agents involved, the national level of generalized trust might not always prove to be an efficient measuring tool for the easiness of creating social capital. This is why architecture, seen as cooperative action between human and non-human agents must rely on other mechanisms for building social capital. These mechanisms are dependent on conscious, calculated, rational actions.
Based on the theories of trust and social capital and linking them with the understanding of architecture as *dispositif*, we will describe some of the possible elements of a strategy through which architecture can be a tool for building social capital. These strategies refer to: the agents involved (initiators, designers, clients, users, etc.), the duration and the design of the process, the intended function and the rules of use.

3.2 Agents and the trust building process

Dispositif-architecture is made out of individuals, objects, laws, regulations, aesthetic and moral principles, etc. First and foremost, however, trust is invested in individuals and their actions and only after that in their products or results [26]. Architecture makes no exception, being first and foremost a cooperative experience between individuals, groups, institutions and organizations. Trust in individuals is based on the ability of individuals to be agents and on their knowledge of the other [27]. Freedom and information are measures of the individual's empowerment, which, as we saw earlier, are determinants of trust. More information about the other leads to greater freedom and to considering multiple courses of actions. In what concerns other individuals, information can be obtained either by reputation or by direct experience. When the other is not known, and therefore there is no reputation upon which the individual can base his action, the only mechanism for obtaining information is direct experience.

Misztal argues that "in a period of high modernity there is renewed re-embedding and growing importance of personalized trust, based on deliberately cultivated, face-to-face relationships (…) where it cannot be controlled by fixed normative codes, trust has to be won, and the means for doing this is demonstrable warmth and openness [28]. Luhmann also argues that the basis for any type of trust is the presentation of the "individual self as a social identity which builds itself up

through interaction and which corresponds to its environment. Whoever presents himself from the outset as unapproachable (...) is in no position to acquire trust because he offers no opportunities for learning and testing (...) Whoever wants to win trust must take part in social life and be in a position to build the expectations of others into his own self-presentation" [20]. Both authors argue that in order to build trust relations, all agents in the *dispositif* must be physically present, open for developing a relation and offering opportunities for testing trust. In this way individuals can obtain information about the other. This means that architects who work on site and put themselves at the disposition of the potential users have more chances for earning trust than architects who work isolated in their offices. The trust that architects as individuals and agents win by being physically present, can be reflected on the architectural object or on the space they designed, favouring its appropriation.

But not only architects have to be present on site during the process for earning and testing trust. Users, initiators, financing agents, builders, etc. must present themselves as distinct social entities as well. On one hand, this means that the process has to be designed in such a way that these agents can meet each other and present themselves as individuals and not as institutions. This limits the scale of the intervention. "Listening and trusting are easier in smaller setting. One-on-one, face-to-face communication is more effective at building relationships and creating empathy and understanding than remote, impersonal communication" [29]. Furthermore, for building trust the actions of one agent must be perceived by the others as determined by that specific agent and not by any form of exterior agenda, such as the institution he is working for, an ideology, or other agents. Therefore, we see that in order for architecture to be a tool for building social capital, all the agents involved (architects, financing agents, users, builders, initiators, clients, etc.) must put themselves in a situation of directly knowing each other, of direct interaction and awareness that each individual acts in his own name, with a personal agenda and interest. Therefore, the process becomes highly localized and personalized, qualities which are transferred upon the architectural product.

The physical presence and direct experience of each other is not, however, sufficient for developing trust relations. As mentioned earlier, one of the main sources for mistrust is the perception of high social inequality. The main source of social inequality and thus the main problem for trust building through architecture is the perceived difference of knowledge and expertise between the agents involved. Knowledge is linked to empowerment and the capacity of individuals to be agents. In the situation of very little information, trust is replaced by hope and the power to introduce a change in how things are at a given time is greatly reduced. In architecture we are faced from the beginning with a process which is not part of the daily lives of the individuals and in which only a very few agents have specific knowledge. Therefore, reducing the knowledge gap between the agents involved should be a clear strategy in using architecture as tool for building social capital.

Reducing the knowledge gap does not mean renouncing all knowledge by architects, as the famous *Non-Plan* manifesto proposed in 1969 [30], or as Giancarlo de Carlo argued in the same period [14]. Abandoning all type of architectural expertise will lead to the constant reproduction of vernacular building archetypes. Therefore, the idea is not abandoning all specific knowledge, but to recognize the mastery of regular individuals in the daily use of their surrounding space. This is not a new principle in managing social relations between different people. At the beginning of the grassroots organization movement in the 19th century it was believed that it was not abstract ideals and goals, nor political formulas that matter, but common experience [24]. Jeremy Till calls this type of involvement, `transformative participation'. It is a form of participation that is "realistic enough to acknowledge the imbalances of power and knowledge, but at the same time works with these imbalances in a way that transforms the expectations and the futures of the participants" [31]. The knowledge of each agent is recognized and worked with in the process, without abandoning specific knowledge due to education and experience.

Trust building is dependent on the empowerment of individuals. Therefore, the architectural process should focus on the reduction of social distances between individuals which leads to their empowerment. This can be done through information and personal knowledge about other agents, by personalizing the architectural process, which can be correlated with reducing the social distance caused by the difference of knowledge or experience.

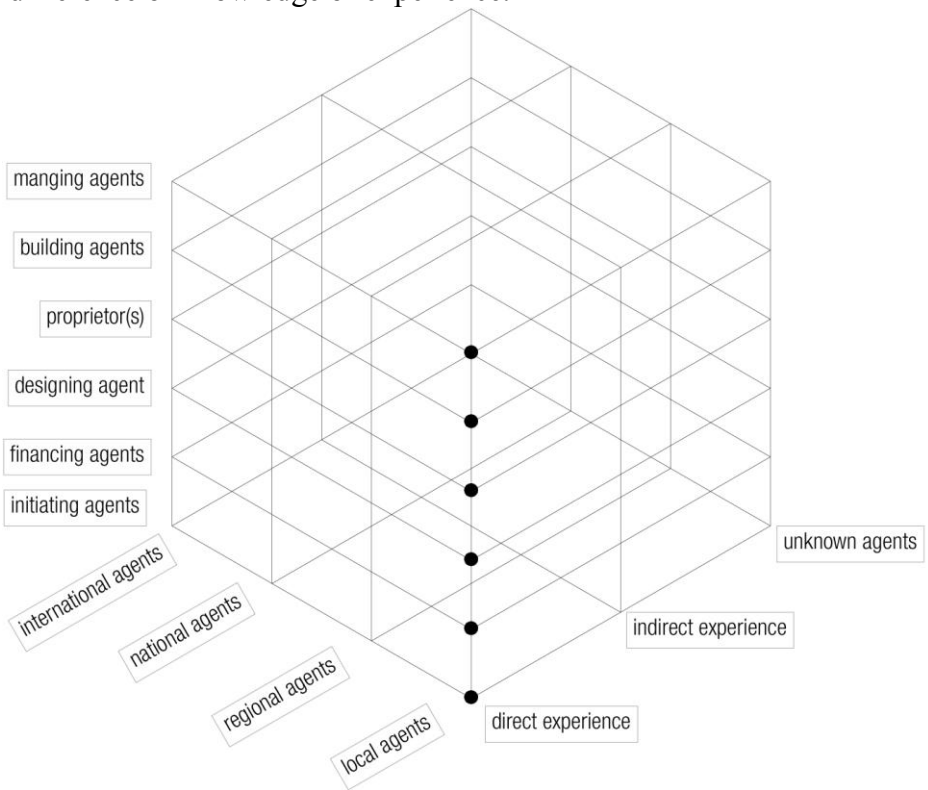

Figure 2. Graphic analysis framework for the relation between agents involved in the architectural process (our image).

3.3 Constructing the "shadow of the future"

Architecture is a cooperative experience between a multitudes of agents. In order that trust relations might emerge, these cooperative experience must limit the possibility of cheating between agents. The reduction of the possibility of cheating can be done through several strategies. One of these is designing a lengthy process, thus creating the "shadow of the future". "Trust is most likely to emerge in ongoing social relations in which there is a shadow of the future. It is much less likely (if at all) to emerge in settings in which the parties are strangers who will not encounter each other again" [26]. Cooperation is possible only when there is the possibility of future encounters, when the extension of interaction does not have a fixed terminus point [20]. In other words, the lengthier the process, thus a longer shadow of the future, the more the individuals will tend to cooperate and develop trust relations.

Game theory was one of the main sources of studying trust behavior of individuals in different situations. Although criticized for trying to create "laboratory" conditions, which in the case of human sciences is an impossible task, its findings cannot be ignored. The prisoner's dilemma game, for example, is a game which tests trust and cooperation. The idea of the game is that the police arrests two individuals as suspects in a crime. There is no evidence for convicting them without a confession of the crime. The two individuals are put in separate rooms and they are told that if they confess and involve the other, they will get half the conviction. They are told that if they do not confess and the other one does, then there will be aggravating circumstances, leading to a longer sentence. The choice is therefore between telling and not telling, trusting that the other will say nothing, or, considering the mechanism behind each decision, between cooperating and following

your own private interest. The idea of the game, and its catch, is that the optimal solution, the one in which you do not depend on another, is not the optimal solution in terms of result. Studies have shown that in the moment when the possibility of future encounter does not exist, the uncooperative attitude is most likely to appear [32]. The shadow of the future therefore, fights the uncooperative attitude through the possibility of future encounter.

However, the possibility of future encounter alone is not enough for the development of trust relations. Expecting to see the other individual might lead to reducing the temptations of cheating, but this is not sufficient for promoting reciprocity and trust. Stable cooperation depends on extended and sustained interactions, without a known end point. If the final point of an interaction is known, at the moment T, then there will always exist a temptation of cheating the other in the moment T-1. This can lead to a spiral of cheating which goes to the first meeting. An unknown end-point for the interactions influences the building of trust relations, or for relations to be impossible without some trust being developed.

Architecture's instrumental logic leads most of the time to an efficient solution, where each step of the process lasts as little as possible, offering the highest possible quality. Efficiency leads, in time, to greater social distances between the individuals involved, because it is based on more specific knowledge which the other agents involved do not possess. What is needed therefore, besides the physical presence of all agents involved, is the acknowledgement of each individual's expertise and a process which is organized in order to last a longer time, without a known end. During the process, the dedication, the involvement and the desire of the participants to cooperate can be tested.

One of the possible strategies for creating the "shadow of the future" is using a phased process. Such a strategy addresses different mechanisms, such as: accepting change in a given situation, avoiding monotony which can lead to losing interest or the empowerment of individuals by achieving small results along the way. Pagel argues that trust and cooperation is based on a very simple equation, $I \times b > c$, where I is information about the other, b is the benefit of the action and c is the cost of the action. Increasing the quantity of information about the other, the benefits which one might gain from the action, or lowering the cost or the risks of the action are strategies for increasing the chance of cooperation, and of developing trust relations [25]. The same argument is made by Good, who stresses that "in conditions where the long-term interests of the participants are stressed, where only small initial or additional rewards are at stake, where there is no potential threat and great potential for successful communication in that the ambiguity of the situation is reduced, and where the participants are in free and easy contact, the cooperation, and, one might suggest, a certain level of trust can develop" [33]. This is why a phased construction which starts from very small attempts of changing the existing situation, where the potential of loss is reduced, can help test trust without the danger of loss. In the urban regeneration process of Dudley Street, Boston, a group of architects and local NGOs created a phased process. The first steps of the strategy concerned very small actions, such as the "Don't Dump on Me" initiative which was concerned with cleaning the illegally deposited garbage and taking abandoned cars off the streets. These small initial objectives were carried out by local citizens and was a great success. This success showed the residents that they can make things happen if they work together. It was an empowerment exercise which led to more ambitious goals. From that initial success, today, the Dudley Street Neighbour Initiative is in charge of its public domain, can access special financing, and has the power over land-use regulations and property issues in its own territory. One of the main actions of the residents, after a long process of gradual empowerment through small interventions, was the building of the Dudley Community Centre, whose construction lasted for more than 5 years [29]. This contradicts the efficient logic of architecture and building in place today. We see how phasing the process and small successes along the way can lead to the empowerment of individuals and to the building of trust relations. Building social capital is an

incremental and cumulative process and that can lead to a very long process. Empowerment and trust building grows in time, or, as Luhmann argues, "the possibilities for action increase proportionately to the increase in trust (...) When such trust has been established new ways of behaving become possible (...) it can be accumulated by way of capital" [20].

A second strategy that the agents involved in the architectural process can consciously apply in order to build the "shadow of the future", is intervening in the everyday space of the individual-user, in places which he experiences on a daily basis. Acting in everyday spaces leads to increasing the awareness of the "shadow of the future", by making all agents aware that the possibility of encountering the other is a certainty. The tendency for uncooperative behaviour is therefore reduced and a gradual appropriation of the intervention can occur. Furthermore, these everyday spaces do not need special expertise by the user, or a very specific intention of use. It is in such spaces that a "dramatic dominance" [34] of the user can appear, empowering him. Consciously or not, this seems to be the preferred strategy of many socially involved architects. The tactical urbanism movement from the United States, studioBasar (Bucharest), aaa (Paris), collectif etc (Strasbourg), public works (United Kingdom) are but a few practices which are focused almost entirely on everyday spaces.

Trust building is strongly linked to the empowerment of individuals and the reduction of social distances between them, but also to the reduction of the possibility of cheating. Creating a shadow of the future, through a lengthy process without a clear end, is therefore essential in trust building. However, a long process might lead to the loss of interest by the participants. To avoid this possible negative effect, the process can be phased with small rewards and accomplishments along the way, always increasing in complexity and scale. The first step should always be local and small scale, based on immediate experience and not emphasizing the possible final result, as it may be too difficult to see it achieved. Designing the architectural process in such a way contributes not only to the construction of the shadow of the future, but also to the continuous testing of trust and on the empowerment of individuals.

3.4 Trust, function, use

The shadow of the future involves a prolonged use of the designed space. But the intended function and the actual use can be parts of the trust building strategy by themselves. In the usual architectural process, the function is determined by an exterior agent in the name of the potential users, based on a deduction of necessity. An agent decides in the name of other individuals what is necessary for them. This approach limits the user's ability to be an agent, weakening his position instead of empowering it. Therefore, the usual process for determining the function of a building may not be the best strategy for trust building. So, the question is: how can we determine the function, use, norms of functioning, in order to build trust relations?

One of the most direct ways of trust building is letting the actual future users determine the function of a specific space, according to their own needs. Self-determination is linked to empowerment and to the ability of the user to be effective agents. Furthermore, self-determination is in itself a collaborative exercise in which trust and reciprocity can be tested.

But direct participation is not the only possible strategy. The determinist logic, to which so many modernist architects adhered, argued that there are specific functions and combinations of functions, scientifically or experimentally determined, which once replied, would lead to the same result. Therefore, there could be specific functions which would lead to building trust relations in any and all social situations. However, this is a reductionist view on both society and architecture. There is the need for a paradigm-shift, from a positivistic view based on explanation, to an interactionist view, based on comprehension.

Dilthey argues that the change from explanation to comprehension is necessary for understanding society and how it works. Comprehension is the method through which "life clarifies itself in all its depths" [35]. Comprehension is part of all interpretative, hermeneutic paradigms, which starts from the experiences of individuals and groups and not from an explanation prior to their formation. It is a form of empathy, of recognizing the "other's" way of life without imitation or identification, in which all individuals are treated on their own terms. In the case of architecture and determining the function, the comprehensive optic interrogates the existing practices, being closely linked to specific individuals, places and time. It is an architecture relative to the situation [36]. A comprehensive optic in determining functions recognizes the existing everyday practices and sees them as opportunities for developing the project and tries to recognize the individual interest of the potential users. As Putnam and Feldstein argue, this is a method to be followed by all social capitalists: "Social capital builders must start with the things the participants really care about and not an exterior agenda" [29].

Sometimes, trying to ensure that the potential user's interests are reflected in the building's function can lead to tensions. This is one of the reasons for which the building must be multifunctional and highly flexible. However, for managing potential tensions, flexibility is not sufficient. Managing tensions is a problem that can be solved mainly through the formal or informal rules of use and rule enforcement. The difference between rules of use and rules of functioning is that rules of use refer to the justification or the legitimacy of the function [37]. They refer to the actual life of the building and not to the life that was intended for it during design. The rules of use can be created in such a way that they ensure the reduction of social distances and thus stimulate a trusting environment. In 17th century England, coffee shops had developed a set of rules which tried to bring all individuals to the same social condition in that space. In the English coffee shop, the rules stated that all people are welcome, that there are no privileged sears, that there is no necessity for ceding the place to a member of a higher social class, gambling was forbidden (as it might increase inequality between losers and winners), etc. The rules ensured the civilized behavior between individuals, which made association between otherwise unapproachable people, more easy [38]. In order to work, the rules of use must be recognized by all users as legitimate, and they must be enforced when needed. This provides a "safety net" in case of misdirected trust. It is a trust building strategy through the reduction of the potential cost of an action. Therefore, the direct participation of the individuals-users in creating the rules and enforcing them is essential to the trust building process. The rules of use must be created and applied by the users, and it must be possible to modify them if needed. Any dependency on an exterior authority is a danger to the trust building process, especially in the case of low levels of trust in that authority. But determining and enforcing the rules of use is also a cooperative exercise in which trust can be tested and which empowers the individuals.

Self-management of a given building or space has been at the center of architectural practices, such as aaa (*atelier d'architecture autogerée*). Through projects such as *ECOBox, R-Urban* or *Passage 56,* they try to make users take charge and manage their own space. Self-managing architecture, they claim, "provokes assemblages and networks of individuals, desires and different manners of making. Such an architecture (…) asks for new forms of association and collaboration, based on exchange and reciprocity" [16]. We see how empowerment, self-management, exchange and reciprocity can be introduced by architectural practices into their projects as principles. They can be part of the architect's work, but only when architecture is understood as *dispositif*, as network.

Another rule of use that can be consciously devised by architects and other agents involved in the architectural process is the simultaneous multifunctionality of the building or space. In Jane Addam's Hull House in Chicago, in the 19th century, a pioneer in socially conscious architecture, there were book-binding courses, rehearsals and plays, youth clubs and classes, all functioning at the same time [24]. The rules of use were not formally pre-determined and fixed, but were in a constant negotiation. In general, for several activities to co-exist, the users must negotiate and come

to an understanding based on trust that they will not bother each other. The timetables in this case play an active part in the trust building process, being mediators of action in Latour's terms. Simultaneous multifunctionality of the building tests the trust relations between users and thus can be part of the trust building process.

Rules can be specifically conceived for testing trust between users. The rules of the library are a good example because the individual who has the book trusts that the individual who borrows it will return it. Trust is ingrained into how the library works. Most of the times, the system is formal, with a written contract that manages the relation, which also stipulates how cheating will be punished. However, some recent small-scale libraries rely on an informal contract. The relation is based on a win-stay, lose-shift strategy which works as long as users want it to work. The continuous testing of trust can be a base for the development of larger collaborative projects.

The simplest illustration of how architects and architecture can make rules of functioning that need cooperation and trust was provided by the Serbian group *Skart*, at the 2010 Venice Architecture Biennale. They created a series of seesaws, based on the idea that: "seesawing with the one, different than yourself (…) opens possibilities for communication in space / communication with the space and the beauty of encountering the unknown" [39]. Ghenciulescu argues, based on Skart's project that the seesaw is an elementary "spatial and social device: you can't swing by yourself (whom should you choose then?), and you should adjust your position to match the weights if the partner. Communication and negotiation in their basic form" [40].

Figure 3. The Serbian Pavilion at the 2010 Venice Biennale, designed by *Skart* (our image)

The rules of use can be designed in such a way that they reduce social distances. In the case of neighborhood libraries in Chicago, through specifically created rules of membership and borrowing, and by the activities that take place in those buildings, the library has become the least threatening of all public institutions. Firstly, because there is no need for specific identification papers to become a member. Anyone who can prove that he/she lives in Chicago can become a member. Also, the library pass is given to all persons, even if they do not know English. By providing a form of ID to anyone who lives in the neighborhood, the library was transformed into a gateway to the local community for immigrants [29]. Through the rules of use the library makes no distinction between individuals by income, property, job, race, language, nationality, thus reducing social distances. Accessibility and the possibility of learning the immediate necessary skills (language, law, job training, etc.) also empowers individuals, making the library, through small changes in the rules of use, a space for generalized trust which can be reflected also outside the building.

5. Conclusions

Architecture has been invested along the centuries with the power to bring forth a new and better society. However, all the projects who believed in the sole force of architecture as object or space to change society either failed, or achieved contrary effects, such as repression, total control and social homogeneity. This doesn't mean that architecture cannot or should not have a social mission, rather that architecture should be seen and designed as a larger entity. Therefore, architecture should refer not only to the object in itself, or to the built space, but also to the individuals or organizations who own, design and use it, to the laws that govern it, to the political, philosophical and economic principles which stand at its base, to all human and non-human agents which influence it in any way, or, as Foucault defines it, to the *dispositif*.

Dispositif-architecture can play a social role, and even be considered in its entirety as a social agent, if we follow Latour's actor-network theory. This paper tried to show how *dispositif*-architecture can play an active part in the creation of social capital, through building trust.

Trust is still a debated concept. It generally refers to a social mechanism at the base of all and any social interaction, consisting of a strategic decision regarding a certain future, in the situation in which information regarding the other are insufficient. Trust can be personalized, when it is invested in a specific person or institution, or generalized. Generalized trust depends on two factors: the empowerment of the individual and the previous cooperative experiences. Empowerment is not entirely under the control of the individual, as it is influenced by structural factors such as economic inequality, education, political system, or the institutional framework. The previous cooperative experiences rely mostly on internal factors, on the personal history of the individual. Architecture, seen as *dispositif*, through process design, agents involved, function, rules of use, etc can be a tool in building trust, with a direct influence on both mechanisms.

However, there are no generalized recipes for building trust. The architectural process must reduce the social distances created through expertise, empowering all agents involved in the process, personalizing the architectural process, designing a process in multiple stages with small and immediate results which in time can grow in complexity, conceiving it as a long process without a clear ending, involving users in determining the function or using a comprehensive logic in order to create an architecture relative to the situation, simultaneous multifunctionality or special rules of use that stimulate and test trust. The specific actions to achieve such results are very particular to each situation. Furthermore, the entire process is always vulnerable. Stereotypes, gossip, manipulation, elements which cannot be controlled can appear at any time and can destroy in a very short time what took a long time to build. But the main danger of trust building through architectural practices is provided by its potential success which can lead to the privatization of space and the forming of "bonding" social capital. In such situations, the individuals tend to look

first and foremost to the interior of the group, while isolating themselves from the exterior. At a territorial level this can lead to spatial segregation and social segregation. Isolation, eliminating the exterior, appears, amongst others, because of routinization, and the familiarization with a certain space, use or process. In that moment, appropriation becomes exclusion of the unknown, of what is different from the "usual". Therefore, all trust building strategies must find a way of breaking the routine, of introducing disequilibrium which reshuffles the established structure, so that contact with the outside and accessibility can be assured.

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What space for education? What school do children like? Can we use architecture as an educational tool?

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Abstract

Barrett et al.'s research "A holistic, multi-level analysis identifying the impact of classroom design on pupil's learning", 2013, found that there are six design parameters of the built environment - colour, choice, connection, complexity, flexibility and light, - that together can influence the learning progression of pupils over a year with 25%. This clear evidence highlights the importance of the built environment of the school and classrooms. Young spent most of their active time in school. The quality of the build environment, the equipments and sport facilities, the use of renewable energy and, not at least, the rehabilitation state of the building, may grow in the children a sense of pride of being part of a community which understands and appreciates multicultural identity, social responsibility, awareness of the cultural heritage, as well as the duty to transmit this heritage to the next generations. This study tries to find how we can use the architecture of school buildings as an educational tool, in order to instil in children the values of humanity and social responsibility that can guide their thoughts, emotions, attitudes, decisions and behaviours as future citizens of this world.

Rezumat

Studiul realizat de Barrett şi colegii "A holistic, multi-level analysis identifying the impact of classroom design on pupil's learning", 2013, identifică şase parametri ai mediului construit – culoarea, alegerea, conectivitatea, complexitatea, flexibilitatea şi lumina, - care împreună influenţează progresul învăţării elevilor de-a lungul unui an şcolar cu 25%. Aceasta evidenţiază importanţa mediului construit al şcolii şi clasei. Tinerii petrec cea mai mare arte a timpului activ în şcoală. Calitatea mediului construit, dotarea cu echipamente şi facilitaţi sportive, folosirea energiilor regenerabile şi, nu în ultimul rând, stadiul de reabilitare al clădirii, pot creşte în tânăr mândria de a face parte dintr-o comunitate care înţelege şi apreciază identitatea multiculturală, responsabilitatea socială, conştiinta patrimoniului cultural, şi datoria de a transmite aceasta moştenire generaţiilor următoare. Acest studiu încearcă să identifice cum putem folosi arhitectura şcolilor ca pe un instrument educaţional, în scopul de a sădi în tineri valorile umanităţii şi responsabilitatea socială care să le ghideze gândurile, emoţiile, atitudinile, deciziile şi comportamentele ca viitori cetăţeni ai acestei lumi.

Keywords: space for education, architecture as educational tool, school building rehabilitation, classroom design, sustainable way of living.

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1. Introduction

The study developed and conducted by professor Peter Barrett, School of the Built Environment, University of Salford in Manchester and the architects of Nightingale Associates [1], "A holistic, multi-level analysis identifying the impact of classroom design on pupil's learning" analyses data collected over the course of a year from 751 pupils from 34 varied classrooms in 7 different schools in the UK. Their conclusion reveals six design parameters in the classroom: colour, choice, connection, complexity, flexibility and light, which impact learning progression with an average of 25% contribution, more than the authors expected.

This clear result highlights the importance of the built environment not only on the learning progression of pupils, but also on the personal development of children, that spent most of their active time in school. The conformation of space, the materiality of the walls, the hierarchy of different parts of the building, the possibilities to connect different spaces, the connection to the exterior space and the perception of time elapsed, the light in different moments during the day, the scale of the classroom arrangement and furniture, the flexibility in using the classroom space for different activities, spaces dedicated to the hole community of the school or for certain age categories, the presence of equipments and sport facilities, the use of renewable energy and, not at least, the rehabilitation state of the building, all these elements could increase in children the pride of being a member of the community which understands and appreciates multicultural identity, social responsibility, awareness of the cultural heritage and the duty to transmit this heritage to ~~the~~ next generations.

A building may communicate to the children more subtle messages, according to Eleanor Nicholson, school inspector in California: "a building can reflect and perpetuate ideas about how children learn, what they learn, how they are taught, and to what end they are taught. Beyond purely educational objectives, a building can also communicate to children a great many subtle messages about what is important and what is deserving of respect. […] It is my view that school buildings really make a difference, not just in education, but also in life experiences of the children who use them."[2].

The aim of this study is to find how we can use the architecture of the school building as an educational tool, in order to instil in children the values of humanity and social responsibility to guide their thoughts, emotions, attitudes, decisions and behaviours as future citizens in this world.

2. How space influences our thoughts, emotions, attitudes and behaviours

In the article "How Room Designs Affect Your Work and Mood Brain, research can help us craft spaces that relax, inspire, awaken, comfort and heal" published in 2009 [3], Emily Anthes mentions the story of the biologist and doctor Jonas Salk which in the 1950's was working in a dark basement laboratory in Pittsburgh on a cure for polio. Because the progress was slow, in order to clear his head, Salk travelled to the Franciscan Monastery of Assisi, Italy. Walking through the colonnades of the interior courtyards, with splendid views on the hilly landscapes, he had an insight that would lead him to the polio vaccine. Salk concluded that the contemplative setting inspired him, and upon his return he teamed up the architect Louis Kahn to build the Salk Institute in La Jolla, California, "as a scientific facility that would stimulate breakthroughs and encourage creativity"[3].

Using three experiments, Professor Joan Meyers-Levy from Carlson School of Management, University of Minnesota and Rui (Juliet) Zhu, assistant professor of marketing at the Sauder School

of Business, University of British Columbia, Vancouver, demonstrated how ceiling height influences consumers process information. It seems that "relatively high ceilings appear to activate concepts related to freedom, while low ceilings prime confinement-related concepts"[4]. Their experiments demonstrate how "ceiling height affects the number and abstractness of dimensions shared by a set of items (i.e., sports) and the number of subgroups into which such items are divided per each dimension"[4].

We can see that the characteristics of the space we inhabit, work and share with others influence our perception, thoughts, mood and feelings, the way we solve the problems or the way we relate to the world and the others. But what influence does space have on children? Do they perceive space in the same way as adults do? Christopher Day, in his book Environment and Children, Passive Lessons from the Everyday Environment, points that adults and children experience places differently. For adults, rooms have a function: living room, bedroom, kitchen, classroom, gymnasium, etc. For children every room is a space to explore, full of possibilities, and "can comprise five distinct places: four corners and a centre"[5].

3. Spaces for children

Big or small, high or low, thin or large, depending on the point of view of the observer and his body dimensions, children perceive and experience space different from adults. "Small children interact with space more through life-energy than prethought-out rational intentions" said architect Christopher Day in his book Environment and Children, meanwhile "adults navigate within a Cartesian spatial grid"[5].

The attributes and configuration of space are also age-related, small children needing protection, medium light and subspaces to encourage fantasy, imagination and magic atmosphere. Teenagers need motivation, inspiration, structural clarity, light and open spaces.

In their development stages, "children are on a journey from energy-directed to thought-directed" said Christopher Day in the chapter 'Design for children', but "most schools, most homes, are shaped foremost by practical concerns. Occasionally some 'childification' is superficially added" (…) but the "concern for what children actually *need* is lamentably rare". The aesthetic quality of the build environment raises children's self-esteem; they absorb lessons "from values imprinted into buildings and places". The quality of the architecture is "at the heart of education for child development" points Christopher Day, but 'quality architecture' means "architecture for children needs, not for adult criteria ..."[5].

4. What school do children like?

In order to know what is considered good architecture in children's opinion, a consultation process started at the Ballifield Primary School in Sheffield, UK, when, in 2000, the Government's Department for Education and Skills (DfES) piloted twenty-seven new school projects in an initiative called 'classrooms of the future'. Architect Prue Chiles was one of the four architects building classrooms in the Sheffield area, and she shares this experience in the chapter 'The classroom as an evolving landscape' of Mark Dudek's book 'Children's Spaces'.

First of all, children were delighted to participate in the design process and ~~to~~ the architectural debate [9]. It was "difficult to know where to begin the consultation process with young people on a subject area they have not been formally taught" said Prue Chiles, but students from the School of Architecture at the University of Sheffield introduced the job of the architect to the children and

viewed with them slides of building environments and of inspirational school buildings. In four sessions they "surveyed favourite places and places to avoid, walked through an ideal school and answered a hundred questions" [9]. Prue Chiles notes that it was difficult to stop the teachers to suggest answers to the questions asked to the children. She also observes that drawing is not habitually used as a tool to communicate and organize ideas.

When they were asked to imagine and draw the classroom they would like, they associated the future with 'high-tech' gadgetry. But when they were asked to name the most and least favourite places, they chose as favourites softer, smaller and more natural places. This preference was verified in the evaluation after the children moved in the new classrooms, when 57 from 60 children described the sitting red box bay, an intermediary place between interior and outside space, as their favourite place in the classroom [9]. It was clear after the consultation process that children answered better to the specific questions concerning more practical issues, like "having views and light and water in the classrooms" and in a "less institutional environment"[9].

The most popular answers to what they would like to see in their classrooms were a 'home from home', a "safe environment, quiet study rooms, drinking water easily available, better toilets, and storage lockers", "exciting new ways of learning and a magical atmosphere". It was more difficult for children to give spatial form for all these wishes, notes Prue Chiles, as the children's response was to "make the classroom look like something else … a space ship or an animal"[9].

The consultation process generated a sense of "excitement, expectation and anticipation", as architect Prue Chiles concludes, and asking the pupil's opinion had an "enormously positive effect on whole school"[9].

5. Can we use architecture as an educational tool?

At Ballifield School "the construction itself became a teaching device – apparent and visible", observes Prue Chiles. Pupils were interested in their environment but they had to see that adults were taking sustainability issues seriously, and "what better place to do this than in the classroom, with the classroom as the raw material for this rhetoric"[6].

Besides the needs of the users, pupils and teachers, the Government had also a set of expectations: the 'classrooms of the future' had to be "inspiring buildings that can adapt to educational and technological change" [6], they had to use new informational technologies, to be spaces opened to the local community, to be "comfortable, healthy, and inclusive" spaces, to support the curriculum and to be flexible to new ways of teaching. Architects had a difficult mission to put together all the requirements and to add some of theirs like the use of the natural, healthy and recycled materials and to include ideas about responsibility on natural resources and a more sustainable way of living. The project's main topics were:

1. the relation between children, technology and nature
2. the healthy classroom
3. the classroom suited to the curriculum and new ways of learning
4. the relation between the inside and outside space
5. the post-occupancy evaluation of the classrooms.

5.1. Technology versus nature

Technology versus nature is one of the most acute debates in our days. The more technology we use in everyday life, the more we want to be in a natural setting. Nature, by its weather conditions influences our everyday life, mood and activities. Children are especially attracted by the

technological devices, but “technology should also be in the service of natural world, not only helping us to understand the world around us but also to achieve a healthy, breathing, responsive classroom environment” as the architect Prue Chiles said, and this is “part of the lesson to be learned through our new classroom”[6]. Informational technology can be used to easily observe the natural phenomena trough internet or video technology, recording and analyse. Ballifield School accessed funding for informational communication technology for the new classrooms, including 30 laptops and interactive whiteboards.

Two classrooms were design and built in Ballifield Schoold, one classroom was designed for technology, the other for nature. Their appearance is visibly different and they could share or swap facilities in the afternoons. The nature classroom exterior wall is planted with climbers, a living wall. The external wall of the technology classroom is made from painted papered and sealed ply Finish panels.

5.2. The healthy classroom

A healthy environment supposes more natural light and ventilation. Often classrooms have too little ventilation, too much artificial lighting and heating, said Prue Chiles; children have a higher resistance to cold than adults, and “our experience during this project is that most of the classrooms are too hot”[9]. Unhealthy, cheap materials are still used in classrooms, like carpets that give off chemicals, or medium density fibreboard.

Healthy materials and sustainable technologies have to drop out in tiny budgets. “We lost the battle with rainwater recycling but kept the healthy breathing wall and recycled insulation. We achieved the healthy natural carpet on the balcony but lost on the type of natural paints we wished to use. We lost the wind power operated laptops but manage to encourage recycling, by making it explicit in the fabric of the classroom”[6]. Children can see how recycled newspaper and plastic bottles can be used in their own environment. But natural materials are often rigid and it is difficult to maintain the required noise levels, as the architect mentions.

5.3. The classroom suited to the curriculum and new ways of learning

The 'classroom of the future” initiative relies on the assumption that the classroom is and could be an appropriate environment for new ways of learning [6]. The curriculum of primary school needs diverse teaching ways that change over the academic year, so there is a great need for flexibility.

The paired classes are interchangeable. Pupils and teacher can change between the nature and technology classroom. Between the two classrooms a sliding screen allows a flexible functioning, separating or uniting them. "We have some lessons to learn", explains the architect, “like placing the sink only in one classroom was not ideal, or like the adaptable specific facilities are the most enjoyed and cherished”.

In the consultation process, pupils asked for their own private space, that would be fun and different than the class space. Architects proposed in this sense a balcony, which responds also to the need of children to get away, but not complete away from the classroom, as required by the DfES. It also responds to the Quality Circle Time needs, a space without tables and chairs, where all children sit in a circle and talks about a given subject equally and democratically. The balcony is a space to withdraw to, the materialisation of the “ship metaphor, [...] a crow's nest or maybe a top cabin with portholes for long views”. It has a soft natural carpet to lie on, and a sloping balustrade to lean against. The door to the balcony is hidden in the storage cupboard, and the children use this space to hide away or to look down to the others in classroom.

5.4. The relation between the inside and outside space

The natural setting of Ballifield School has hills and valleys, and out of the window on a clear day "you can see as far as Sherwood Forest, twelve miles away"[6]. The outside courtyard became a landscape with places for small groups or whole classes, accommodated in different types of planting. It is a space of exploration trough paths, steps, grass slopes, hedges, fruit and nut trees, a pond and wet area. A hedge in the shape of a whale will swim alongside the school building. Another hedge forms around the main entrance and will give the school its 'image'. Two planted walls with evergreen honeysuckle vines that should be maintained by parents and the local community. It was more difficult to convince the teachers to use the ground around the pond for outside lessons.

The relation of the inside space of the classroom to the outside is made by two sets of double doors open to the courtyard. The favourite place of the children is the box bay where they may sit half inside and half outside. The entrance area has a glazed wall that provides the feeling of being outside. The entrance hedge will grow and will remain in children's memory. The copper roof will change in colour in time. The building is 'alive'.

5.5. The post-occupancy evaluation of the classrooms

Information and instructions about the materials, the structure and the use of technologies and equipment of the building are gathered by diploma architecture students in a 'Users Manual' for the classroom, to help teachers and pupils to understand the technologies, the means of using them and how the building works: how to use the sliding screen, how to change bulbs in light fittings, how to use the under floor heating, the use of recycled materials, about the structure and the forces of the roof.

The architect underlines the importance of the feedback evaluation of the new classrooms, in order to "learn from the ideas emerging from the project and to monitor their success once the pupils started using the classroom; we carried out an initial post-occupancy evaluation and this now forms an important part of the continuing life of the project". This post evaluation offers the opportunity to teachers to mention the problems in the use of space and equipments, and what they liked and can be used in teaching process.

6. Conclusions

As we could see from the example described above, through a simple transformation, the architecture of the school building can be used as an educational tool for the children that spent their active time in it, as it also can serve a good example for the whole community of the school, teachers, administrators and parents. A building can incorporate messages about how life deserves to be lived, about values and social involvement, about how to use the limited natural resources so that the next generations may use them and enjoy them also. School buildings can be used as educational tools for present and future citizens and there are a lot of existing schools that are waiting for rehabilitation interventions.

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"Hide and Seek" - Expressing the Behavioural Norms of the Group and the Environment

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Abstract

The question of space is twofold: seen from the point of view of its creator and from the point of view of its user. In addition, in between is the question of perception, of space perception. *How do we relate to space? How do we read it? What is its meaning? Is perception a cultural issue or just a biological function? In order to formulate an opinion on these issues, we have to start at the very root of the problem, namely* the development of the perceptual process. *Thus, based on the extensive studies undertaken by Jean Piaget, the paper intends to detail the action of acquiring and developing the perceptual process, linking it to the different stages of growth. The second part of the paper tries to look into the similarities between the structure of the social environment and its relation to space, and the way in which the same type of structure can be extracted from or applied to the children's games of "hide and seek". Its complexity, its many variables make it a very interesting process of spatial learning. Consequently, the game is reproducing and exercising the features, the meanings of the environment and the way in which the child should relate to similar real life situations. The aim of this theoretical quest is to emphasise the importance of games in developing and nurturing a proper way of perceiving and relating to the environment and to its social and cultural particularities.*

Rezumat

Problema spațiului este ambivalentă: pe de o parte avem punctul de vedere al creatorului de spațiu și, apoi, pe cel al utilizatorului său. În plus, se pune și problema percepției, a percepției spațiale. *Cum reușim să ne relaționăm la spațiu? Cum îl citim? Care îi este semnificația? Este percepția o problemă culturală sau doar o funcție biologică? Pentru a emite o opinie legată de acest subiect, trebuie să începem de la sursa problemei, și anume* dezvoltarea procesului perceptual. *Astfel, bazându-se pe studiile exhaustive întreprinse de Jean Piaget, lucrarea intenționează să detalieze procedura prin care se dobândește și dezvoltă procesul perceptual, relaționând-o la diferitele etape ale creșterii. A doua parte a lucrării încearcă să analizeze similitudinile dintre structura mediului social și relațiile acestuia cu spațiul, și modul în care acest tip de structură poate fi identificat sau aplicat jocului de „de-a v-ați ascunselea". Complexitatea acestuia, cu multiplele sale variabile îl transformă într-un proces deosebit de interesant de învățare a relațiilor spațiale. În consecință, jocul reproduce și exersează trăsăturile, semnificațiile mediului și modul în care copilul ar trebui să se raporteze la situații similare reale. Scopul acestui demers teoretic este să evidențieze importanța jocurilor în cadrul dezvoltării și cultivării unui mod adecvat de percepție și relaționare cu mediul și cu particularitățile sale sociale și culturale.*

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Keywords: space perception, perceptual development, children's games, "hide and seek", environment.

1. Discussing the Concept of Space

Although we use daily phrases such as "*you are in my space!*", "*I need my own space!*", "*you spaced out*", "*he is taking up my space*", "*this is a waste of space*"; we rarely take a moment to actually comprehend the full meaning of the concept of *space*. As designers we talk a lot about space, we discuss it, we even use it as a material, and we create it. However, when talking about space, we have to distinguish between the discussions which are about the *envelope* - relating more to aesthetics - and those that are actually about *space* - seen as the creation of *a place,* to put it in Christian Norberg-Shulz's terms [1]. When talking about the *quality of life* or *the quality of the environment* or in terms of *inhabiting a place*, we are more interested in the way in which space is shaped, partitioned or modelled and less about the layers, limits, walls or surfaces that partition it.

From an architectural point of view, as Rudolf Arnheim [2] suggested many decades ago, space in its self does not exist. Space, from a perceptual point of view is not an object, but rather a set of relationships. We do not perceive space in itself, but rather *its qualities, its structure, its meanings*. Thus, the concept of space becomes much more complex because space perception does not solely depend on the physical characteristics of the environment, but also on our mental processes. When we perceive an object, a space or the environment in general, we gather the information from the environment- through all our senses, and not just visual images -, we structure it in a manner that makes sense for us, and then we prepare ourselves to act accordingly. This second stage, of structuring the information, is essential because this process is particular to each individual and this is the reason why - although the environment is always the same - we end up perceiving it differently. This process of structuring the information is partly innate and partly acquired: more explicitly, the instruments - the mental processes - are innate, but we have to learn how to operate with them. Learning to perceive the environment is similar to learning how to talk; and, just like learning to talk a specific language as we grow up, learning to perceive is greatly influenced by our cultural context. Environments are largely built based on social structures, which are culturally specific. Our environments reflect the way in which our societies function, specific systems of values, and functional and cultural meanings. Thus, perceiving a space is influenced by the way in which we were thought to evaluate and understand an environment - a process that is specific to our particular culture.

However, the perceptual process consists mainly in structuring two types of information: one has to do with the physical qualities of the environment - shape, size, colour, light, etc. - while the other consists in *the meaning* embedded into the environment. Amos Rapoport [3], in an extensive study entitled *The Meaning of the Built Environment - A Nonverbal Communication Approach*, focuses precisely on this issue regarding the levels of the possible meanings attached to our environments. His study is based on the hypothesis that every object, every space, every environment we come across, on a daily basis, has a meaning encoded into it. Rapoport observes that it is just like reading a text: first, we see the letters; then, we combine them to form words; then, sentences - *e.g.*: *take a seat* - and eventually we deduce a meaning and understand how we need to act - we pull out a chair, go around it, and sit down facing the table, preparing to start a conversation. Rapoport calls this *the low level of meaning* - "everyday and instrumental meanings: mnemonic cues for identifying uses for which settings are intended and hence the social situations, expected behaviour, and the like; privacy, accessibility; penetration gradients; seating arrangements; movement and way-finding; and other information which enables users to behave and act appropriately and predictable, making co-action possible." [3]. Thus, this first level has mainly a functional component - we "read" the

meaning of the chair and associate it with sitting down - but we can deduce, in some contexts, a slight cultural component, as well - would a 15th century Japanese know how to use a chair?

Following this level, Rapoport discovers *a middle level of the meaning*, which depends in a greater degree to the cultural context. This level deals with features such as identity, status, wealth or power - the chair we have been discussing can tell us a lot about the environment it belongs to, or about its owner. It can be a simple stool in a kindergarten; it can be the seat of the head of the family at a dinner table, or a principal's office chair behind an imposing office, or even a throne.

The high level of the meaning, the last one, deals with more subtle aspects like world views, cultural schemata, philosophical systems or the sacred. This level is not as obvious as the other two, being a rather theoretical or even metaphorical level. It cannot be understood just through an elementary perceptual process, its understanding is based on possessing previously gathered knowledge on the subject. Thus, when looking at a chair we can *perceive* that its shape was inspired by a certain event or that it is a reinterpretation of a known icon, or, better yet, that that particular chair used to belong to a famous figure - thus having attached more of a personal meaning.

Consequently, what we perceive as space is in fact a structure compiled by our mind which is trained to extract from the environment information regarding the physical qualities, on one hand, and, on the other, data regarding the different levels of meaning. The perceptual process evolves as we transform ourselves from infants into adults. It evolves because it constantly gathers more and more information, training its ability to quickly recognise and respond to culturally specific meanings - a process known as *enculturation* [4]. However, the most impressive transformation has to do with the development of the mental processes which are responsible for constructing the mental representation of the reality which surrounds us. The developmental psychologist, Jean Piaget [5], has studied this type of development for several decades.

2. Developing the Perceptual Process

Piaget's [5] studies are crucial because understanding how the perceptual process evolves, would enlighten us in understanding how the whole perceptual process works, and, ultimately, it would help us - as designers - to better comprehend the way in which people relate to space, how they interact with the environments that we create, consequently to design spaces, which are better adjusted to specific social and cultural contexts.

Piaget [5] divided the developmental process into four stages:
1. *Sensorimotor Space* - up to the age of two years. During this period, the sensorimotor space, develops four main concepts. The first of this is *the genesis of the image* - meaning that this is the period during which the child starts to compose the colourful patches surrounding him into a whole - which we call an image. *The concept of object* is the second one - during his first year, the child cannot perceive objects per se, thus, any object which leaves the child's visual field, is perceived as seizing to exist. Gradually, the child understands that when he no longer sees an object, that object is temporarily hidden and it still exists, even though he cannot see it anymore. Thus, the concept of the object no longer depends strictly on visual or tactile stimuli. *The sensorimotor group of spatial displacements*, the third concept, refers to the fact that the child gradually shifts from perceiving spaces separately, to a unique space in which different objects are interrelated, as part of a whole. Thus, the sensorimotor structures become independent. This is a stage which allows the child to start internalising these structures as *thought patterns*.
2. *Intuitive or Pre-operational Space* - this period consist of two sub periods:
   2.1. from two to approximately seven years - *symbolic and pre conceptual thought*
   2.2. from four to seven, eight years - *intuitive thought*

During the pre-operational phase, space is still being limited by the sensorimotor and perceptual activity. At this age, the child is capable of retracing his actions to the origin of his movement, but only by traveling through a cyclical route, and not through a symmetrical one - which would be a quality of pure reversibility. The child's conception of space is still egocentric during this period, meaning that it is closely related to his own point of view.

3. *The Concrete Operational Space* - also comprises two categories:
   3.1. at about seven, eight years - *the emergence of concrete operations*
   3.2. from nine to eleven or twelve years - *organising operations into logical structures*

The child, during his early school years, starts to break loose from the image and develops his spatial thought into operations. Still, these operations remain concrete and depend upon the presence of objects. However, the child manages to liberate himself of the egocentric organisation and is capable to relate to an exterior coordinate system, independent of his own point of view.

4. *Space of Formal Operations* - corresponds to the age of adolescence. This last phase of development implies that the individual is capable of completely separating spatial operations from real space, objects or actions. Thus, abstract operations of mathematical nature allow the adolescent to survey an infinity of spatial relations, reaching the domain of the possible and the hypothetical.

We can now comprehend that throughout this developmental process, our view of the world changes, evolves, and it refines itself. This process presupposes a lot of learning, experimentation and processing. New information is basically acquired through a trial-and-error process. This type of learning involves many mock-up situations which allow individuals to experiment different ways of interacting with the environment, thus testing the outcome of their actions. This behaviour is an important source for acquiring information related to the environment one is brought up in.

Looking at this issue, from a general point of view, we can integrate each individual process of development into the larger context of the group. Thus, any group of people that identifies itself with a specific social and cultural context establishes its own set of rules and norms according to which its members relate with each other and also to the environment that they inhabit. Actually, we can loosely define a culture as being a type of control - a pre-established set of restrictions and norms of behaviour according to which the group agrees to live by [6].

3. Playing the Game - a Spatial Discovery

In this context, the concept of a child's game can be understood in a completely different manner. The games children play are not just a common leisure activity, instead we can interpret them as being a rather serious approach of spatial discovery and learning. A game is actually a scale reduction of a social environment: it unfolds in a predetermined physical perimeter, it is carried out according to very specific rules and, very quickly, the children manage to establish a hierarchy among themselves.

The early 1970's were very prolific in researching the behaviour in young children. During this period, there have been published extensive behaviour dictionaries, based on thoroughly recorded observations. Thus, the researchers were able to distinguish "between different kinds of smile and their meaning, between play-fighting and real fighting, defining the significance of such behaviours as hair-grooming, gaze-fixing, face flushing." [7]. Thus some very interesting observations were made: for example, Campbel noted that children are not as predisposed to desire privacy for their solitary playing activities, as would adults while working. They like to look around them and see what other children are doing. Peter K. Smith [7], in his study of playground environments, made an interesting discovery, as well. He observed two groups of children playing in different environments: twice with apparatus only, twice with toys only and twice with both. The conclusions of this experiment were quite fascinating: the children from both groups seemed to be

more active, more cooperating with the others, talking more and experiencing more physical contact when having just the apparatus to play with. When faced only with real life objects, the children proved to be much more creative in experimenting with the objects in unexpected ways and combinations. They were miming and imagining new ways of social and environmental relations. "Different kinds of physical environment encourage different kinds of behaviour, […] children show versatility in using the potential available in the environmental resources. It seems that temporarily reducing freedom of choice in play activities by reducing the amount of variety of equipment, may lead to greater levels of conflict or stress, but also to greater levels of sharing or creative activities." [7].

Thus, the children used the existing furniture items in a creative an unpredictable manner, resulting in a very active, sociable and creative interaction. "[T]here was significantly more talking between children, physical contacts between children, and gross motor activity (running, jumping, swinging, climbing). Children who usually played alone or in parallel groups were more likely to be in cooperative group play, and it is worth noting that this was a result not achieved by the greater sharing brought about when play equipment was simply reduced […]. Toy chests especially were put to great use, and the sessions were marked generally by many unusual uses of the apparatus, which had usually not occurred previously.
Some examples observed were:

- lying on the toy chests put on their sides, as houses or hiding places
- using upside-down toy chest, with tables, as dancing platforms
- sitting on upside-down tricycles, in toy chest or on ground
- sitting upside-down rocking boat and spinning it round
- walking along a line of chairs
- sitting on a line of chairs as pretend train
- putting chairs in lines in Wendy Houses as pretend theatre, and dancing in front
- sitting on chairs on top of tables, as pretend bus
- putting tables and chairs next to climbing-frame for pretend picnic
- lying on tables put end to end and sliding along
- sitting in prams, propelling under climbing-frame
- walking prams along tops of tables put end to end." [7].

Such activities, particularly the ones that involve the use of familiar objects in unexpected ways, through their creativity, certify the fact that these mock-up situations we come across in children's games, are their way of experimenting the boundaries of meanings, of social structures and of comprehending and assimilating cultural specific behaviours.

Although Smith [7] points out that we should not fall into the trap of assuming that our own perception and observations of these events are identical with those of the children, we can at least conclude that these games require a high level of creativity. However, this creativity, in itself, is already a type of learning how an object can be used more efficiently.

Thus, step by step, through playing, the child discovers in each game a new type of relationship with his environment and a new social bond to his group, as well. As a matter of fact, these games are the only *permitted* way through which the children can test the boundaries of the social behaviour.

4. "Hide and Seek" - a Case Study

Figure 1. Three children playing "hide and seek" in a forest, probably by Friedrich Eduard Meyerheim (1808-1879). (http://en.wikipedia.org/wiki/File:Meyerheim_Versteckspiel.jpg) the image depicts three children playing "hide and seek", the seeker is the youngest of them, thus it is obvious that the game is customized to his abilities: the tow girls did not seek for a secluded place to hide, choosing to play a simpler version of the game

Among the games children play, "hide and seek" is of particular interest. This is because this specific game is based on a clear structure, a *spatial* structure, but which is independent of a distinct venue. As Bill Hillier [8] remarks, the game is in itself a structure: one person has to keep his eyes closed while the others hide. The places they search for have to satisfy certain requirements: they have to be close enough so that the person who hides can still hear the movements of the seeker, but far enough, so, that person who is hiding cannot be seen or discovered at a first glance. Then, the path leading to the hiding place has to be rather concealed so that the seeker - or "it" - will not be able to spot it immediately. However, a too complicated route might lead to confusion, thus to boredom and the failure of the game.

"Hide and seek" proves itself to be a mock up interpretation of Kevin Lynch's [9] five types of elements that structure every environment - *the path*, *the edge*, *the district*, *the node*, and *the landmark*. Thus, the game of "hide and seek" can be read as a system of *paths* that lead to the chosen hiding places - or *the nodes* -, all connected to the central *landmark* defined by the initial

position of the seeker. *The edges* of the area (*the district*) in which the game is played are determined by the distance at which the voice and the movements of the seeker can still be heard. At last, *the nodes* represent the hiding places themselves.

Seen this way, the game of "hide and seek" becomes a way of discovering, analysing and structuring a given space which can vary in complexity, adjusting itself to the child's age and level of perceptual development. Of course, at the same time, this game automatically implies that its features - the manner in which the players relate to space and each other - are culturally sensitive, as well. The mock up situation created will mirror the lifelike situation of the context in which the children are brought up. Hillier [8] makes an interesting observation, underlining the fact that this game is never related to a particular place, but it is a way of learning how spatial relations are formed - thus, connecting in an abstract manner a structure of paths, nodes, landmarks, edges, and districts. This observation is of fundamental importance because it proves that children, even at an early age, are able to extract *the rule of the game* and apply it to different particular places. It also proves the ability of dealing with space in *topological* terms and with the *statistical variables* of the game. "Hide and seek" proves itself to be "a purely relational model, of some complexity, and with probabilities attached to relations." [8]. Moreover the child is able to apply each time, with each game played, a different structure - a different way of organising, using and relating to that particular space - thus layering multiple *places* into one single *space.* Consequently, the child manages to reach the level of spatial understanding defined by Michel Foucault as *heterotopia*. [10]

The game of "hide and seek" is one of the most complex and lifelike forms of learning how to perceive the environment, how to relate to it and to the other members of the social and cultural group the child belongs to. Moreover, it is a way of learning how to operate with spatial and, especially, topological relations.

5. Conclusions

The perceptual process is a highly complex function. Its development is closely linked to the evolution stages that mark a child's passage from childhood to adulthood. Thus, every situation, during every moment of a child's growth, marks a possible learning environment. In this context, the games children play are a perfect example of such circumstances. They represent an ingenious way of experiencing mock up settings of real-life events. Among these, the game of "hide and seek" occupies a special place. Due to its complexity and adaptability to different age ranges, number of players and to the topology of any site, as well, the game rapidly becomes *a way of discovering, analysing, and structuring any given space*.

The most important conclusion that can be drawn at the end of this analysis, is the fact that any educational system that involves spatial relations or the creation of space, should adapt itself to the natural process of the development of space perception. Playing games could become not only a way of learning how to relate to space, but a way *to create* space, as well.

The most natural way of relating to space, as well as creating space, is to experiment mock up situations, to model mock up spaces and to live them, to feel them, and to adjust them according to the users' culturally and socially specific environments. The main advantage of such an initiative is the fact that, just as the children have proven themselves to be highly adaptable and creative when playing games, we can assume that the first experiments with space design can be just as ingenious and imaginative.

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At Home in Exile: Aspects of the Jewish Diaspora

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Abstract

Discussing the Jewish space requires a comprehensive approach on its traditional typologies: religious space and for purification, space dedicated to study, and space for community gatherings. Simultaneously reflecting these coordinates and overlapping their physical attributes with their formal limitations, spiritual valences, and possible contextual meanings, the Jewish space might be an absolute community space. In spite of the vicissitudes of History and social and political persecution, generally, Jewish architecture used to mime and retrieve specific elements from the adoptive nations and features of the prominent styles of the period. The gradual emancipation and liberation of Jews from the "traditional" ghetto, by the mid nineteenth century, allowed the "opening" of Jewish quarters, the flourishing of Jewish life (especially cultural), and, above all, the development of an architecture as an expression of this newly achieved social condition. Jewish communities contributed, often essentially, to the rising of the urban life quality, and, generally, to the prosperity of the cities that gave them this chance. Hence, the two valences of Jewish architecture: one identitary, and the other programmatic. Meanwhile, the synagogue has always provided the "centrality" of life for all the Diaspora communities. During the last century, the community centre has pursued this role, too. Under these circumstances, which would still be the meaning of the "Diaspora"? How might we define the "exile", the "home", and the "homeland"?

Rezumat

Discuţia despre spaţiul evreiesc presupune o abordare complexă privind tipologiile tradiţionale: spaţiul religios şi de purificare, spaţiul dedicat studiului şi spaţiul de adunare al comunităţii. Îndeplinind simultan aceste coordonate şi suprapunând atributele lor fizice cu limitările formale, valenţele spirituale şi eventualele semnificaţii contextuale, spaţiul evreiesc ar putea fi definit ca un spaţiu comunitar total. În ciuda vicisitudinilor Istoriei şi represaliilor sociale şi politice, în general, arhitectura evreiască mima şi prelua elementele specifice popoarelor adoptive şi trăsăturile stilurilor dominante în epocă. Emaciparea şi eliberarea treptata a evreilor, după mijlocul secolului al XIX-lea, din ghetoul „tradiţional", a permis „deschiderea" cartierelor evreieşti, înflorirea vieţii evreieşti sub toate aspectele ei (dar mai ales cultural), şi, mai presus de toate, dezvoltarea unei arhitecturi ca expresie a acestei noi „condiţii sociale". Comunităţile evreieşti au contribuit, adesea esenţial, la creşterea calităţii vieţii urbane, şi, în general, la prosperitatea oraşelor care le-au oferit această şansă. De aici, cele două valenţe ale arhitecturii evreieşti: una identitară şi cealaltă programatică şi ideologică. În tot acest timp, sinagoga a asigurat mereu „centralitatea" vieţii în toate comunităţile evreieşti din Diaspora. Deasemenea, pe parcursul ultimului secol, şi centrul comunitar a îndeplinit, cu success, acelaşi rol. În aceste condiţii, care ar mai fi semnificaţia „Diasporei"? Cum am putea defini „exilul", „căminul" şi „patria"?

Keywords: Jewish Diaspora, Jewish communities, home, homeland, exile

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1. Introduction

We often wonder what would be the characteristics of a diaspora, its role or the way it is defined – which are its coordinates, conditionings, determinisms, and (re)sources of identity. How does a diaspora survive?
In his discourse about exile and diaspora, Martin Bauman [1, p. 19] emphasizes the differences that arise depending on the national character, the cultural and religious issues or the specific political context of some peoples or ethnic groups, at a given time. Previous studies have shown "the Jewish case" as a paradigm, for both the "exile" and the "diaspora". This comprehensive approach explains *the ability of conservation* and *perpetuation* of Jewish communities, beyond any historical circumstances, fighting the assimilation process of the "native" people (the "host" society), living according to the Law and continuing the customs and transmitting on the values inherited from the ancient times, regardless of the cultural environment in which they were living, but, of course, influenced by it in a certain manner.

2. Exile and Diaspora. The Origin of the Terms. Significations

The origin of the term "exile" may have two distinct linguistic and cultural explanations: the first would be the provenance from the Roman jurisprudence and the other from the Jewish theology. Exile involves "loneliness, foreignness, homesickness and an enduring longing to remigrate to the place of origin". In the view of the exiled, this conditioning is temporary and all the activities and coordinates of their lives refer to the native territory and culture [1, p. 19]. As derived from the Latin term "exsilium" ("ex" – "outside"; "salio" – "to jump"), it means a banishment sentence of a citizen from where they live, persecution, chasing, deportation, expulsion, and in some cases, even voluntary departure of a person due to some (usually political) repressive measures [2, *s.v.* "exil"]. In terms of theology, it means the condition of the Jews who are physically and geographically outside Israel-Palestine and Judea, being in this situation due to the failure to comply with the Law and disobedience with God. The exile punishment is for the Jews a "pitiful state" – a condition of suffering and, hence, of the regrets and repentance. The end of exile and, therefore, the hope for divine forgiveness are sought through an exemplary way of life, according to the Law, the principle of charity, and the desire to do good things, respecting the 613 commandments and basic prohibitions (called *mitzvot* in Hebrew) [1, p. 20].

The origin of the term "diaspora" can be set after the return from the Babylonian captivity, when, due to political instability in the Palestinian territories, on which Egypt and Persia disputed their rule, before the establishment of Greek domination (since 333 BC), the Jews have focused on places that would provide a safe life and the chance of economic prosperity: settlements in Asia Minor and Egypt. In these circumstances, Alexandria became one of the main centres of thriving Jewish culture. Thus, the Jewish scriptures were translated into Greek: the Septuagint became the Alexandrian version of the Old Testament (2nd and 3rd centuries BC), introducing the term "diaspora", referring to the Jewish communities scattered all over the Eastern shores of the Mediterranean [1, p. 20]. Therefore, "Diaspora" means "all the Jewish communities scattered outside Palestine after the Babylonian captivity (6th century BC) and, later, after the fall of Jerusalem (70 AD)" [3, *s.v.* "diaspora", our trans.]. The term comes from the Greek word "diasporá" (from "dia" and "speírein"), meaning "'to scatter, spread, disperse, be separated'". In the context of the philosophical discourse where it was primary used, the original sense was a negative one, meaning "devastating", "ravaging" (referring rather to "disintegration" of a whole into parts), without any reference to "a geographic place or sociological group". Willem C. van Unnik states that the use of the term in theology is precisely due to these negative connotations of "devastating", "disastrous" or "harrowing", defining the philosophical term [4].

Pnina Werbner shows *the limits of the concept of diaspora* [5, pp. 74-75]:

- the image of the diaspora from the perspective of "diasporic cultural hybridity" is confuted by focusing "the social heterogeneity" – diaspora is not just about a "symbolic fusion of discourses but a multiplicity of discourses", some of which intersect while others contradict each other, generating a certain *dynamism*;
- Diaspora is a historical process of formation, in continuous evolution – is open to changes and adaptations depending on the political and social context; so, if needed, it could revive itself into a new place or adapt itself to the circumstances of the old location;
- Diaspora represents a paradox, being simultaneously characterized both by order (state of arrangement, systematisation, logical development through clear rules and measures) and disorder (state of disorganization, sometimes confusion, chaotic development and without rule): is characterized both by hybridity and heterogeneity, in a specific, historically determined manner – its development is predictable, following some similar steps, wherever it would form itself;
- requires the inhabitants to exercise dual relating and thinking: getting equal rights as citizens of a country for which they have to show their gratitude and loyalty, and, at the same time, maintaining transnational relationships with other groups and proving attachment and loyalty for another country (the homeland), besides of the "host" country;
- this duality implies that "diasporas are deeply implicated both ideologically and materially in the nationalist projects of their homelands";
- a diaspora will always raise controversy about the feeling of belonging to a place – the idea of "being at home" – *i.e.* the importance of identifying with a "home" (as stately-political appurtenance, by citizenship, to the "host" country of that diaspora, or, national appurtenance, by ethnicity, to their native homeland), which remains a key issue;
- and, finally, there are situations, when, due to historical circumstances or special conditions (cultural, economic, social, political), some members of a diaspora give up to their nationalist perspective, which would bring them affectionately closer to another state (more or less distant), and identify themselves with the nation that gave them citizenship and the possibility of asserting their identity (for example, the Hungarian Jews, who have proved their attachment and loyalty for the culture and society that gave them the chance for emancipation and prosperity).

2.1 Diaspora Space

Any diaspora, regardless of its formation mode (forced exile or self-exile, according to circumstances or dictated by certain interests), individualise itself through a "'distinctive spatiality'", resulted through the historical and geographical conditionings, the (past or present) migrations, the ways of organizing the settlements, the demographic characteristics (fluctuations and movements of population), the development level of the media and of the socialising processes, the economic, cultural, religious or political life [6, p. 81]. Discussing about the "'diaspora space'", Avtar Brah [7] shows that it is "the intersectionality of diaspora, border, and dis/location as a point of confluence of economic, political, cultural and psychic processes […] Diaspora space as a conceptual category is 'inhabited' not only by those who have migrated and their descendants but equally by those who are constructed and represented as indigenous. In other words, the concept of diaspora space (as opposed to that of diaspora) includes the entanglement of genealogies of dispersion with those of 'staying put'."

The Diaspora presupposes a certain dynamism (sequential, in time): thus, it means not only "uprooting", movement, displacement of population, but also evokes the "settlement", permanence and continuity of life in a particular place – which, through the experience of diasporic life, becomes an ethno-cultural centre, thus, a significant space for the genesis, history, evolution, and destiny of a community – which is nothing else but the birthplace of a *subculture* (a distinctive and identitary culture within a national culture, belonging to a social group or an ethnic community, that individualises itself from the larger culture through a combination of specific factors, but retaining

some common features – an underlying culture of an extensive, national, rigorously defined culture).

2.2 The Types of Diaspora

Claire Alexander shows that, depending on the issues of origin, shared history, and solidarity established between the members, diaspora can be defined in two ways [8, p.113]: on one hand it can defend and make sense to racial or ethnic unity, but at the same time, on the other hand, it may question this idea of unity through separation – through the criteria of *"Dispersion"* (ethnicities separated by political borders), of *"Homeland Orientation"* (orientation to the real or imagined birthplace or homeland, as a source of value, identity and loyalty), and of *"Boundary-Maintenance"* (separation from other influences; preserving the identity in relation with the "host" society), defined by Rogers Brubaker [9, p. 6]. As Brubaker remarks, it can mean solidarity, or respectively, separation, depending on the direction from which it is perceived: diaspora as the distinction between "entity" (regarding the quantitative dimension, consisting of a quantifiable number of members, delimited by clear boundaries, presenting a well-defined identity) and "concept" ("as idiom, stance, and claim, diaspora is a way of formulating the identities and loyalties of a population"), or between "a descriptive tool" (for a descriptive, empirical study) and "a process" (following the idea of creation, representation, practice, project) [8, p. 113; 9, pp. 10-11, 12-13]. Thus, Alexander classifies the diasporas in "empirical" and "metaphorical" [8, p. 113].

For *the empirical diasporas* the exile journey does not matter; what matters is only the result, its essence and purity – that which can be seen, perceived, counted, measured, within certain limits –, and the idea of ethnicity explains only the myth of origin, of cultural and blood ties, as a source of identity for the present. To this effect, Stuart Hall [10] argues that the identity of a diaspora is ensured only through the relationship with the idealized homeland, where its members must return by all means, representing the ultimate goal of the effort of all the generations who have perpetuated in exile [8, p. 114].

Instead, for *the metaphorical diasporas*, the journey of becoming is essential; it is the goal itself: the diaspora is no longer a limited and empirical perceived entity, but an attitude, a concept, a formative process – for Hall [10], this kind of diaspora involves recognizing the need for heterogeneity and diversity, through perceiving identity as something which exists and expresses through difference and not against it. He also believes that cultural identity is a natural side of existence – it is produced; it "is a matter of 'becoming' as well as of 'being'": "Diaspora identities are those which are constantly producing and reproducing themselves anew, through transformation and difference" [10]. Therefore, for this type of diaspora, the place of settlement is important (the genesis place of diasporic identity) and not the place of origin, which, thus, somehow loses its idealized status. For the metaphorical diaspora, the present tense matters, rather than the past and "here", rather than "there". The role of the past is to be a guarantor of the present, in regard of the future [8, pp. 115-116].

2.3 Coordinates of the Jewish Diaspora

According to the original meaning of the term, "Diaspora" refers exclusively to the Jewish communities situated outside the Holy Land (the Land of Israel – *Erets Yisrael*). The Holy Land was, and still is, in fact, the engine that powered along the centuries most of the Jewish cultural production, maintaining a strong and rigorous code of laws, spiritual and moral (written and unwritten), successfully fulfilling an essential role in the life of the alienated people, according to the cause-and-effect principle: thus, the significant duality of life in the Diaspora is that everything good and beautiful made before the Lord meant one step closer to the God of the Heavenly Jerusalem, that is, nothing else but a small (individual) contribution to the recovery of the Earthly Jerusalem, respectively, the return to the Holy Land. Sometimes, the fate of the Diaspora Jews was

good enough, thereby the historical-political context allowed them a certain autonomy. Many communities have flourished economically and culturally, maintaining independent "settlements" or "neighbourhoods", having their own synagogues, schools, hospitals, ritual baths, and cemeteries; therefore, form the religious point of view, a rift occurred, between those who share, respectively, do not share the Messianic perspective: especially since the mid-nineteenth century together with the Reform's institution, many Neolog Jews who no longer expect the coming of a Messiah, a king to stand in the (re)built Temple of Jerusalem, no longer have the ideal of returning to the Holy Land. The mixed marriages, the life comfort, and the integration in the multi-ethnic and multicultural society of the contemporary world, under the conditions of a pluralist and more permissive vision, have proved to be the factors to confer, to nowadays generations (especially in America and Western Europe), the sense of "stability" and the feeling of "belonging" to a place called "home". Depending on the rite, which distinguishes the conception on thought, way of life and destiny, the Jewish Diaspora could be both empirical (specific to the Orthodox, the Conservative or Traditionalist communities) and metaphorical (specific to the Reformed and the Liberal communities).

For the Jews who have found a sense of life and that "at home in exile", the most important aspect is the perpetuation of family traditions and the preservation of the Jewish values, which generally are also the main purposes of the different forms and formulae of organization and community life – namely, *the community centres* established during the last hundred years. In opposition to these issues, lies an uninterrupted policy undertaken by Israel, which became even annoying by the use of media – the attempt to attract young people to the "originating" places as to a "promised land", even only for a short study period, to provide them with the prospect of a "real" life in the Holy Land. It is a project of the Israeli government, to give to the young people in the Diaspora the opportunity to study for a semester in Israel. The "negative" aspect is especially about how this campaign is carried out: it is trying to emphasize or even impose a difference between Jews "in exile" and those in "Israel" – as between *being an orphan and not having a home and an identity* and *having a family, a home and a citizenship*. We use the term "citizenship", in this case, because Jewish identity has gained its international position and one can no longer speak about Jews *as a people without a country*, because the motherland Israel actually exists politically, and every Jew belongs to it through language, religion, and culture, and, especially, through a spiritual connection, more superior to the secular notions which these three terms designate. Moreover, being a Jew does not necessarily imply living in Israel or possessing Israeli "nationality" [11, pp. 264-266].

In contemporary terms, Diaspora consists of all Jews living outside the current borders of Israel (*Medinat Yisrael*), but the word no longer has the same meaning since a large number of Jews have found "home" in their adoptive homelands; and thus, it implies "the complicated relations between place, space, power and politics that define contemporary collective identities" [11, p. 263]. Given that Zionism has fulfilled its political purpose in 1948, through the establishment of the modern state of Israel, an end was put to a historical period of two thousand years. David Shneer and Caryn Aviv describe the contemporary Jews as being "global", wherever they might be. Their existence is no longer related to the Diaspora, because, as shown by James Clifford, "global people do not live 'in diaspora', because global people do not live either 'at home' or 'in exile'. For global people, home is constantly shifting"; and, in particular, "Jews, as a collective group of people, define themselves beyond the parameters of the nation" [11, p. 267; 12]. Jews share relations, not necessarily blood relations, which, by their complex character overcome the religious, social or cultural circumstances. The proof of their "global" character is that, throughout history, they have proven their ability to settle in one place, to which to belong, building up a home, a family, a way of life, founding a community, ethnically, religiously, and culturally, strongly individualized, making "infinitely creative ways of expressing what it means to be at home, as Jews". In addition, Shneer and Aviv show that "many Jews, as individuals and collectives, do not operate in this diasporic map and reject the notion of Israel as their homeland" [11, p. 267], a fact which is perfectly true, because

for generations, they have lived in other places, being Jews even without Israel existing as a state. Jews have always had (found) *a homeland* in the place where they sat down. Even if they had been wandering and always under the dangerous pressure of assimilation, Jews were able to prove their uniqueness and specificity as a nation, even when this notion did not exist. Their culture and especially the written text – *the refuge of an eternal exile* (the scriptures, writings, laws, and literature) – were a permanent source of identity – *a true carried home*, like *a snail shell* [13].

2.4 Diaspora and Israel

Shneer and Aviv also remark that the opposed terms "diaspora" and "Israel" "are outmoded in that they reinscribe discarded models of centres and peripheries". Counting out this dual relation – the dichotomy of Jewish identity – in the globalized contemporary society, it seems there is no longer need of Diaspora (as highlighting the alienation) and of homeland Israel (as emphasizing the national, identitary sense of belonging) to define the true Jewish "national" character, because Jews are everywhere – in a world fragmented into complex cultural areas, which relate one with the other and reinforce each other, through an exchange of values, in which, the dominant power becomes dominated and vice versa, the dominated power becomes dominant, through its cultural values, subject to political and economic interests, at a certain point. The domination and the survival through culture are two important aspects of the contemporary society. The duality of Jewish cultural heritage, as a part of the universal or "globalized" heritage, or, as an "individualized" value itself (with self-identity or identitary independent), remains an important issue in the international cultural context of the present. This "dispute" itself shows that Judaism and implicitly the Jews are, in one form or another, an identitary part of the universal culture: they have their own place, which is not necessarily defined by the "diaspora", by "Israel", or by the opposition between them, but rather by a simple term that concentrates the characteristics of this nation over centuries, by its very name – *i.e.* being "Jewish". The answer to the question "Is Israel *the* Jewish homeland, or *a* Jewish homeland? (author's italics)" [11, p. 264] arises naturally: Diaspora, in its traditional sense, no longer exists since the end of the Second World War; Jews still live scattered all over the world, without the need of belonging to a Jewish national state. From the spiritual point of view, Israel represents the origin of the Jewish people, but it is not the only place where they can live out – it is a source of identity, but, by no means, the only way of survival for the Jewish identity, being *anytime* a homeland for Jews throughout the world, but without necessarily fulfilling the role of a "home", too. In fact, the Jewish people equally comprises the all-around Jews, and being a Jew is not limited to living in Israel.

3. The Exile "Home" and the "Homeland"

The forms and formulae of organizing communities, specific to Jewish culture, involving the synagogue, too, were and still are real "community centres". Their independent functioning, promoting also the image of community autonomy in contemporary social structures, only contribute to (re)emphasize the concept of "home". For the Diaspora Jews, the term "house" can have a purely temporary significance, as it is a point of stability in a large and dynamic change. Throughout the history, the synagogue became a form of centrality, functioning, in the contemporary era, in parallel with the community centre. In the context of a globalized society "the home" does not have the same coordinates that root a place to a space, and the community centres rather provide landmarks and ensure social and spiritual stability, normally developed by a house. Thus, a Jew will always feel "at home" in a community centre, wherever that would be. Our visits to some Jewish community centres in Romania and abroad occasioned the opportunity to observe, as a non-Jew, how familiar the atmosphere between the community members and those Jews who were visiting was. Therefore, one could understand that for an individual, member of the Diaspora, the house is not only a place dedicated to intimacy and family, but an entire *world* – material but

especially spiritual landmarks, experiences, feelings, the pleasure to communicate in the mother tongue, traditional food, customs, prayers, the joy of sharing experiences, the discovery of having acquaintances in common. Finally, this world defines a *community space*, as *a place* called "home", at least for a while; as long as a certain order is established – order that prevents forgetting, that generates value and states new identitary structures: "Home is no longer just one place. It is locations. Home is that place which enables and promotes varied and everchanging perspectives, a place where one discovers new ways of seeing reality, frontiers of difference. One confronts and accepts dispersal and fragmentation as part of constructions of a new world order that reveals more fully where we are, who we can become: an order that does not demand forgetting" [14].

An extensive study on the countries of the Jewish Diaspora might show that, depending on the historical context, though constantly oppressed, the Diaspora had sufficient resources to survive all the difficulties and conditionings, in order to recover itself and restore its interior order. In general, one could notice that the equilibrium has established, however, after the Second World War, and in fact, only in the recent decades, namely when fragmentation started to generate *the true unity*.
The increasing globalization questions the reality of the duality which traditionally characterizes the relationship between the "homeland" and "diaspora": what is "at home" (the house, the home, the homeland) and what is the "diaspora" (the uprooting, the exile, the alienation), given the fact that we all are "citizens" of the world, of the "global space" and "global society"? For the Jews, "home" is "a place where people practise identity and intimacy, where they make claims about who belongs and who doesn't", which implies the sense of belonging and means "a sense of entitlement, control and familiarity" [11, p. 263].

With the establishment of the modern state of Israel, the traditional Diaspora, as it was originally defined, has ended. Currently, any Jew who is outside the state of Israel is considered a member of the contemporary Diaspora. History has proven that the Jews have developed their own concept of diaspora, based on the relationship between "home" and "alienation", which would permit them to be "at home" wherever they may be in "exile", maintaining and preserving the "sacred" image of the "homeland" as the ultimate Zionist goal – that of the returning "at home", of the messianic era expectation, and of the fulfilment of the destiny. The variety of life, the influences of the life environment, and the movement imposed by the context of exile characterize the evolution of Jews as a people with "national" identity, through a deep "cosmopolitanism", "maintaining a dynamic tension between movement and rootedness" between the communities scattered all around the world, united by ties that transcend any barriers imposed by the political boundaries of the "host" nation-states [11, p. 263]. The history and the contemporary situation prove that Israel indeed represents for the Jews the so much desired "homeland", but is also a reference territory – as an identitary combination, source of unity for the "national" spirit. The Holy Land is *an eternal home* ("a home") of the Jews, but not necessarily *their home* ("the home"): many communities have been, are and remain deeply rooted in the environment, country and society where they lived, for generations, in exile, without feeling the conditionings or negative aspects and discrimination imposed by it. The Jewish Diaspora is integrated in the global society, where, in fact, each individual is in his own exile or part of a diaspora.

Given that national borders disappear, the ethnic, cultural or religious limitations and divergences do not make sense anymore. The "national" character of the Diaspora Jews might belong to and identify with the state of Israel, but as "citizens" of the world, Jews identify themselves individually or in groups (community, parish, collectivity), through what they do and what they represent, through their value, tradition, continuity and cultural heritage (individually related and dependent on the place where they have lived for generations and not on the political affiliation to the modern state of Israel), as all the other "citizens", with whom they are equal in rights and freedoms, granted in all democratic regimes. According to these issues, any Israel's initiative to gather Jews scattered all around the world becomes almost blameworthy, because this would mean the razing of the two

thousand years cultural identity of the Diaspora – a new uprooting, but in another context of history. The divergent relationship between Israel and the Diaspora has lost its significances and historical sense. The term "Diaspora" has become just a commonly used formula of everyday language, to define socially, culturally or ethnically the identity and unity of the Jewish communities that live out somewhere in the world. The political purpose and the discriminatory meaning, with all the negative consequences that it carried on for centuries, are now null and void.

Nowadays, the American Diaspora, significantly larger, is a source of novelty, being in continuous evolution, in all the aspects of life and the spirit of Judaism. America, as Israel, is a huge "depository" and a rich source of documentation of Jewish culture (archives, libraries, museums, memorials). Due to the means of communication, data storage and transfer of information, these artificial "amassments" are regarded only as museum values. On the contrary, the life of the European Jews is different from that of the Americans, through its meaning: after the Holocaust, Jewish life (existence) in the European Diaspora has become a necessity for the maintenance, survival, and continuity of the Jewish culture, exactly in the places where it had formed, centuries ago. In an on-going process of regeneration, the European Diaspora remains the main exponent of the tradition and cultural heritage of the historical Jewish exile: Jewish life still vibrates, through people, places, and testimonials, who speak through their physical presence and appearance, through significances, but, especially, through their appurtenance to the place where they were realised, produced, designed, crafted, developed and where they are still kept until this day, evoking the continuity, the adaptability, the creativity and the ethno-cultural synthesis, whose perpetuation in the same places represents a cause, a necessity, and a source of authenticity and identity, too. The European Jewish Diaspora is a lesson and a living history of survival through culture.

Conceptually, in general, the "diaspora" means not only an empirical and lacking in depth evaluation of certain communities, but rather a "representation", a "description", and an "analysis" of a way of life, a cultural, social, religious, etc. pattern, *i.e.* a complex relationship between people (of the same type, but each of them representing an individual with their own personality, scattered in various places), the links between them, their artefacts, their cultural heritage, their values and conscience [15] – namely, in a single word, "diversity".

4. Home and Memory

In defining the term "diaspora" one should consider two important aspects: exile means *alienation*, thus the diaspora involves *a longing for the originating source*, for the "place of origin" (a "home" from the present or from the past) that develops an "ideology of return" [16]. Therewith, life in the diaspora means an existence based on memories: the "memories of home" as of an idealized native place – a reference element to which the present, but also future actions relate themselves. "The act of remembering is always contextual, a continuous process of recalling, interpreting and reconstructing the past in terms of the present and in the light of an anticipated future" [17, p. 24]. This means that memory establishes itself on real aspects of the present, of the concrete, transposing the ordinary into an ideal and symbolic dimension, in an attempt to reassume the values of the past and set some coordinates of the future. At the community level, memory replaces *"the place of origin"* as source of identity and originality, which essentially characterizes it, as ethnicity. Therefore, remembering means the appropriation of one's own birthplace – the assurance of the origin or of the existence, as attribute of value and identity.
Hence, it follows that the existence in the Diaspora is "the experience of 'living here relating to a there'" [18], that involves a distortion of the concept of "home" itself, because its characteristics are multiplying, defining increasingly more spaces, which through memory, in the perspective of the past, become both here and there, both present and future. After all, *what is "home"*? Conceptually, the home would be "a highly contextual and ambivalent notion, referring to multiple places and

spaces in past, present and future in various ways." As a complex of memories, subject to change (the collective memory), depending on the life and movement of the individuals, the home, as a place of origin, "can be remembered, lived, longed for" [17, p. 27]; *i.e.* it might physically exist, anchoring memory in reality, trying to convert it into reality (*the synagogue*), or, on the contrary, it might be imagined, performing a symbolical and guiding role, through that eternal longing to reach the homeland (which is, in fact, *the goal of all generations*; Zionism doubled by Messianism).

In the study of the Diaspora, relating the Jewish individual or collective memory to "home", "homeland" or "place of origin" has an essential role, especially noticeable, in the last one hundred and fifty years, in the architectural approaches searching for identity. By means of artistic expression (arts, literature), the Diaspora Jews have always sought the "road" that would bring them closer to the Holy Land, as an essence of their national being, in a continuous attempt of self-preservation, protection, and perpetuation of the inherited values, and through a constant reiteration of their condition in front of God – as *the chosen people*, but also as *a punished one* to wander all around the world. The torments of exile mean, for the Jewish people, the effort of not to forget the past, which they are convicted to recall every day, through repentance, obedience, and charity, before the divine power, but centred on their neighbour. Although the exile has somehow finally ended, Jews continue to accomplish the divine commands, until the fulfilment of the destiny of the world and the coming of the Messianic age; also, the collective memory of that *illo tempore* is what keeps them together, giving them, as a people, a mythical and unique dimension, shrouded in a dense mystical-religious atmosphere.

5. Conclusions

"Identity" proves to be the most important aspect in the existence of a diaspora. Through recalling the memory and preserving it, it ensures the permanence and continuity of the life of a community in exile. As previously highlighted, as the burden of exile comes to an end, the community roots itself and architecture becomes identitary; but one should bear in mind that these three *actions* related to exile, community, and architecture, not always succeed each other in this order, being conditioned, by place (country), through a set of political, economic, demographical, cultural, and religious factors. Jewish life in Central-Western and Central-Eastern Europe share only the exile, as a primary condition of the Diaspora's formation. Both *community* (as institution) and *architecture* (as means of transposing the tradition and identity into built form) have distinct developments, despite the amazing population migrations, occurred in history, between the West and East. However, what characterizes them both would be the programmatic feature, supported more strongly, since the nineteenth century, although the emancipation, as phenomenon, already used to manifest since the previous century. Otherwise, even the Jews' liberation from the traditional ghetto and from certain prohibitions happened only in the late nineteenth century and at the beginning of the twentieth century. Therefore, we should count on "diversity" when referring to the Jewish Diaspora's "identity": the Jewish population settled in a foreign territory would conserve their identity precisely by relating to the culture, religion, and traditions of the "host" people; the conflicts of interests, persecutions, and suffering because of not belonging to a "homeland" had a formative role. Thus, the "otherness" became the source of an ethno-cultural genesis process, in which the component represented by architecture was a decisive factor: *the synagogue* has always been an opportunity to "experiment" what was new or "fashionable", becoming, in fact, as Mircea Moldovan put it, a "method of appropriation of a territory (our trans.)" [19, p. 38], exponent of the Jewish religion and culture, symbol of the exile, but, at the same time, despite its character, as a temporary place of worship (until the (re)building of the Temple of Jerusalem), of life stability.

Generally, being devoid of many rights and freedoms, that would have put them in equal position with the Gentiles, and being forced to fight "in one leg", gradually and depending on the rite, many

Jews have *substituted the homeland with the community*, and the community was (and still is) *the synagogue itself*, or (later) *the community centre*. These being said, and also having a programmatic role (from the desire of emancipation, of expressing ethnic identity, and of the free manifestation of the culture and free practice of the worship), architecture has been and still is a means of survival through culture; and, at the core of any culture lies *diversity* (resulting, in the most simple way through the breeding of two individuals with different heredity, of two disparate elements, races or species, and which will not always create, from the very beginning, something naturally beautiful and harmonious, or organically well bound – but to earn real beauty, naturalness, value or harmony it must obey to some creative "polishing", that will generate in time, after generations, valuable works of art, quality items, traditions, customs, moral values, etc., impregnated with "specific", *i.e.* emanating an "identity"). In this regard, Stuart Hall remarks that: "diaspora does not refer us to those scattered tribes whose identity can only be secured in relation to some sacred homeland […], but by the recognition of a necessary heterogeneity and diversity; by a conception of 'identity' which lives with and through, not despite difference; by hybridity" [20, p. 31].

Metaphorically speaking, from the richness provided by heterogeneity, difference and diversity, result: the "specificity", the variety of cultural values, traditions and particular customs, the picturesque, the lifestyle, and the intuitive refinement that gives charm to the artisanal products. Seeing in the diaspora a formative place, with possibilities of development, means finding that *"at home" in exile*. Through such an equilibrium, the appurtenance to a country is not anymore substituted, not even with the one to a singular place – as the sole centrepiece –, but is replaced, by the possibility of free developing an "identity", with the creation of value, through an evolutionary process of transformation and continuous and independent becoming: "diaspora identities are those which are constantly producing and reproducing themselves anew, through transformation and difference" [20, p. 31]. Conclusively, the identity of a diaspora would be that matrix of values that always keeps its essence, but is subject to a continuous creative development.

The Jewish communities in exile are part of a "people", who, although had lived for centuries disfavoured by History and without a "country", has survived, kept its identity and spiritual unity, and, has built values to which it relates itself until the present day; and time has made the need of belonging to a place called "home" gradually to situate, for many of them, somewhere in a metaphysical plane, due to the fact that this people has always considered itself as a "spiritual nation" [21].

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