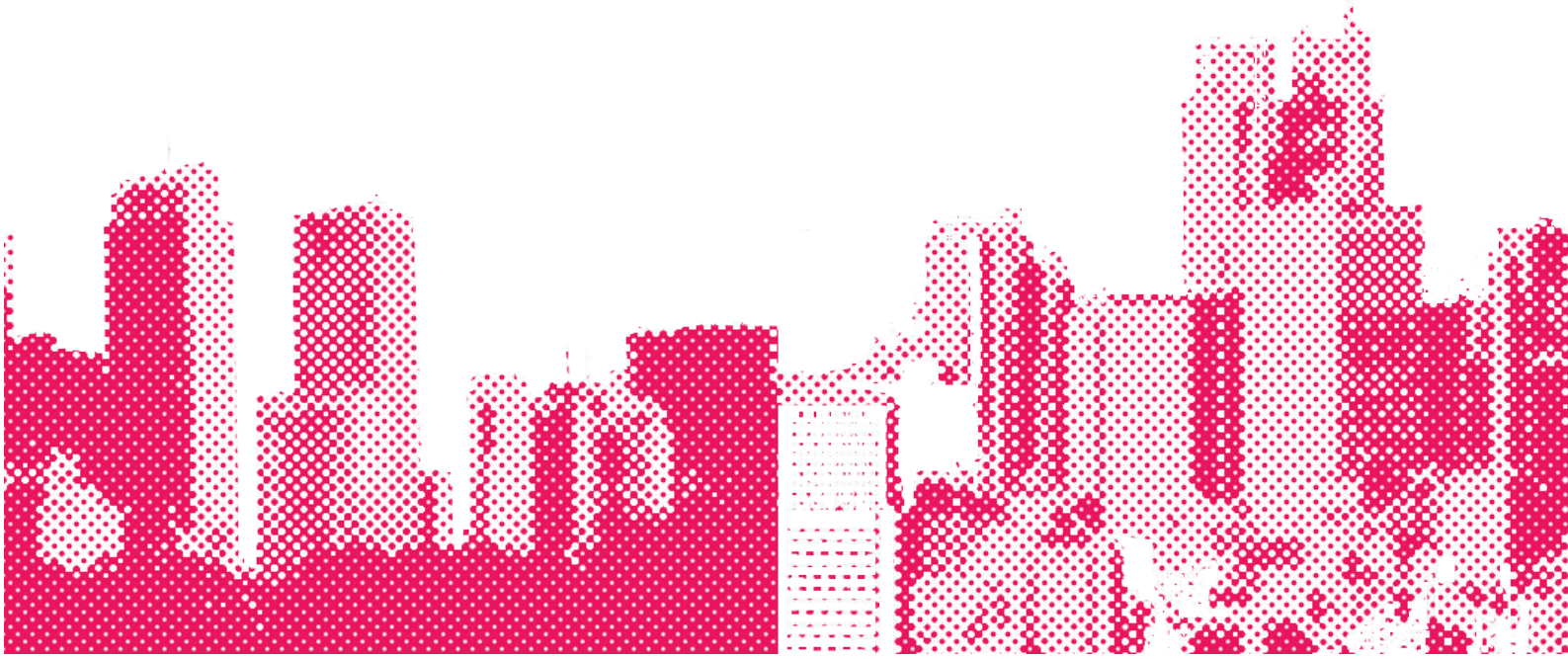
OIKONET A global multidisciplinary network on housing research and learning

PROCEEDINGS OF THE FIRST OIKONET INTERNATIONAL CONFERENCE

25–26 SEPTEMBER 2014 SCHOOL OF ARCHITECTURE LA SALLE, BARCELONA

Global Dwelling: Research, Education, Community Participation

EDITED BY LEANDRO MADRAZO



Lifelong Learning Programme

This project is funded with support from the European Commission (Project number 539369-LLP1-2013-1-ES-ERASMUS). This publication reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

PAPERS PRESENTED AT THE INTERNATIONAL CONFERENCE

Global Dwelling: Research, Education, Community Participation

Proceedings of the First OIKONET international Conference
Global Dwelling: Research, Education, Community Participation
Edited by Leandro Madrazo

Graphic design by Anna Bohigas

School of Architecture La Salle, Ramon Llull University, Barcelona, Spain

ISBN: 978-84-939814-0-2

TABLE OF CONTENTS

Foreword

This publication contains the papers presented at the First OIKONET International Conference *Global Dwelling: Research, Pedagogy and Community Participation* which was held at the School of Architecture La Salle, Barcelona, 24th to 25th September 2014. The conference was the culmination of the first year of activities of the OIKONET project, which started on October 1st 2013.

A first attempt to define the meaning of the expression 'global dwelling' might take into consideration the following:

- The existence of common driving forces influencing the contemporary habitat in different cultures, societies and places, among others: gentrification, mobility, sustainability, and economic and social restructuring.
- The recognition that dwelling as a subject-matter inevitably brings together various scales, disciplines, and areas of expertise, including: architecture and urban planning, sociology and community psychology, economics and finance.
- The challenge of adopting inclusive approaches to identify housing needs and to find appropriate solutions with the joint participation of citizens and experts, community and local representatives, and political and economic organizations

The aim of the conference was to identify the common factors that might lie behind the demands of citizen participation, social inclusion, adaptability and sustainability which are currently prevalent in different places and cultures around the world. Even though the ways in which these demands are expressed differ in each society, it can be argued that they are the expression of some underlying forces which operate globally. Likewise, the answers to these demands need to be global, insofar as they need to be addressed from a multidisciplinary and inclusive perspective. Therefore, appropriate answers to the challenges that dwelling poses to our global societies cannot derive only from the solutions that professionals – architects and urban planners, policy makers and investors – can provide. Rather, it is necessary to understand the nature of the problems in question with the collaboration of the various stakeholders involved – professionals and non-professionals –, in order to come up with appropriate responses to the challenges that dwelling is putting forward today.

The conference offered OIKONET partners an opportunity to present their work from three different perspectives: researching on housing studies, learning and teaching housing design, and involving communities in the processes of shaping the habitat. The ultimate goal of the OIKONET project is to establish productive relationships between these three domains – research, pedagogy and community participation – in the course of the different project activities: mapping the research field on contemporary housing, designing and implementing innovative learning spaces to foster collaboration with researchers and community representatives, and involving local stakeholders in community projects carried out collaboratively.

The discussions and meetings held during the two-day event helped participants to become acquainted with the work that other partners are doing in the different domains and disciplines related to housing. In this regard, the conference has been instrumental in the process of building up the OIKONET network.

A total of 16 papers, representing 18 organizations from Europe and around the world which are members of the OIKONET project, are collated in this document. Presentation files and video recordings can be accessed at the project web portal (http://www.oikonet.org/index.php/admin_controller/conferences).

Leandro Madrazo
OIKONET Project Coordinator
Barcelona, September 2014

Research

Drivers of contemporary housing research and design

Karim Hadjri, Isaiah Oluremi Durosaiye

Grenfell-Baines School of Architecture, Construction & Environment, University of Central Lancashire (UCLan), Preston, United Kingdom

khadjri@uclan.ac.uk, iodurosaiye@uclan.ac.uk

ABSTRACT

The objective of this paper is to examine the current drivers of contemporary housing research and design in Europe. An in-depth literature review was undertaken in order to establish the prevalent issues around housing research and design in Europe. Three major themes are identified as the main drivers of contemporary housing research and design in Europe today. First, sustainable design, in which the overall sustainability of housing informs design practices, taking into consideration the whole life impact of housing on human and environment, from the construction stage, through the usage stage, as well as the end-of useful life disposal options. Another driver behind contemporary housing research and design is inclusive/accessible design. This design principle pays unprecedented focus on previously marginalised user groups like older people and disabled members of the society. The third design principle identified in literature is community participation. The early involvement of the community in shaping housing policies and practices helps to better understand end-user needs and eliminates potential design errors. Moreover, the benefits of sustainable, inclusive/accessible and community participation design principles are mutually reinforcing and are better enhanced if applied in tandem. The paper concludes that contemporary housing would meet the needs of users, while at the same time being environmentally sustainable and socially responsive.

KEYWORDS: *housing research and design, sustainable design, inclusive design, accessible design, community participation*

Introduction

The process of housing procurement is a long and complex one involving the collaboration of a number of stakeholders: architects, engineers, builders and project commissioners, and also end-users. Several research studies have identified the importance of early involvement of end-users so that housing procurement can be informed by the predetermined needs and the experiential contribution of its residents (Orzechowski & de Vries, 2007). Furthermore, there is research-based evidence that designers have the capacity to create "...conducive environments that elicit positive emotional and physical responses in people that come in contact with them" (Suresh, Smith, & Franz, 2006). Even more important to note is that end-user needs may be influenced by design professionals, through advanced building technology, in a way that supports the sustainability of contemporary lifestyles (Goia, Perino, Serra, & Zanghirella, 2010). These mutually reinforcing goals must be collectively achieved by all the stakeholders within a transparent framework understandable by all.

Building standards are expected to provide builders and homeowners with objective guidance to end-user expectations concerning the work produced by the design and building professionals. However, assessing subjective user satisfaction through predetermined design criteria or building standards may not necessarily generate practice-based knowledge. Heylighen (2008) emphasized the importance of devising an interactive system in which the academic community may support both policy-making and architectural practice with knowledge acquired through research; and similarly, experiences of practicing architects may be fed back into academic research processes. This requires a systematic feedback environment that accommodates critiques and suggestions for improvement. A commonly used technique to determine the performance of a building is post-occupancy evaluation (POE), which is a valuable tool used to assess how a building is performing. As the name implies, POE is a retrospective assessment of a building's performance; this is systematically measured against performance criteria by highlighting both positive and negative performance aspects (Preiser, 1995). Hadjri and Crozier (2009), on the other hand, suggest the introduction of the 'human factor' into the performance evaluation process, by proposing that predetermined performance criteria must be seen from the perspective of the occupants, whose needs must be satisfied, e.g. accessibility and mobility. This approach requires an open mindset from design professional teams, which takes into consideration diverse end-user needs which can be achieved through user participation, but also environmental requirements, to ensure sustainable design.

As part of this paper, an in-depth literature review was undertaken in order to establish the prevalent issues around contemporary housing research and design in Europe. This paper takes the stance that contemporary housing in Europe today is driven by three core design principles; namely, sustainable design, inclusive/accessible design and community participation. Though often separately emphasised in literature, common to all of these three themes is that the benefits that can be derived from them are mutually reinforcing. These three drivers are discussed in some details in the following sections.

Sustainable design

Sustainable design is usually associated with the efficient use of energy in buildings. Hence, an increasing political and economic pressure to reduce domestic energy consumption, combined with the potential effects of climate change on the built environment have contributed to a rapid change in legislation for housing design and provision across the European Union (European Union, 2013). Nevertheless, sustainable design constitutes far more than the EU agenda on the reduction of greenhouse gas emissions (European Commission, 2010). According to Manzini (2007), sustainability requires a systemic thinking approach in which current practices of "production and consumption are discontinued" in order to pave the way for improved quality of the

social and physical environment. A sustainable architectural design, thus, has more to offer than aesthetics and functionality (Farmer, 2013). Sustainable design in architectural context can be viewed from a broad range of perspectives.

First, sustainable design in contemporary housing procurement and regeneration is expected to apply the use of the 'cradle-to-cradle' design concepts, in which the building materials and technology support reusability (Monahan & Powell, 2010). Also, the construction process, will be expected to support the deconstruction of the building rather than demolition at the end of its useful life, in order to enhance the retrieval and reuse of existing building components, which has a better environmental impact compared to recycling or even final disposal. Contemporary housing procurement must take the 'whole lifecycle approach', and measures should be taken to ensure the building's environmental impact is reduced to the minimum possible. There are advanced methodologies, like lifecycle assessment (LCA) to assess the environmental impact of a building throughout its lifecycle (Basti, 2010; Basbagill, Flager, Lepech, & Fischer, 2013). Such assessment will consider not just the embodied energy in the materials used to construct the building (including transportation to site and reusability), but also the energy consumption of the building throughout its lifespan and the adaptability at the end of its useful life for other purposes. A study conducted by Thormark (2002), under the Cost-Efficient Passive Houses as European Standard (CEPHEUS) project, proposes that contemporary housing design should 'factor in' the whole life impact assessment, including their energy efficiency/performance and contribution to the greenhouse gas emission levels. This will inevitably include the prescription and sourcing of the building materials, the application of the most appropriate building technology, and most importantly, the human and environmental impacts of the building during its entire lifespan (Thormark, 2006).

Furthermore, there is a school of thought that suggests the term 'sustainable design' should be seen as the impact design and planning principles have on the ecosystem including the interaction between humans and the built and natural environments (Tippett, Handley, & Ravetz, 2007). Such ecological approaches to defining sustainable design inadvertently suggest that the status quo of this interrelationship may be maintained in equilibrium over an extended period of time, through design (Cole, 2011).

Keitsch (2012), on the other hand, argues that sustainable design offers more than ecological advantages, in the sense that it creates a conducive environment for "...social sustainability and social inclusion...". Sustainable design should, thus, be contextualized beyond the carbon footprint of a building throughout its lifecycle. In a broader sense, architects and engineers use design to improve the social acceptability and operational performance of the artefact and, as a result, influence individual and societal interaction with and within the micro and macro environments (Farmer, 2013).

Finally, a sustainable design will consider the social aspects and consequences of achieving economies of scale through compact building. Some researchers have demonstrated that there is an overlap and interaction between an individual's private and public domain and offer possibilities on how architectural designs may use spatial demarcation to regulate the communication between an immediate and a wider environment, based on the needs of its inhabitants. Likewise, some other advocates of sustainable design in the built environment propose that intensifying land use in the form of high-rise, high-density residential housing can help achieve sustainability in urban areas (Ancell & Thompson-Fawcett, 2008). However, such intense use of space within the built environment will, inevitably, result in the reduction of the constituent individual's access to the encompassing natural environment, which some social and environmental scientists see as a source of social conflicts in neighbourhoods (Baum & Davis, 1980; Gillis, 1977; Freedman, Levy, Buchanan, & Price, 1972).

For sustainable design to be achieved in a housing procurement project it must be incorporated in the design features at the early stage, from the inception of design ideas and architectural and technical drawings, through construction and to completion; then the usage, maintenance and end of useful life options must also be considered.

The UK government has announced its ambition to make new homes carbon neutral by 2016. The key drivers for the delivery of zero carbon homes are the legislations and regulations. This should be achieved through gradual amendments in building regulations based on the Code for Sustainable Homes (CSH) standards (DCLG, 2008). In 2007 CSH was introduced to achieve zero carbon homes, houses are classified under six levels (Figure 1) where Code Level 6 is the most sustainable level and achieves zero carbon emission (Hashemi & Hadjri, 2013).

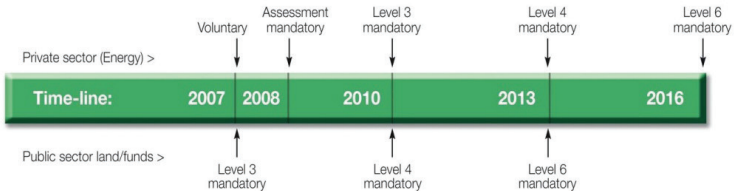


Figure 1. Timeline for the implementation of the Code of Sustainable Homes in the UK

Inclusive / Accessible design

Mainstream design approaches that design and build for the majority of the population have been challenged since the 1960s and 1970s, first in the USA and later in Europe (D'Souza, 2004). It was during this period that movements like 'design for all', 'universal design' and 'inclusive design' emerged; subsequently, legislative frameworks and standards were formulated to encourage the design of products and services that take into account the inclusion of persons with less than average abilities to use average products (Björk, 2009). The main objective of these initiatives was to create an 'inclusive environment' that does not divert focus from the majority of the population, but puts greater thoughts into design features that facilitates usability by every member of the society (Afacan & Erbug, 2009). This is particularly true for the built environment. As suggested by Dujardin (2012), even able-bodied members of the society can easily find themselves in a handicap situation, "...without being physically or mentally disabled, hence the accessibility of the built environment should not be attributed to the disabled but to the designer".

Universal design was first introduced by Mace (1997) as "...the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design". While this concept embraces design features, that enhances accessibility by all, it also implicitly reflects on the need for tactfulness and unobtrusiveness, in that it fell short of an explicit reference to usability by people with any form of physical disability or limitation. Steinfeld and Maisel (2012), on the other hand, contended that universal design should recognise the context where it is being applied, and as such, should be idealistic in its long-term approach and realistic in its short-term achievements. To buttress this, Steinfeld and Maisel (2012) reiterated that the ideal of universal design, as proposed by Mace, should be seen as a "...process of continuous improvement, based on the resources available, toward the ultimate goal of inclusion".

The inclusive design concept stemmed from the principles of universal design. While universal design concept was a general approach to making products, services and the environment accessible to 'all people', the notion of inclusive design is more relevant to the built environment and is more specific in its approach to make the built environment barrier-free for all users. The Royal Institute of British Architects (RIBA) and the Architects Registration Board (ARB) refer to inclusive design as simply 'universal design for access' (Morrow, 2002). Furthermore, the Helen Hamlyn research centre states that inclusive design is, "neither a new genre of design, nor a separate specialism" (Pullin, 2005). Inclusive design has become

a topic of design discourse, in part, due to the demographic changes in European population, which have resulted in a new set of issues for the society to consider and understand.

Most schools of thought purport that inclusiveness in architectural design is expected to address accessibility issues in the built environment, which is due to the diversity in the spectrum of user needs (Steinfeld et al., 1979). For example, Heylighen (2008) argues that people with special needs, due to some form of impairment, tend to detect misfits, which even the most experienced designers might have omitted in the design process. Inclusive design thus requires the appreciation of the needs of previously marginalized user groups, like disabled or older people, in the design and procurement process. However, while the incorporation of user needs into design features may have been anticipated by design and building professionals, even a POE system may not be sufficient to retrieve valid and relevant information through user experiential feedback. First, in the absence of adequate knowledge, residential building occupants may not be able to articulate their needs in such a way that design professionals will comprehend it. Amongst others, Newell et al. (2011) noted that the specialised needs of people with disabilities and the perceived conflict of interest between various user groups, are some of the challenges designers face, in their attempt to create universal environment that is accessible to all. Second, Architecture, Construction and Engineering professionals face ethical issues as to what information disabled and older user groups are able and willing to share. For instance, obtaining the informed consent of people with disabilities may result in the infringement of their privacy (Calveley, 2012). Furthermore, even when residential building user needs are adequately predetermined during the design stage and objectively assessed through the most sophisticated post-occupancy evaluation, those needs and the subjective satisfaction levels of homeowners may change due to predictable life course stages like age or unforeseeable circumstances like deterioration in health conditions or lone-parenthood. Hence, no building standards can provide complete guidance to designing contemporary housing that fulfils the needs of all and sundry and at all times (Molyneux, 2005).

Nevertheless, there are generally accepted guidelines for the creation of inclusive design in the built environment. According to Langton-Lockton (2004) in order for the built environment to be considered inclusive, it must possess at least some of the following attributes:

- The environment is easily used by as many people as possible without undue effort, special treatment or separation.
- The environment is able to offer people the freedom to choose how they access and use it, allowing them to participate equally in all activities it may host.
- The environment is able to embrace diversity and difference.
- The environment is legible, predictable and of high quality.
- The environment caters for flexibility in use and provides buildings and environments that are safe, convenient, equitable and enjoyable to use by everyone, regardless of ability, age or gender (Adapted from Langton-Lockton, 2004).

While, these principles are some of the fundamental aspects of inclusive design, more research is being conducted to further this paradigm beyond physical attributes.

There are however some disadvantages to using inclusive design. One salient aspect is when inclusive design is perceived as separate from mainstream design principles. In addition some inclusive design principles may not necessarily produce inclusive results (Pullin, 2009). Some of these principles have informed recent design guidelines in the UK such as Lifetime Homes Standards (Figure 2), which have become law in 2013 (http://www.lifetimehomes.org.uk/).

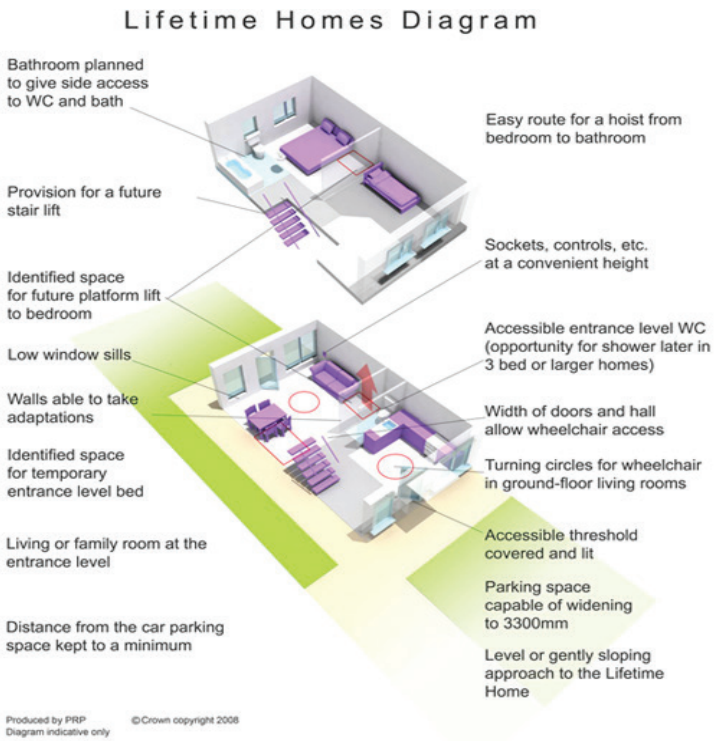


Figure 2. Lifetime Homes criteria

The application of the ideals of inclusiveness in the provision and production of contemporary housing thus spans across various social, cultural and political domains of a community. Consequently, while inclusiveness in contemporary housing design can be seen from the perspective of the occupant, it is the active collaboration between the end-users and the professional teams that will deliver the objective or perceived user satisfaction.

This approach to the expression of inclusiveness in the built environment, however novel, is inconclusive. While a lot has been achieved to incorporate inclusive features into architectural design in the built environment in Europe, there seem to be plenty of room for further development and improvement, while newer approaches may be sought.

Community participation

Another emerging form of user 'inclusiveness' is community participation. In as much of inclusive design informs and facilitates the development of a built environment that accommodates people of various levels of abilities, community participation may offer another perspective to incorporating user's opinion in the formation of contemporary housing in Europe. While inclusive design proposes a 'microscopic' approach to feeding back users' needs and experiences into the design process, community participation takes the form of involvement through 'macroscopic' design dimensions, for example to inform urban planning.

Community participation in the definition of housing policies had been commonplace since the post-war period in Europe, and was widely embraced by scholars and design and building professionals (Cupers, 2011). However, community participation in the formulation of housing policies had undergone a phenomenon of emergence in the early twentieth century; omission during and in the aftermath of the Second World War; and re-emergence in the 1960s as a civic process through a working class that created a public awareness of the relationship between tax payment and the 'consumption' of public services, like housing. This period of relativity between civil obligations and rights gave rise to social movements that sought to have a say in how issues of public importance, like

housing, should evolve (Paddison, Docherty, & Goodlad, 2008).

Community participation mostly manifests in form of public participation in the conceptualization of the basis on which the ideals of contemporary housing provision may rest, by defining the particular needs of the community, which may then be translated into local housing and urban planning regulations. New designs and constructions will be expected to meet such legislative requirements. Due to the democratic process by which such regimes are enacted, studies show that empowered citizens are more likely to pursue social and environmental equity in their communities than in societies where policies are centrally dictated (Figure 3) (Heritage & Dooris, 2009).

Some advocates of community participation in housing policies claim it may not necessarily be an "...entirely consensual nor a constantly confrontational" system, but rather, if well implemented could facilitate the creation of a forum, that involves "...disagreements, but which, through compromises and concessions, could still lead to better outcomes" (Shapely, 2011). This requires a systemic multilateral consultation and collaboration among local authorities, professional bodies, developers and the public. However, even in the presence of governmental intervention, aimed at fostering community participation in the delivering of contemporary social housing, Rumpfhuber, Klein and Kolmayr (2012) noted that overtly bureaucratic systems may lead to instances of 'scarcity of participation'. Rumpfhuber et al. described this scarcity of participation as a situation whereby experts' opinion and political agenda dictate the themes of social housing provision, and whereby the end-users, i.e. tenants, are left out of the decision making process.

It is therefore important to consider that participatory design and planning processes are embedded in complex power relations of housing procurement. As suggested by Arnstein (1969) in 'ladder of participation', these processes may hide tokenism, instead of distributing power.

On the other hand, in the 'empowerment perspective' (Andrews, Cowell, Downe, & Martin, 2006; Sarkissian, Hurford, & Wenman, 2010) there is an emphasised focus on participatory planning as potentially positive and there is a motivation to communicate knowledge of 'how to do it right'. In this view 'place making' is not only produced by architects, planners and other design professions but places are also made by the inhabitants (Hamdi, 2004). As a result a new role for designers evolves: learning how to design in a way that offers room for citizen initiatives – facilitating 'spontaneous cities' to develop (Urhahn, 2011).

Considering both these perspectives, it is crucial to give priority to include those with the least power in dialogues (Tett, 2005), or citizen participation may increase social exclusion (Beebeejaun, 2006). Preventive measures are also essential for avoiding unplanned transfer of power to political interest groups and companies with economic interests (Raco, 2000; Lane, 2003). Community participation has more chance of success in societies where citizens are free to decide the future of their built environment in the context of a sustainable society (Roseland, 2000).

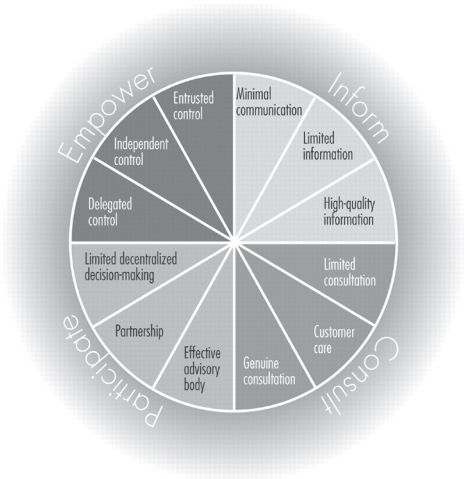


Figure 3. The wheel of participation (Source: Heritage & Dooris, 2009)

Contemporary housing that considers sustainable design, inclusive design and community participation

Recent demographic and societal changes have influenced living arrangements and lifestyles and consequently the design of contemporary housing. Nowadays there is increasing demand for housing that is "small, flexible and efficient" (Friedman, 2013). Likewise, an ageing population requires more accessible and adaptable housing driven by mobility and accessibility needs and new living arrangements. There is also evidence to suggest that there are significant health outcomes associated with a fitting housing environment and design features such as noise control, lower density and access to green spaces (Guite, Clark, Ackrill, 2006; Zeisel et al., 2003; Cutler, 2007).

Friedman (2013) argues that there are four design concepts that answer these drivers, namely: live-work residences, ageing in place, multigenerational living, and small homes. For instance, housing design to enable ageing in place will require accessible and barrier-free spaces that take into account the needs of older people with reduced mobility and/or visual impairments, and allow them to live independently and with dignity. These are topics that are receiving increased interest from governments, housing agencies and stakeholder groups worldwide.

A number of case studies will be examined in future readers by looking at the extent of user participation and pedagogical activities linked to their design and construction. The aim is to illustrate the synergies between research, participation and pedagogy to benefit the OIKONET network as a whole.

Conclusion

Contemporary housing is expected to meet the needs of its present occupants, while being environmentally sustainable and socially responsive. There are three key design principles that are currently driving the provision of contemporary housing in the EU today, namely sustainable design, inclusive/accessible design and community participation. However, faced with socio-cultural challenges (like an ageing population and ethnic diversity), environmental issues (like greenhouse gas emissions and global warming) and economic constraints (like dwindling fiscal budgets to finance the provision of social services), the European communities and policy makers must come to terms with how existing and future research and innovation can support long-term contemporary housing provision for all its citizens. Delivering such an agenda requires an environment of continuous learning by both the end-users and professionals, adequately informed by evidenced-based research and supported by proper governmental policy.

There is no doubt that contemporary housing forms in Europe will continue to be shaped by the changing demographics and the increasingly complex and challenging environmental, social, demographic, economic and cultural drivers.

References

Afacan, Y., & Erbug, C. (2009). An interdisciplinary heuristic evaluation method for universal building design. *Applied Ergonomics, 40*, 731-744.

Ancell, S., & Thompson-Fawcett, M. (2008). The social sustainability of medium density housing: A conceptual model and Christchurch case study. *Housing Studies, 23*(3), 423-442.

Andrews, R. W., Cowell, R. J. W., Downe, J. D., Martin, S. J., & Turner, D. (2006). Supporting effective citizenship at local authority level. Background research for good practice guidelines, 'Promoting Effective Citizenship and Community

Empowerment'. London: Department for Communities and Local Government. Retrieved from http://webarchive.nationalarchives.gov.uk/20120919132719/http://www.communities.gov.uk/documents/localgovernment/pdf/151060.pdf

Arnstein, S. R. (1969). A ladder of citizen participation. J*ournal of the American Institute of planners, 35*(4), 216-224.

Basbagill, J., Flager, F., Lepech, M., & Fischer, M. (2013). Application of life-cycle assessment to early stage building design for reduced embodied environmental impacts. *Building and Environment, 60*, 81-92.

Basti, A. (2010). Life cycle design of building elements: selection criteria and case study application. In S. Hernandez, C. A. Brebbia & W. P. Dewilde (Eds.), *Eco-architecture III: Harmonisation Between Architecture and Nature* (309-320). Southampton: WIT Press.

Baum, A., & Davis, G. E. (1980). Reducing the stress of high-density living: An architectural intervention. *Journal of Personality and Social Psychology, 38*(3), 471-481.

Beebeejaun, Y. (2006). The participation trap: The limitations of participation for ethnic and racial groups. *International Planning Studies, 11*(1), 3-18.

Björk, E. (2009). Many become losers when the Universal Design perspective is neglected: Exploring the true cost of ignoring Universal Design principles. *Technology & Disability, 21*, 117-125.

Calveley, J. (2012). Including adults with intellectual disabilities who lack capacity to consent in research. *Nursing Ethics, 19*(4), 558-567.

Cole, R. J. (2011). Regenerative design and development: current theory and practice. *Building Research & Information, 40*(1), 1-6.

Cupers, K. (2011). The expertise of participation: mass housing and urban planning in post-war France. *Planning Perspectives, 26*(1), 29-53.

Cutler, L. J. (2007). Physical environments of assisted living: Research needs and challenges, *The Gerontologist, 47* (suppl 1), 68-82.

D'Souza, N. (2004). Is universal design a critical theory? In S. Keates, J. Clarskon, P. Langdon & P. Robinson (Eds.), *Designing a more inclusive world*. London: Springer Verlag.

Dujardin, M. (2012). A methodological prolegomenon. In L. Madrazo, J. Verbeke, T. Ooms & P. Riddy (Eds.), *Oikodomos: innovating housing learning* (101-113) Brussels: LUCA.

European Commission (2010). *EUROPE 2020. A strategy for smart, sustainable and inclusive growth*. Retrieved from http://ec.europa.eu/europe2020/documents/related-document-type/index_en.htm

European Union (2013). *Energy Performance of Buildings Directive*. Retrieved from http://www.epbd-ca.eu/

Farmer, G. (2013). Re-contextualising design: three ways of practising sustainable architecture. *ARQ: Architectural Research Quarterly, 17*(02), 106-119.

Freedman, J. L., Levy, A. S., Buchanan, R. W., & Price, J. (1972). Crowding and human aggressiveness. *Journal of Experimental Social Psychology, 8*(6), 528-548.

Friedman, A. (2013). *Innovative Houses: concepts for sustainable living*. London: Laurence King Publishing.

Gillis, A. R. (1977). High-rise housing and psychological strain. *Journal of Health and Social Behavior, 18*, 418-431.

Goia, F., Perino, M., Serra, V., & Zanghirella, F. (2010). Towards an active, responsive and solar building envelope. In G. Tranelli (Ed.), *Proceedings of the Renewable Energy Research Conference, 7-8 June 2010* (pp. 73-84). Trondheim, Norway.

Guite, H. F., Clark, C., & Ackrill, G. (2006). The impact of the physical and urban environment on mental well-being. *Journal of the Royal Institute of Public Health, 120*(12), 1117-1126.

Hamdi, N. (2004). *Small Change: About the Art of Practice and the Limits of Planning in Cities*. Earthscan.

Hadjri, K., & Crozier, C. (2009). Post-occupancy evaluation: purpose, benefits and barriers. *Facilities, 27*(1-2), 21-33.

Hashemi, A., & Hadjri, K. (2013). Code For Sustainable Homes: Opportunities or Threats for Offsite Manufacturing and Mass-Customization? In *Proceedings of the ZEMCH International Conference, The Visibility of Zero-Energy Housing, Miami, 30 October-1 November 2013* (pp. 119-129). Miami, USA: University of Miami.

Heritage, Z., & Dooris, M. (2009). Community participation and empowerment in Healthy Cities. *Health Promotion International, 24*(suppl 1), 145-155.

Heylighen, A. (2008). Sustainable and inclusive design: a matter of knowledge? *Local Environment, 13*(6), 531-540.

Keitsch, M. (2012). Sustainable Architecture, Design and Housing. *Sustainable Development, 20*(3), 141-145.

Lane, M. B. (2003). Participation, decentralization, and civil society: indigenous rights and democracy in environmental planning. *Journal of Planning Education and Research, 22*(4), 360-373.

Langton-Lockton, S. (2004). What is inclusive design? *Access by design, 101*, 9-11.

Mace, R. (1997). What is universal design? *The Center for Universal Design at North Carolina State University.* Retrieved from http://scholar.google.co.uk/scholar?cluster=18389289857765247405&hl=en&num=20&as_sdt=0,5

Manzini, E. (2007). Design, social innovation and sustainable ways of living. Creative Communities and Diffused Social Enterprise in the Transition Towards a Sustainable Network Society. In Anna Meroni (Ed.), *Creative Communities. People inventing sustainable ways of living.* Edizioni Polidesign.

Molyneux, P. (2005). A better future for supported housing. *Housing, Care and Support*, 8, 17-20.

Monahan, J., & Powell, J. C. (2010). An embodied carbon and energy analysis of modern methods of construction in housing: A case study using a lifecycle assessment framework. *Energy and Buildings, 43*(1), 179-188.

Morrow, R. (2002). Building and sustaining a learning environment for inclusive design: A framework for teaching inclusive design within built environment courses in the UK. *Final Report of the Special Interest Group in Inclusive Design for Centre for Education in the Built Environment*. United Kingdom: Centre for Education in the Built Environment.

Newell, A. F., Gregor, P., Morgan, M., Pullin, G., & Macaulay, C. (2011). User-sensitive inclusive design. *Universal Access in the Information Society, 10*(3), 235-243.

Orzechowski, M. A., & De Vries, B. (2007). Eliciting user preferences through a guided design personalization process. *Knowledge-Based Systems, 20*(3), 283-290.

Paddison, R., Docherty, I., & Goodlad, R. (2008). Responsible participation and housing: restoring democratic theory to the scene. *Housing Studies, 23*(1), 129-147.

Preiser, W. F. (1995). Post-occupancy evaluation: how to make buildings work better. *Facilities, 13*(11), 19-28.

Pullin, G. (2005). Exquisite design, Inclusive Design. In R. Coleman, &A. Macdonald (Eds.), *Proceedings of the international conference on inclusive design*, London, 5-8 April 2005. London: Royal College of Art.

Pullin, G. (2009). *Design meets disability*. Cambridge, MA: The MIT Press.

Roseland, M. (2000). Sustainable community development: integrating environmental, economic, and social objectives. *Progress in Planning, 54*(2), 73-132.

Rumpfhuber, A., Klein, M., & Kolmayr, G. (2012). Almost All Right: Vienna's Social Housing Provision. *Architectural Design, 82*(4), 88-93.

Raco, M. (2000). Assessing community participation in local economic development: lessons for the new urban policy. *Political Geography, 19*(5), 573-599.

Sarkissian, W., Hurford, D., & Wenman, C. (2010). *Creative community planning: Transformative engagement methods for working at the edge*. Earthscan.

Shapely, P. (2011). Planning, housing and participation in Britain, 1968-1976. *Planning Perspectives, 26*(1), 75-90.

Steinfeld, E., & Maisel, J. (2012). *Universal design: Creating inclusive environments*. John Wiley & Sons.

Steinfeld, E., Schroeder, S., Duncan, J., Faste, R., Chollet, D., Bishop, M., Wirth, P., & Cardell, P. (1979). *Access to the built environment: a review of literature*. Department of Housing and Urban Development, Office of Policy Development and Research.

Suresh, M., Smith, D. J., & Franz, J. M. (2006). Person environment relationships to health and wellbeing: An integrated approach. *IDEA Journal, 2006*, 87-102.

Tett, L. (2005). Partnerships, community groups and social inclusion. *Studies in Continuing Education, 27*(1), 1-15.

Thormark, C. (2002). A low energy building in a life cycle — its embodied energy, energy need for operation and recycling potential. *Building and Environment, 37*(4), 429-435.

Thormark, C. (2006). The effect of material choice on the total energy need and recycling potential of a building. *Building and Environment, 41*(8), 1019-1026.

Tippett, J., Handley, J. F., & Ravetz, J. (2007). Meeting the challenges of sustainable development—A conceptual appraisal of a new methodology for participatory ecological planning. *Progress in Planning, 67*(1), 9-98.

Urhahn, G. (2011). *The Spontaneous City*. BIS Publishers.

Zeisel, J., Silverstein, N. M., Hyde, J., Levkoff, S., Lawton, M. P., & Holmes, W. (2003). Environmental correlates to behavioural outcomes in Alzheimer's special care units *The Gerontologist, 43*(5), 697-711.

Advanced free cooling and free heating systems for nZEB

Sašo Medved, Ciril Arkar, Suzana Domjan, Boris Vidrih

Faculty of Mechanical Engineering / Laboratory for Sustainable Technologies in Buildings, University of Ljubljana, Ljubljana, Slovenia

saso.medved@fs.uni-lj.si, ciril.arkar@fs.uni-lj.si, suzana.domjan@fs.uni-lj.si, boris.vidrih@fs.uni-lj.si

ABSTRACT

The aim of the conference is to address the adaptability and sustainability of build environment on the global level through the citizens' participation, social inclusiveness and stakeholders' involvement. It can be assumed that this global approach can be effectively supported by individual solutions and bottom-up processes. Therefore adaptability and sustainability principles could be used and implemented on each cell or process of build environment to support global initiative. Building can be treated as an elementary cell of build environment.

The paper presents how the adaptability and sustainability principles can be implemented on this elementary cell of build environment. Free cooling and free heating techniques such as advanced building services system is used as a showcase of the implementation of adaptability (to weather conditions) and sustainability (implementation of environmental energy) principles.

KEYWORDS: *adaptability to weather conditions, energy sustainability, free cooling, free heating, operation strategies*

Introduction

The recast Energy Performance of Building Directive (EPBD, 2013), proposed in November 2008 by the EU Commission and adopted by European Parliament in December 2009 will have strong impact on the EU building sector and will have big influence on decreasing CO_2 emissions to fulfil '2K' scenario up to the year 2050. In the recast EPBD it is foreseen that after 2020 nearly zero energy buildings (nZEB) will be built and renovated, as a result of the European climate and energy policies including Kyoto Protocol, European Climate Change Programme, Climate Action Plan and other energy related EU directives. Among the number of available sustainable technologies, free heating and cooling systems that use environmental heat or solar energy, available on the envelope of the building or in its close vicinity, have substantial potential (Figure 1). By definition free cooling or heating systems use renewable energy sources for heating and cooling of the building and auxiliary energy, mostly in form of electricity, for transportation of heat carrier from the environment into the building. The most widespread technologies of free heating are ground heat exchangers and solar heating systems. While night-time ventilation and evaporative cooling are common technologies for the free cooling of the buildings.

Figure 1. Cooling by night-time ventilation (with or without additional heat storage integrated in building construction), ground heat exchangers, evaporative cooling, solar preheating of ventilation air are among the most used techniques for free cooling and free heating of the buildings

Ground heat exchangers use the heat or cold stored in shallow soil layer. The temperature of the soil depends on daily periodic fluctuation of ambient temperature, daily absorbed solar radiation and radiation heat transferred from soil surface due to radiative cooling. Such systems could be an open or closed loop. In open loop system fresh air for building ventilation entered into ground heat exchanger and exit into the building directly or through hear recovery system. In a closed loop, in less common systems water or water with antifreeze agent is used for heat and cold transfer into building or floor/ceiling heating panels. Fresh ventilation air could be preheated by open loop solar heating system in the form of a ventilated façade. SOLARWALL system[1] is among the most commonly used commercial systems for the free heating of ventilation air. If natural night time ventilation could not be implemented efficiently due to low air exchange rates, architectural or safety reasons, mechanical ventilation system with enhanced delivery air flow rate could be used for free cooling with night time ventilation. In hot but dry climates the efficiency of free cooling could be enhanced by the evaporation of cooling fresh ventilation air using humidification device integrated into a mechanical ventilation system. The energy efficiency of free cooling and free heating system varies depending on the local source of natural heat and cold and it can be released rationally into the building by transferred heat or cold depending on the energy demand for the operation of such systems. The ratio is called coefficient of performance or COP. Values between 10 and 100 are typical for well-planned systems, which is much higher comparing to best available ordinary heating and cooling technologies, with a COP in the range between 4 and 8.

Despite the huge theoretical potential of free heating and cooling, two major drawbacks that could significantly decrease overall performance efficiency of those systems originate from the unsteady time availability and the limited power of the natural energy

[1] www.solarwall.com

sources for free heating and cooling of the buildings. Meanwhile the integration of sensible or latent heat storage can significantly influence the synchronization of the time dependant heat or cold supply with current building needs, the adaption of free heating and cooling systems regarding the predicted future energy demand can contribute to a reduction in the deficiencies of low density energy sources. Since recast EPBD focuses on cost-optimal solutions, advance planning and optimal operation of free heating and cooling systems are crucial to ensure sufficient effectiveness of those systems in comparison to conventional technologies.

The paper presents the operation strategies and algorithm for the determination of optimal operation parameters of the free cooling and heating systems, based on the short-term weather forecast in combination with a thermal response model of the building, and demonstrates the necessity of such an approach. Generalized model for the determination of control parameters for optimal operation of free cooling system by night ventilation was developed and shown.

Operation strategies of free cooling and free heating systems

Recently, many studies have focused on the prediction of operation of buildings system in the near future in order to increase energy savings in winter as in summer time. Such modelling is called model predictive weather control (MPWC). Petersen and Svendsen (2011) presented a method for simulating predictive control of building systems based on weather forecasts. They found that with such modelling the annual heating as cooling demand decreased while indoor thermal comfort significantly improved. May-Ostendorp, Henze, Corbin, Rajagopalan and Felsmann (2011) calculated that with MPWC passive active ventilations system the electricity demand for mechanical cooling can be decreased from 70 to 90%. In a similar study Wittchen, Løgberg, Pedersen, Djurtoft and Thiesen (2005) found that the annual cooling demand decreased by up to 36%. Candanedo, Dehkordi and Stylianou (2013) presented a comparison between on-off and MPWC algorithm of an ice storage device in a small commercial building. The MPWC algorithm may provide annual savings of about from 5 to 20% with regard to the modified storage-priority algorithm and from 20 to 30% with regard to the chiller-priority strategy. Dovrtel and Medved (2011) presented the optimization of MPWC of free cooling system combined with heat storage. For different outdoor and indoor environment parameters and for different heat storage construction parameters they found that the system at night can deliver 38.7% more cooling energy compared to a classic system.

To present the advantages of weather forecast based operation of the free cooling and heating systems, operation strategies for MPWC were developed. Free cooling with night-time ventilation and free heating with solar air heating were studied. For analyzed systems the following strategies were assumed:

- Free cooling system by night-time ventilation with cold stored in building construction only (Figure 2) must provide adequate but minimum air exchange rate $n_{bui,min}$ during the free cooling phase to ensure the lowest auxiliary energy for operation (or maximum coefficient of performance COP) and to provide that regarding the weather forecasted expected maximum indoor air temperature $T_{i,max}$ in the following daytime period will be equal to indoor thermal comfort limit temperature stated in the EN 15251; to solve the problems of night-time under-cooling, minimum indoor temperature $T_{i,min}$ must be in the range of thermal comfort limit regarding to the EN 15251; during the day-time period ventilation system provide minimum quantity of fresh air regarding to the EN 13779 to ensure adequate indoor air quality (IAQ).

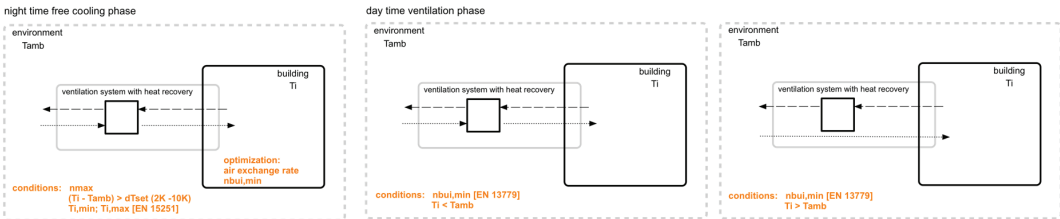


Figure 2. Strategy for free cooling system without additional heat storage operation optimization

• The optimization of the operation of the free cooling system presented in Figure 2 is carried out in four steps. In the first step thermal response of the building in the following 24 hours is calculated assuming a minimum air exchange rate of $n_{bui,min}$ and a maximum switch-on/off temperature difference $DT_{on/off}$ (T_i-T_{amb}). Computer tools (TRNSYS in our case) and weather forecast data available on-line at 5 p.m. each day are used to calculate the building thermal response for the following day. If indoor thermal comfort requirements are not achieved, the air exchange rate $n_{bui,min}$ is increased. If the maximum air exchange rate n_{max} is reached, defined by capacity of ventilation system, and indoor thermal comfort conditions are still not established, the switch temperature difference $DT_{on/off}$ is decreased and the procedure repeated. A more detailed description of the numerical algorithm is presented in the paper published by Medved et al., (2014). To point out the importance of the adaptive controlling of the free cooling of a typical office room, Figure 3 shows the meteorological conditions for the interval between 15th and 23rd August 2013 and the predicted night-time air exchange rates $n_{bui,min}$ for this period. Daily COP_{fc} values defined as the ratio between the daily supplied cold and auxiliary energy (electricity) needed for fan operation are shown as well.

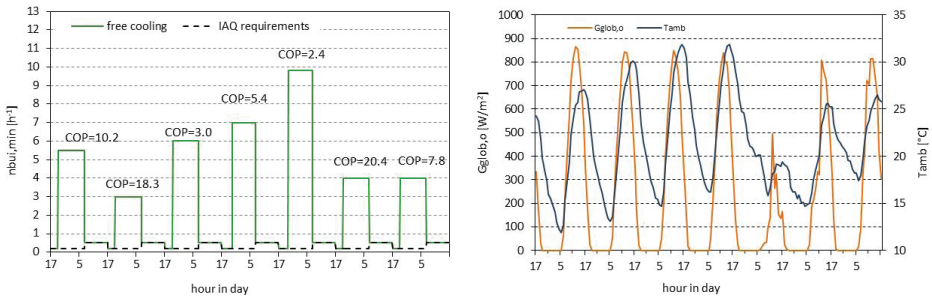


Figure 3. Meteorological data for the hot summer period (15th to 23rd August 2013; City of Ljubljana, left), optimized night-time air exchange rate $n_{bui,min}$ and corresponding daily COP_{fc} values for free cooling system shown in Figure 2 and installed in typical office room (right).

• The free cooling system by night-time ventilation with additional sensible or latent cold storage (Figure 4) must operate in the way that the of the air flow rates through the heat storage nhs and direct into the building n_{bui} are as low as possible to ensure maximum possible COP_{fc} , while indoor temperature $T_{i,max}$ must be kept equal to the thermal comfort limit for the following day; the size of the cold storage must be optimized in advance using representative summer and winter day meteorological conditions and corresponding building thermal response data.

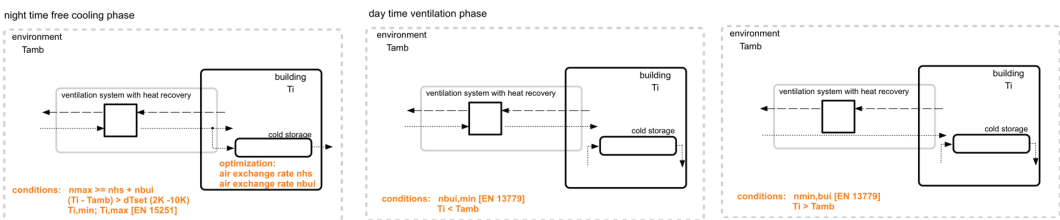


Figure 4. Operation strategy of free cooling system with additional heat storage operation optimization; building constructions with heat exchanger or separate sensible or latent heat storage could be use for cold storage

Figure 5 shows the optimal operation strategy for two different ambient conditions presented by forecasted daily average ambient temperature $T_{avg,amb}$ and amplitude A_{amb}. Maximum air flow rate n_{max} provided by ventilation system was set to 10 h-1 and maximum indoor temperature $T_{i,max}$ to 26°C. It can be seen that ratio between n_{bui} and n_{hs} during the free cooling phase and time interval of discharging cold from storage in day-time ventilation phase strongly depended on the forecasted potential of ambient cold.

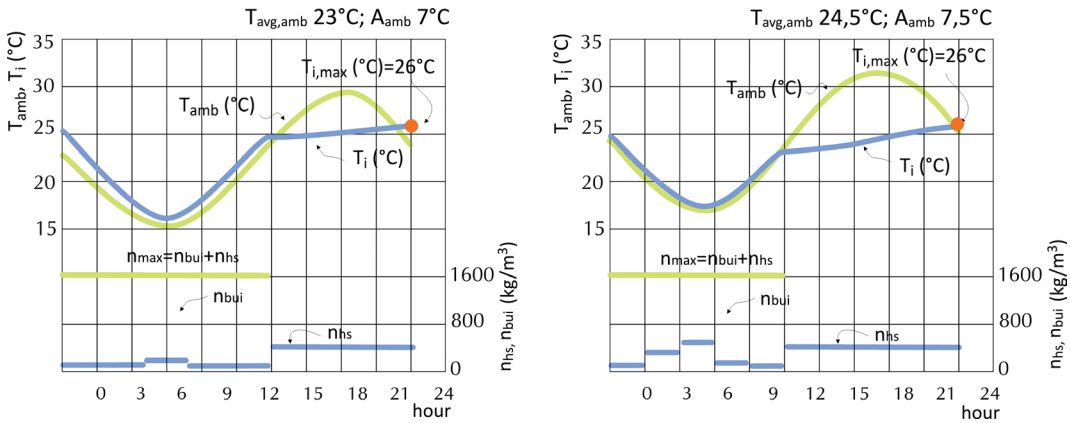


Figure 5. Optimal operation strategy for free cooling system by night-time ventilation regarding to forecasted ambient air temperatures

In the case of free heating system with solar air heating (Figure 6), it is assumed that the system is utilized in a low energy building, meaning that no auxiliary energy for heating is needed during the day-time because of passive solar heating and internal heat gains; during this period, the heat from solar collectors must be stored in adequate heat storage in such a way that outlet air temperature from heat storage $T_{out,hs}$ is not higher than the maximum indoor temperature $T_{i,max}$ in order to avoid day-time overheating; to ensure maximum COP_{fh} of free heating system maximum heat from solar collectors $Q_{sol,hs}$ into the heat storage must be provided with the lowest air flow rate $n_{hs,min}$. Meanwhile the heat transferred from heat storage into the building $Q_{sol,bui}$ should be closed to zero during the day-time operation phase; similarly the maximum or required amount of stored heat must be transferred from the heat storage to the building $Q_{hs,bui}$ with a minimum night-time air flow rate of $n_{hs,min}$.

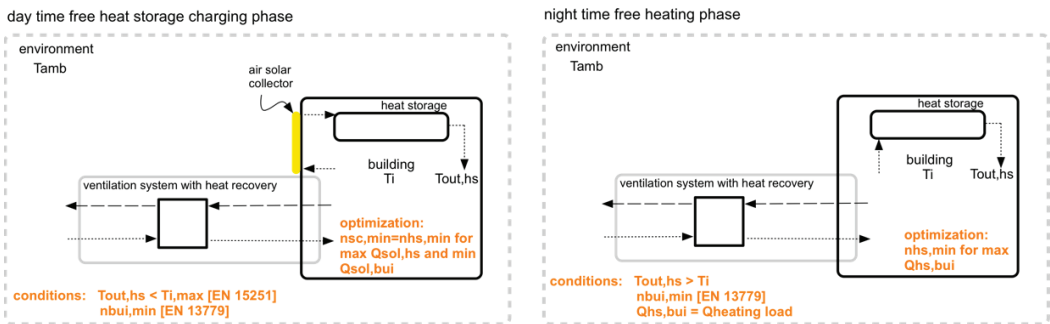


Figure 6. Strategy of free heating system operation optimization; solar air heating system with PCM (Phase Change Material) heat storage is analyzed as free heating system

According to the presented operation strategy of free heating system the heat storage should be designed as daily heat storage. Figure 7 shows a diagram which enables the selection of night-time minimum air flow-rate $n_{hs,min}$ regarding the required $Q_{hs,bui}$ or optimal nhs regarding the limit COP_{fh} in the case of the stored heat being completely discharged. Considered solar air heating systems have highly efficient evacuated tube air solar collectors and latent heat storage with 150 kg of PCM (or 13

MJ of storage capacity) per m² of SC area. PCM melting or peak temperature is 25 °C. Diagram shows normalized values of $Q_{sol,hs}$ for one m² of solar collector area for different daily solar irradiations.

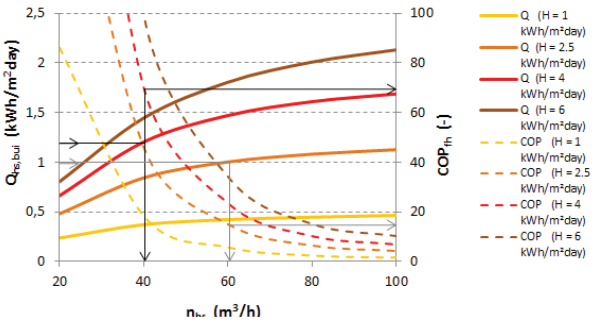


Figure 7. Heat discharged from solar air heating system and system COP_{th} for different solar irradiations and night-time air flow rates

In the morning, before sunrise, solar daily radiation and night-time energy heat demand are calculated using weather forecast data. Using the operation diagram presented in Figure 7, optimal night-time flow rate through heat storage n_{hs} and COP_{fh} can be determined. In the case of specific energy being needed for heating during the night equal to 1.2 kWh/m²day and forecasted daily solar irradiation 4 kWh/m² optimal night-time air flow-rate $n_{hs,min}$ equals 40 m³/h and a free heating system will operate with COP_{th} equal to 70. If in the following day solar irradiation will be 2.5 kWh/m² and night-time heat demand will be 1 kWh/m². The optimal night-time air flow-rate $n_{hs,min}$ equals 60 m³/h and free heating system will operate with COP_{th} equal to 15.

Generalized algorithm for free cooling system operation optimization based on weather forecast and predicted thermal response of the building

Despite the fact that algorithms for optimized operation based on the weather forecast can be integrated into controllers, some general guidelines could be useful for the planers as well. For this reason a generalized algorithm for the determination of the operation parameters should be developed. In the presented case the operation parameters are $n_{bui,min}$, switch on/off temperature difference $DT_{on/off}$, forecasted difference in average ambient air temperature $DT_{avg,amb}$ and ambient air temperature amplitude ΔA_{amb} of the following day. To develop generalized guidelines for free cooling with night-time ventilation a five step approach was needed. This approach is justified in Medved S., et al. (2014) and the steps are presented below:

1. Generalization of meteorological parameters – using the local meteorological data available in form of Test Reference Year (TRY) the range of differences in the average ambient temperature $DT_{avg,amb}$ and range of ambient temperature amplitudes changes ΔA_{amb} can be determined. Figure 8 shows $DT_{avg,amb}$ and ΔA_{amb} for two locations - for moderate climate in Ljubljana and hot climate in Barcelona during the four months summer period (from May to September); it can be seen that similar changes in observed parameters can be expected regardless of the quite different climates.

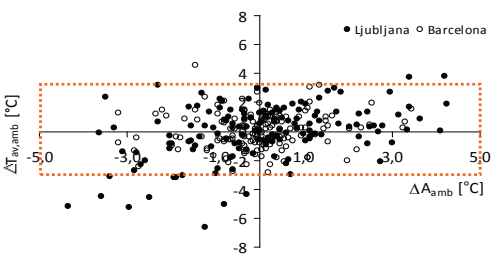


Figure 8. Expected differences in average ambient air temperature $DT_{avg,amb}$ and ambient air temperature amplitude ΔA_{amb} in the following day for two selected cities; doted frame indicated difference in observed meteorological parameters that will most likely appear during the summer period

Because contemporary regulations on energy efficiency in buildings require external shadings, low value of overall solar energy transmittance of glassing g and shading device can be assumed; it was found that in such cases, variation in the forecasted solar radiation is not an influential parameter; because of that clear sky conditions were assumed with constant daily solar irradiation $H_{glob,o}$ 7.8 kWh/m²day and peak value of the solar radiation $G_{glob,o}$ 930 W/m² at solar noon on the horizontal plane according to the EN ISO 13791 disregard to forecasted ambient temperature in the following day.

2. Determination of reference thermal response of the building; since indoor air temperature as well as the temperature of the building construction depend on free cooling air exchange rates and thermal response of the building regarding to the forecasted ambient temperature, numerical steady state conditions were achieved by repeating the calculation for seven consecutive "reference days" using the same values of the meteorological parameters; the reference day could be defined using local TRY database; during this step, air exchange rate $n_{bui,min}$ was determined in the way that $T_{i,max}$ during the last two days of reference period is equal to pre-selected value (eg. 26°C).

3. After reaching steady state building thermal response conditions in reference period, an additional day called "forecasted day" is added in a numerical time domain; forecasted day defers from reference day regarding to the forecasted changes in average daily ambient temperature $DT_{av,amb}$ and ambient air temperature amplitude ΔA_{amb} meanwhile solar irradiation remain unchanged.

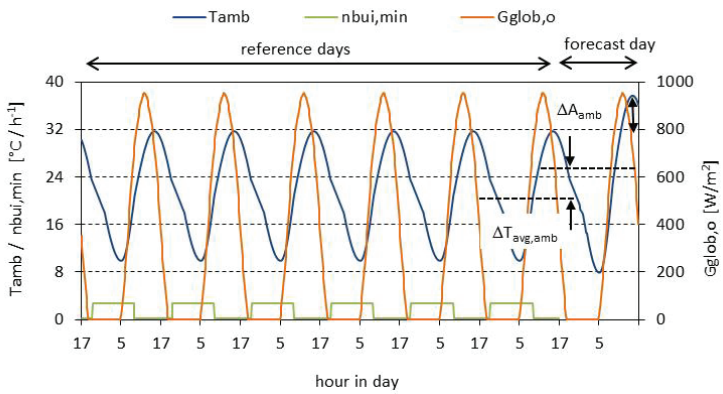


Figure 9. Virtual reference period containing seven days with equal meteorological parameters is used to achieve steady state conditions of the thermal response of the building while keeping $T_{i,max}$ under the pre-selected limit value by adjusting night-time air exchange rate $n_{bui,min}$

4. Determination of night-time air exchange rate $n_{bui,min}$ during the forecasted day needs to maintain an indoor air temperature equal to the selected maximum temperature $T_{i,max}$; this step is done in loop starting with $n_{max} = n_{bui,min}$ and taking into account the pre-selected switch on/off temperature difference $DT_{on/off}$ between the indoor and the ambient air temperature; operating duration is shortened if $T_{i,min}$ is reached in the morning hours in order to avoid thermal discomfort conditions.

5. Determination of performance indicators; a set of operation indicators presented in operation diagrams were developed including required average fan power P in W, the number of free cooling system operation hours t_{fan} in h/day and COP_{fc} (-) of free cooling system as the ratio between daily delivered cold and daily auxiliary energy demand for the operation of the fan of free cooling system; daily energy demand is calculated according to the specific fan power (P_{fan} < 0.28 W/(m³/h)).

Although the operation diagrams are valid for specific buildings, such diagrams can be made for any building in relation to its architectural design, thermal properties and user selected parameters values.

Case study of free cooling by nigh-time ventilation operation diagrams

To present a generalized algorithm for the determination of free cooling by night-time ventilation system optimal operation, a typical office room was selected as a study case. The office has a floor area A_u = 30 m² and it is 3 m high. Envelope contents of one external wall consisting south oriented window (A_w = 8 m², U_w = 1.1 W/m²K, g_w = 0.125) and parapet (A_p = 10 m², U_p = 0.25 W/m²K), all other walls as well as the floor and the ceiling are internal constructions. The office is occupied between 8 a.m. and 5 p.m. by two persons. Specific internal heat gains are 30 W/m². The office is ventilated during the occupied hours with 90 m³/h of fresh air, while during the non-occupied hours air the exchange rate n_{min} is equal to 0.2 h⁻¹. The thermal capacity of the office is equal to 90.A_u (kJ/K). The heat recovery unit has an efficiency of 0.9 and system can operate in by-pass mode if $T_{amb} < T_{i.}$ $DT_{on/off}$ differences 2K, 6K and 10K are assumed. The reference day corresponds to an average extreme summer day for the building site (Ljubljana, SLO) and the ambient air temperature was approximated using Fourier series and parameters with values $T_{avg,amb}$ 21.4°C, A_{amb} 10.3°C. Values of $T_{i,min}$ and $T_{i,max}$ were set to 18°C and 26°C.
Optimized operation parameters and the performance indicators are presented in the performance diagrams in Figures 10 to 12 for the three different values of selected $DT_{on/off}$ = T_i - T_{amb} differences (2K, 6K and 10K) and for the expected range of forecasted $DT_{avg,amb}$ and ΔA_{amb} for the following day. For each of $DT_{on/off}$ values two performance diagrams are presented, the left one showing free cooling system daily operation duration and needed night-time air exchange rate $n_{bui,min,}$ meanwhile the right diagram showing required electrical power of the fan of free cooling ventilation system and daily **COP_{fc}** values.

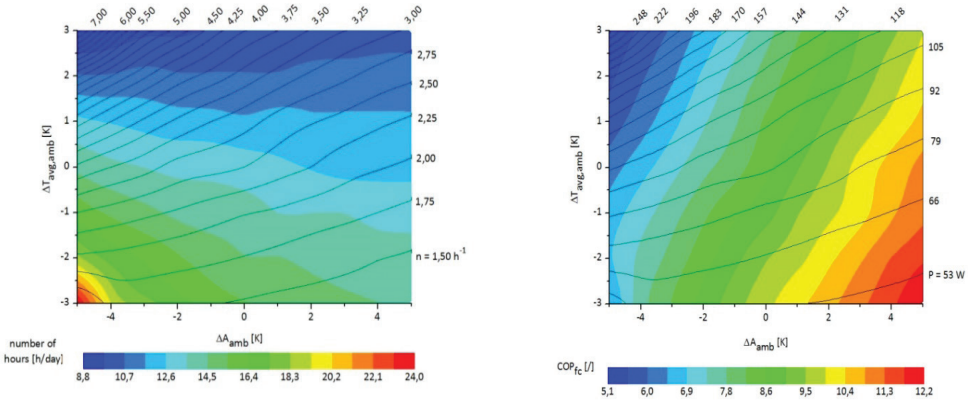


Figure 10. Free cooling system by night-time ventilation operation diagram showing duration and necessary air exchange rate $n_{bui,min}$ (left) and required electrical power of the fan of ventilation system and daily COP_{fc} values (right) for the expected range of $DT_{avg,amb}$ and ΔA_{amb} and pre-set $DT_{on/off}$ equal to 2K

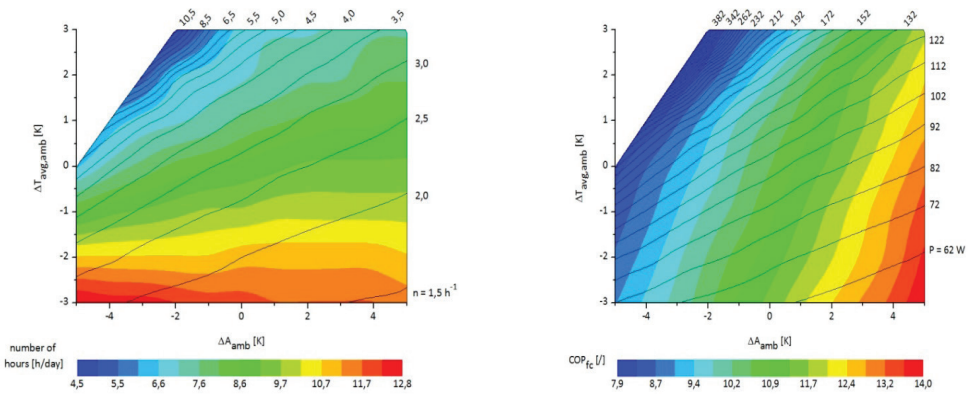


Figure 11. Free cooling system by night-time ventilation operation diagram showing duration and necessary air exchange rate $n_{bui,min}$ (left) and required electrical power of the fan of ventilation system and daily COP_{fc} values (right) for the expected range of $DT_{avg,amb}$ and ΔA_{amb} and pre-set $DT_{on/off}$ equal to 6K; equal to 6K; white area in the diagram []indicates that selected conditions ($T_{i,max}$) cannot be achieved with free cooling by night-time ventilation

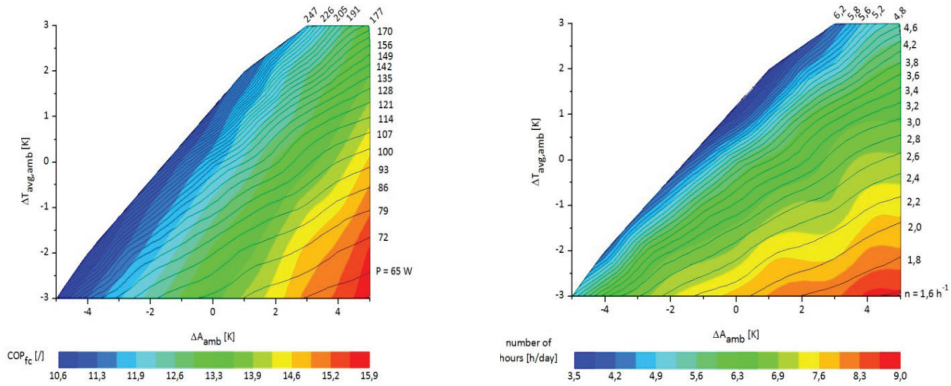


Figure 12. Free cooling system by night-time ventilation operation diagram showing duration and necessary air exchange rate $n_{bui,min}$ (left) and required electrical power of the fan of ventilation system and daily COP_{fc} values (right) for the expected range of $DT_{avg,amb}$ and ΔA_{amb} and pre-set $DT_{on/off}$ equal to 10K; white area in the diagram indicates that selected conditions ($T_{i,max}$) cannot be achieved with free cooling by night-time ventilation

From the performance diagrams it can be seen that air exchange rate $n_{bui,min}$ depends significantly on meteorological conditions. For the case study the office building $n_{bui,min}$ is in range between 1.5 h^{-1} and 7.5 h^{-1} while the COP is between 5 and 12 for the expected range of $DT_{avg,amb}$ and ΔA_{amb} of the forecasted day (at $DT_{on/off}$ 2K conditions).

In the evening, after sunset, $DT_{avg,amb}$ and ΔA_{amb} are calculated using the weather forecast data. Using operation diagrams presented in Figures 10 to 12 optimal operation parameters and performance indicators can be determined. Three days with different weather conditions are analyzed and optimal operation parameters are marked.

	$DT_{on/off}$ = 10 K	**$DT_{on/off}$ = 6 K**	**$DT_{on/off}$ = 2 K**
$DT_{avg,amb}$ = -2 K **ΔA_{amb} = - +4 K**	$n_{bui,min}$ = 1.9 h-1 COP_{fc} = 15.0 P = 72 W t_{fan} = 8,0 h	$n_{bui,min}$ = 1.7 h-1 COP_{fc} = 13.0 P = 63 W t_{fan} = 11,0 h	$n_{bui,min}$ = 1.5 h-1 COP_{fc} = 11.3 P = 57 W t_{fan} = 13,8 h
$DT_{avg,amb}$ = +2 K **ΔA_{amb} = -2 K**	conditions cannot be fulfilled	$n_{bui,min}$ = 5.8 h-1 COP_{fc} = 8.5 P = 217 W t_{fan} = 6,5 h	$n_{bui,min}$ = 3.9 h-1 COP_{fc} = 7.0 P = 146 W t_{fan} = 10.8 h
$DT_{avg,amb}$ = +3 K **ΔA_{amb} = -4 K**	conditions cannot be fulfilled	conditions cannot be fulfilled	$n_{bui,min}$ = 6.2 h-1 COP_{fc} = 5.7 P = 233 W t_{fan} = 9.0 h

Conclusion

The concept and algorithm of the weather-predicted optimization of free cooling and free heating systems operation are presented in the paper. From the results presented it can be seen that such an approach could significantly improve the efficiency of these systems because their operation can be adjusted in advance according to the predicted thermal response of the building. This study has shown that such control

algorithms should be developed and used for controlling of all free cooling and free heating techniques to fulfil cost-optimal criteria required for nZEB.

References

Candanedo, J.A., Dehkordi, V. R., & Stylianou, M. (2013). Model-based predictive control of an ice storage device in a building cooling system, *Applied Energy, 111,* 1032-1045.

Dovrtel, K., & Medved, S. (2011). Weather-predicted control of building free cooling system. *Applied Energy, 88*(9), 3088-3096.

EPBD Energy Performance of Buildings Directive (2013). Retrieved from http://www.epbd-ca.eu/

May-Ostendorp P., Henze G. P., Corbin C.D., Rajagopalan B., & Felsmann C. (2011). Model-predictive control of mixed-mode buildings with rule extraction, *Building and Environment, 46*(2), 428-437.

Petersen, S., & Svendsen, S. (2011). Method for simulating predictive control of building systems operation in the early stages of building design, *Applied Energy, 88*(12), 4597-4606.

Wittchen K. B., Løgberg E., Pedersen S., Djurtoft R., & Thiesen J. (2005). Use of weather forecast to control night cooling. *Proceedings of the 9th International IBPSA Conference, Montreal, August 15-18 2005*, (pp. 1347- 1353).

Challenges of housing policy in Chile

Viviana Fernández Prajoux

Departamento de Urbanismo, Facultad de Arquitectura y Urbanismo, Universidad de Chile, Santiago, Chile

vfernand@uchilefau.cl

ABSTRACT

Although the Chilean housing policy has been implemented and operational for nearly 30 years, providing a significant number of housing solutions through a system of subsidizing demand for low and middle income families, nowadays, the current economic situation of the country, together with changing demands of families in terms of quality of their houses and many other issues that have appeared in the reflection of academics, practitioners and politicians have shown that there is a clear need to introduce significant changes in the way the policy has been taking place.Besides that, we can also mention the diagnosis carried out for the formulation of the New Urban Development Policy which shows several areas in which the policy should focus, and introduces some changes to make it more inclusive, more equitable and participative.

In this paper we wanted to share general aspects of the Housing Policy in Chile, to show how it has moved on to include upgrading and renting programmes, and to discuss what the new issues or the new emphasis that the housing policy should consider in the future: such as, the promotion of more integration of urban and housing issues, the improvement in the quality of houses both in their size and building materials, and an increase in user participation in their solution.

KEYWORDS: *housing policy, urban development, urban integration*

Introduction

The housing policy of the Ministry of Housing and Urban Development, MINVU has always been oriented towards families who, by themselves, are unable to solve their housing problem, families living in squatter settlements or with relatives or renting a room, and poor or inadequate housing from the perspective of the quality of the materials or its location.

In general, we can say that housing programmes have changed very little since they started in the mid 1980s, during the first fifteen years the changes were basically related to operational aspects or requirements. It is only since the year 2000, with the implementation of a new housing policy oriented towards the poorest families, that the policy begin to change, initially with the introduction external institutions to support families in their process and help us to intermediate with the building entrepreneurs, thus allowing more involvement of the families.

Later on, in 2006, the upgrading programme was introduced and in 2013 the Ministry of Housing and Urbanism (Ministerio de Vivienda y Urbanismo, MINVU) introduced a renting programme for the first time.

Throughout this long period, despite the strength of the policy, there were still some significant changes that needed to be introduced to the policy in order to recognize the current economic situation of the country, the changes in Chilean families, and the shift to allow more inclusion of citizen participation in public policy.

General background of Chilean housing policy

Since the mid 1980s, housing policy in Chile has been oriented to subsidizing demand for housing. In general terms the structure of the financial support is based in three main components: beneficiaries' savings, government subsidy (that implies an amount of money to contribute to paying the cost of the house) and loans[1]. The proportion of these three components varies according to the cost of the house and to each housing programme. The lower the price of the housing, the higher the proportion provided by the subsidy – although the subsidy per housing unit could be almost the same amount (Ministerio de Vivienda y Urbanismo, 2004).

One of the most important aspects of Chilean housing policy is its continuity. It has been based on this approach for almost 30 years, and during the last 20 years the average number of subsidies provided has been very high – reaching nearly 100 thousand per year (Figure 1).

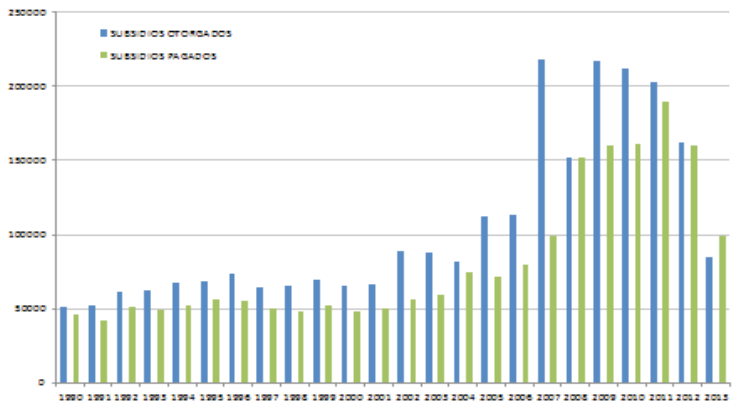


Figure 1. Subsidies provided 1990/2013. Source: own elaboration based on MINVU database[2]

[1] Up to the year 2000, this loans were provided by the government, after that this role was transferred to the private sector.

[2] 'Subsidios otorgados' are those subsidies awarded to the applicants (like a voucher for a certain amount) which do not have to be paid back and 'subsidios pagados' imply that the beneficiary has pay his house including in that payment the amount of the subsidy.

As have said, the system started at mid-80s with three housing programmes: 'Programa de Vivienda Básica' (Basic Housing Programme, 1984), for low income families living in urban areas, 'Subsidio Unificado' (Unified Subsidy, 1984), for middle income families and 'Subsidio Rural' (Rural Subsidy, 1986), for families that were living in rural areas.

Later on, at the beginning of the 90s, with the restoration of democracy the housing problem shows that there was a significant deficit, both quantitatively and qualitatively, with figures of around 900 thousand families without decent home. At the same time, it was a clear sign that the existing offer only covered part of the needs of the poorest of the country.

In that context the MINVU created in 1990 the 'Programa de Vivienda Progresiva', (Progressive Housing Programme), oriented towards the more vulnerable families. After a year of implementation, and for the first time, the ministry took the decision to eliminate the credit in this housing programme due to the socioeconomic conditions of the households. It was considered that under their situation it would be very difficult for them to pay a credit, even if it were a small amount, if they were at the same time trying to extend their houses.

This programme also introduced another issue that was the collective application, which was when a group of families organized themselves in order to apply for houses by claiming valid the existence of the housing committees that had a history together and wanted to stay together.

Since then several housing programmes have been implemented but the principle of all of them is more or less the same. In most programmes, people apply through the regional office of the Ministry of Housing and Urbanism (MINVU) or through the local government. Each programme has its own regulations that are mainly related to whom can apply, what they will need to submit to be eligible for obtaining the subsidy, and what they will obtain or what options they can find in the housing market. In the first decade or so, in some programmes the applicants needed to register in advance and save while they were waiting to get their subsidies; in other programmes they did not need to register and they simply applied by a determined date. Today none of the applicants need to be registered, but all of them need to save before and during the application process.

Applicants have two main windows to apply for a subsidy: through one of the 15 regional housing offices or through the local government housing office of the municipality (which is often more convenient for low-income households as it is close to where they currently live). Although this flexibility is very important, it implies that the central, regional and local government offices need to have the same information base on programmes requirements and their financial support, so they can inform and advise each household in relation to their own eligibility for different schemes and in regard to the contributions that they must make (for each applicant to obtain the solution that best serves their needs and situation, they need advice on the different housing programmes and their implications for self-help, from total cost and the contributions needed for neighbourhood consolidation and management - and often they do not receive this clearly).

The strength of the housing policy is the continuous support provided by the central government. Each year, the central government's MINVU defines the amount needed (based on analyses from its regional offices) and applies to the Ministry of Finance for the funding for the different housing programmes. After a political and technical negotiation,[3] MINVU knows the funding it is able to spend in the following year. This money is distributed regionally among the fifteen regions based on the amount that each region has requested. This means that each region asks for a certain amount according to the demand they have for their different programmes. Around March/April, each regional housing office will start the process of selecting the applicants of each programme according to the programme's regulations and selecting the construction firms for those houses that are their responsibility. Nowadays the regional office of MINVU does not hire any agents for the construction process, they only provided the subsidies.

[3]. The Ministry of Finance has been undertaking assessments of the effectiveness of various aspects of social policy including different housing programmes.

Main characteristics of the housing programmes:

a) There are basically two types of programmes or two ways in which housing programmes operate:

• 'Modalidad SERVIU' (SERVIU way): this means that the regional government will contract the construction of a housing scheme to a private contractor (usually through a process of tendering) and then sell the units to the applicants that have subsidy certificates and have been selected.

• 'Modalidad Privada' (Privately): which means that each applicant will need to manage the construction of the housing themselves or purchase an existing unit in the market. Each person receives the subsidy certificate for a specified amount of money. For those who are building new units, they will need to hire a building enterprise because it is difficult for MINVU to support self-builds for those who would like to do self-build their houses.

b) As we have already mentioned, applications to a housing programme can be done individually or in groups, the different conditions for individual or groups application are stated in each housing programme's regulations.

c) The subsidy certificate is valid for 21 months. This means that it is absolutely necessary that applicants are informed of all the housing procedures in their housing programme before starting the housing processes. When some of the housing programmes in Chile had just started (early 1990s), some families lost their subsidies, or needed to apply for an extension of the certificate to finally get their houses. Most of them did not have a clear idea of the process i.e. of what they would need to do and of the obstacles or difficulties they could face.

d) Nowadays, the government has a technical assistance programme that helps the beneficiary families to continue with the housing process after they have obtained their housing subsidy. As part of this assistance, they get support to buy the site, hire the building entrepreneur and supervise the building process, this technical assistance programme operates as a complementary subsidy that all families get in order to make sure they finally get a house and to guarantee its quality.

e) The process of selection of the applicants is a very important part of the housing process. One of the reasons for the success of the Chilean model is that almost everyone believes that the process is transparent. This process is computerized and in general terms people know which are the criteria upon which they will be selected (level of poverty as indicated by a socio-economic survey of each family, number of people in the family, the amount of initial saving, if they own the plot or the site for the group, among others.

f) Some of the housing programmes requirements are the following[4]:

• Each family can make one application, this could be done by the head of household or his/her partner (husband or wife) or 'conviviente' (co-habitant); they don't need to be married to be considered a family.

• People living on their own can only apply if they are older than 60 years or if they are disabled (and registered with the National Disabled Register) or indigenous people (registered with the National Register of indigenous people). However single-person households cannot be more than 30% of the families in the whole group, if they are applying collectively.

• Groups need to be organised in at least 10 families. The organization of the group is managed by an external institution that could be the municipality, an NGO,

4. Some of them have changed over the years or others are not exactly the same in each housing programme.

the regional housing office, a housing cooperative, a housing foundation, among others; this institution must be registered at MINVU. The institution will prepare the Housing Project as it is requested.

• Each project needs the approval of the municipality (in terms of urban planning regulations) and the feasibility of urban infrastructure/services (water, sewerage, electricity, etc). If the group is buying the land they will need to show the ownership as a group or that the site is owned by the institution in charge.

• The new housing schemes need to provide certain community facilities like a square with a playground, a sports field and a multipurpose unit.[5]

g) Some of the selection criteria for the housing project are the following:

• Vulnerability of the group (number of families with single parents, number of elderly people, disabled, etc.).

• Action Plan with the families: this means that they should have agreed on the design, the needs, and their expectation, how they are going to work later, etc. This Plan should include a diagnosis done by the families with the external institution (EGIS)[6].

• SSocio-economic survey, average of families ('Ficha de protección social').

• Less subsidy (the less the amount required, the more points awarded, although this is very rare - being among the poorest, how can they apply for less).

• Extra money coming from an external institution (for example a foundation, a charity, a trust).

In some cases each programme gives certain facilities or flexibility to the regions to decide which of these criteria are more important and will be awarded certain amount of points. Finally each family will be given a complementary subsidy for their technical assistance.

The result of this selection is published in a local and/or a national newspaper so people can be informed. Also, in some cases, MINVU or the regional office will inform through different channels (television, newspaper, others) that the process of selection is going to take place. After the results have been published, the applicants can appeal if they think that something could have gone wrong. This is a very important part of the process because it gives it credibility, people may think that it could take longer to get housing but they feel that at the end they will get it.

As part of this transparency of housing programmes, it is also important to mention that the government has to make clear the finance structure of the housing programme. In Chile all housing programmes consider that families have to have a certain amount of saving (they only need to complete the whole amount when they have been informed that they have become beneficiaries). Even the poorest families need to save. This is not so much an issue of having to accumulate significant savings but the idea that it makes people feel that they have made an effort – and that not all the finance for the housing is given by the government. At the same time is important to state that from the very beginning the programmes included a credit system or support for a loan system (private mortgage). This meant that is was very important to make the terms and conditions of the loan clear. In some cases in Chile, because there is no need to declare an income to apply to a housing programme, families were selected, they got the house but they never paid the monthly amount needed to repay the loan (mainly because of their level of poverty and the limited flexibility of the credit system).

---

5. Nowadays the housing scheme should not have more than 300 houses and, according to that, the square should be around 800 square metres, the sports field, 600 square metres and the social unit, 120 square metres.

6. EGIS, Entidad de Gestión Inmobiliaria Social (Social Management Institution), external entity hired by the Regional office of MINVU with the purpose of supporting the families in the process of getting their houses, by buying them in the market or through a building entrepreneur.

If the government considers that a certain housing programme is oriented to the poorest families, it may decide that is better that the programme does not include a loan component. Again, it is important to establish the conditions clearly from the beginning.

All housing programmes provide the land, the house and the urban services, but all this can be done in many different ways:

• If the regional housing government hires the building construction firm, the land could belong to the office of housing of the regional government, to the local government or to the building entrepreneur, however, this is no longer happening today because the regional offices is not constructing houses.

• If the applicants get a subsidy, they could buy a new house or they could simply buy a house within the existing secondary housing market.

Another issue to consider is that any new house supported by these programmes (usually part of a group of houses) is part of a larger settlement where there are needs for open space, green areas, sport facilities, education facilities, nurseries, etc. according to the number of houses or where the houses are located. It is very important to consider who and how this is going to be managed as it is a big issue providing these facilities within low-income housing schemes.

In year 2000, MINVU decided to make a shift in the Housing Policy. The main purpose of the new policy was to focus housing programmes on the poorest, to promote greater involvement of the families in the process of getting their new houses, to increase diversity in the housing solutions provided, and, in general, try to improve the quality of the houses and develop the surrounding neighbourhoods. In that context, in 2001 was created the housing programme "Fondo Solidario de Vivienda" (Solidarity Fund Housing Programme). One example of the flexibility of the programmes can be found in the "Solidarity Fund for housing programme" (Fernández, Saborido, & Villena, 2006).

• The amount of subsidy is not the same in all cases. In this case it varies according to the region. This means that the programme could state its own conditions according to the existing situation.

• It has been established that this programme has no loan component. It is based only on the family savings and the subsidy, as this seeks to reach the poorest households. This means that each family will complete or extend their own house according to their possibilities.

• The housing programme defines the proportion of the subsidy that can go towards buying the land – largely because a certain level of quality for the house is considered necessary (in terms of size, building materials, etc.). In general up to a third of the subsidy can go on the land.

• The programme has established that all applicants must be registered in the Regional Housing Office.

• At the beginning the Solidary Fund Housing Programme required a Habitation Plan, that had the purpose of organizing the families, identifying and characterizing them, giving them information of the housing process, of the neighbourhood in which they would live, giving them support and information to take care of their homes in the future, both in terms of community organization and maintenance of their houses and collective space. This plan, as was stated before, was very important in terms of organizing the families and brings together their needs, expectations and differences according to the type and size of the families. In other words, it was an attempt at community participation.

To summarize we can state that Chilean Housing Policy has always been oriented to reducing housing deficit, to promoting homeownership and has targeted -with different emphasis, according to the different government orientations- to the poorest and the middle class.

Upgrading Housing Programme

In the year 2006, considering that the housing deficit was not excessive, and that there was financial stability in the country, MINVU decided that it was the moment to create an upgrading or improvement housing programme, 'Programa de Mejoramiento del Patrimonio Familiar' (2006). This programme recognized that although having access to a better house improved the living conditions of the family, it did not necessarily reduce poverty, so for low income families is not easy to maintain or extent their houses according to their changing needs in life. This programme aims to support the families and prevent the normal process of deterioration of the houses over time.

This programme can be used for three main purposes: to extend the house, to improve the house or to improve the external area of the house.

Renting Housing Programme

Finally, last year the government decided to implement a new programme, "Programa de Arrendamiento" (Renting Programme). This programme will, for the first time, financially contribute to solve the housing problems of some families by paying part of the rent that low-income families must pay to a landlord. According to MINVU[7], the creation and implementation of this programme was based, among other factors, on the consideration of being a country that integrated Organisation for Economic Co-operation and Development (OECD).

It can be stated that this renting programme comes to help people that have not yet decided where to live or who have not been able to get the necessary saving required applying to the programme, but who need a better place to live, most of them are sharing a house with relatives or renting a room.

Although a Leasing Housing Programme for middle income families has existed for many years, this new renting programme does not have the same principle, although it could have. It is defined as a way of supporting families with social and housing problems for a certain period of time (4 years). However, in this case the effort of the families and the government is not intended to follow the main principle of the housing policy of subsidizing demand so that beneficiaries can become home owners, which is considered the maximum aspiration of all families.

So in general we can consider that both programmes, the one for upgrading and the one for renting, are different ways of solving housing problems, but not necessary integrated or related to one another. (Fernández, Larenas, & Silva, 2014).

New urban development policy

After a long period without a proper Urban Policy, since 2009 the MINVU has been working to define a new one. After some discussions in 2014 the new Urban Development Policy was approved, (aimed at promoting) Sustainable cities and quality of life. As it is shown in Figure 2, this policy structures itself into four main thematic lines: social integration, economic development, environmental stability and identity and heritage, and a fifth - institutionalization and governance - that crosses all the others.

This policy was defined during 2012/2013 through the work of an advisory committee, specially created for this purpose, which integrated people from different contexts (politicians from different orientations, academics, social organizations and former ministers, among others).

7. See http://www.minvu.cl

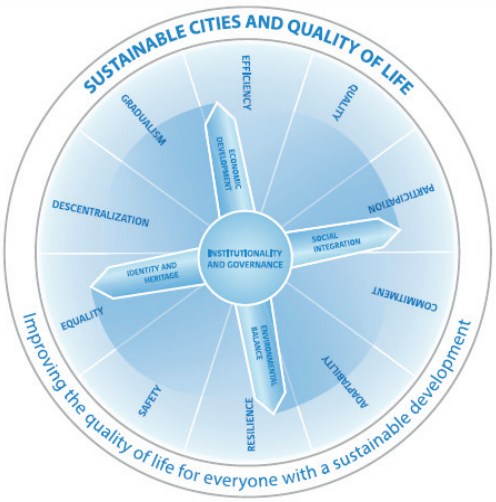


Figure 2. Structure and principles of Urban Development Policy

This new policy is based on the twelve main principles, detailed below:

• **Gradualism:** it should be implemented gradually, approaching the territory progressively.

• **Decentralization:** Decisions relating to interventions in the urban space and its territory should be made at a level close to the people, attributing more competences to the regions and boroughs (municipal territories.

• **Equity:** Equitable access to urban public goods should be ensured.

• **Social integration:** Cities should be inclusive places, providing basic quality of life conditions for all inhabitants.

• **Participation:** Decisions affecting cities, regardless of the decision's scale – be it at a local, regional or national level – should be taken in cooperation with citizens based on formal and organized participative processes.

• **Identity:** Cities must provide a sense of belonging and reflect the values, history and culture of their residents.

• **Commitment:** The feeling of belonging should be fostered among citizens, together with the sense of civic responsibility for the development and care of their cities and natural surroundings.

• **Quality:** Excellence and beauty in the urban design of buildings and public spaces must be encouraged.

• **Efficiency:** Cities, their infrastructure, services and operational systems, should be planned and administered in order to maximize their positive attributes and internalize their negative effects.

• **Adaptability:** The capacity of cities to respond appropriately and promptly to demographic, economic, environmental, social, cultural and technological changes must be fostered.

• **Resilience:** Cities and population centres should be able to overcome adversity, natural disasters and economic crises.

• **Safety:** Cities should provide adequate conditions for individual security – ones that promote social stability and permit each person to realize their individual civil rights and liberties.

We can argue that nearly all the principles are related to housing, but we would like to highlight those which we consider as the important ones in terms of the challenges for housing policy today, namely, social integration, equity, and participation.

The diagnosis made for building the proposal of the urban policy identifies several aspects that need to be considered significant changes that have taken place in the Chilean context during the last 20 years (Ministerio de Vivienda y Urbanismo, 2014).

In terms of its economic growth, Chile has increased his GDP per capita from US$ 3.000 in 1982 to US$ 19.000. This has helped to reduce the housing deficit[8] and almost give universal coverage to basic urban services, but this hasn´t had a positive impact on housing location or in helping reduce poverty. In fact it has contributed to concentrated poverty, insecurity, overcrowding, and poor connectivity and access to urban goods and services. The unequal distribution of income, mainly in metropolitan areas and big cities, constitutes one of the main challenges[9].

Different studies have stated that housing policies developed during decades with the purpose of reducing housing deficit have promoted quantity by only considering lower cost of land, instead of better location.

In terms of social aspects or family structure, we would like to mention that aging is an important fact. In 1982, for every 10 children younger than 15 years old, there were 2.6 adults older than 60 years old, by the year 2012, this relation had increased and for the same 10 children now there are 6.3 elderly people. Also, the number of inhabitants per home has changed from 4.5 persons in 1982 to 2.9 in 2012 this obviously has an impact on housing needs, even if not all new homes express a demand for housing. Another issue is the change in housing typologies; in 2002 we could find 10 houses for each two apartments in the last decade this has increased to 6 apartments for each 10 houses (Ministerio de Vivienda y Urbanismo, 2014).

Finally, it is worth mentioning that institutionalism for urban and housing issues. Basically, decision-making is considered centralized, fragmented, reactive and with less mechanism of citizen participation. There are several laws that affect urban areas and housing policy and programmes and most of them are not work integrated or aimed in the same direction. It is very important to try to integrate them, but mainly to define the faculties they have around “urban issues” that could help solve housing problems and inequalities.

Conclusion

Despite the success of Chilean housing Policy in terms of its continuity, the amount of subsidies provided, that could imply solving the housing problems of many families, there are still many other issues that need some changes in order to create a new policy with more equity, integration, quality and participation.

One of the biggest problems that many studies mention (Simian, 2010) is the segregation of beneficiaries from housing programmes in the last decades. Most of them had been located in the periphery, mainly due to land issues (high cost and lack of a land policy). Today the issue of defining a Land Policy is one of the main issues being looked at by one of the groups that integrated the National Council of Urban Development[10].

This high level of segregation not only implies living far away from their place of work, but concentration of poverty that started to face severe social problems basically because they are located in poor municipalities that are unable to provide neither the quantity nor the quality of services needed. Another issue related to the location of social housing in the periphery is urban public transport; main regional cities are becoming more and more congested and the time people need to move between home and work is increasing every day.

---

8. Housing deficit was around 942 thousand units in 1990 and today is nearly 500 thousand (Ministerio de Vivienda y Urbanismo, 2014).

9. With a Gini coefficient of 0.494, Chile is the country with the worst distribution and inequality of the countries that integrated the Organization for Economic Co-operation and Development, OCDE.

10. In order to implement the UNDP the government of Bachelet has formed a National Council. This Council has spread itself in three working groups: Integrated Urban Planning, Institutionalization for Urban Development and Land Policy.

Besides all this is the problem of the quality of the houses. There are several examples of housing developments that, after a few years of families living in them, have started to experience different problems, basically related to problems of construction and poor quality of building materials.

Most families are willing to move to other areas but find that almost impossible because of the cost of houses in better locations, if they have already obtained a housing subsidy they are unable to get another one so they have no chance to move.

The way in which the housing programmes are operating today allows very little participation of the families in terms of location and in the design of the housing scheme. Today the external institutions in charge of the technical assistance do very little, not necessary because they lack expertise or they are trying to avoid certain tasks, but more because they have no clear indications or regulations.

In summary we could say that there are three main problems or considerations a new housing policy needs to face:

a) Integration and equity. This is directly related to a land policy that could guarantee that housing for low income people will have access to good quality urban services. There could be different options or ways in which this can be done; one of them could be supporting the municipalities.

b) Improving urban and housing legislation. It is important to consider the changes in the structure of the families, the migrants, the implantation of more diverse housing solutions that will recognize diversity, improve indicators of urban services per housing. In general, make a shift in terms that housing programmes are not only houses, but housing schemes located in specific neighbourhoods.

c) Community participation. More and more today people, both individually and organized, are demanding participation in the decision making of public policies and their implementation. They want recognition, to be included, to be part of the process, they want to learn and compromise with their future homes.

References

Fernández, V., Saborido, M., & Villena, M. (2006). *Evaluación del Programa Fondo Solidario de Vivienda*. DIPRES, Ministerio de Hacienda, Chile. Retrieved from http://www.dipres.gob.cl/595/articles-18373_doc_pdf.pdf

Fernández, V., Larenas, J., & Silva, M. (2014). *Evaluación del Sistema Integrado de Subsidio Habitacional*. DIPRES, Ministerio de Hacienda, Chile. Retrieved from http://www.dipres.gob.cl/595/articles-122183_doc_pdf.pdf

Ministerio de Vivienda y Urbanismo (2014). *National Urban Development Policy*. Retrieved from http://politicaurbana.minvu.cl/wp-content/uploads/2012/11/L4-Politica-Urbana-ingles_baja.pdf

Ministerio de Vivienda y Urbanismo (2004). *Un Siglo de Políticas de Vivienda y Barrio*. Retrieved from http://www.minvu.cl/opensite_20070411164518.aspx

Simian, J. M. (2010). Logros y desafíos de la política habitacional en Chile. *Revista de Estudios Públicos*, N° 117, páginas 269-322. Retrieved from http://www.cepchile.cl/dms/archivo_4601_2750/rev117_simian.pdf

Social sustainability and rehabilitation policy

Gábor Csanádi

Centre for Regional and Urban Research, Faculty of Social Sciences, ELTE University, Budapest, Hungary

gcsanadi@tatk.elte.hu

Adrienne Csizmady

IS, CSS, Hungarian Academy of Sciences, and CRUR, FSS, ELTE University, Budapest, Hungary

csizmady.adrienne@tk.mta.hu

Gergely Olt

Institute of Sociology, Centre for Social Sciences, Hungarian Academy of Sciences, Budapest, Hungary

gergely.olt@tk.mta.hu

ABSTRACT:

Our case study shows the short-term and the expected long-term effects of spontaneous changes and planned interventions on the everyday life of residents and users and on the physical environment of a neighbourhood. Our case study focuses on a cultural urban rehabilitation project in the Inner-Erzsébetváros (or the Jewish Quarter) of Budapest, which serves a good example of spontaneous changes magnified by planned interventions – in spite of the goals of the local authority. It is also an example for the effects of top-down plans – lacking any coordination with local residents and entrepreneurs. Furthermore, it is an example of the fact that without any form of participation the residents can became vulnerable. The analysis will show that a planned cultural rehabilitation without proper integration of the different interests can further intensify the already dominant positions of night time economy (NTE) function with all the well-known side-effects.

KEYWORDS: *housing studies, housing and regeneration policy, segregation, participation*

Introduction

Inner city areas that went through disinvestment in the past are often witnessing reinvestments labelled as gentrification (Atkinson & Bridge, 2005). In the process of inner city revitalisation investors, policy makers and the 'creative industry' play major role (Scott, 2006; Pratt, 2009). The 'cultural' transformations in the inner city can occur in different ways. Besides the intentions of urban planning offices (like flagship developments) (Martinez-Monje & Vicario, 2005), there are spontaneous processes changing the environment temporarily or for a longer period of time (Zukin, 1987). There are a number of examples for this phenomenon in the western world and more and more instances are appearing in Eastern Europe, since the disinvestment in historic inner cities and the remains of abandoned industrial areas in central locations raises similar problems in most post-industrial cities. The new investments change not only the physical environment but also the social status of inner cities causing social conflicts (Lees, 2008). Development often goes against the interests of local residents (Eldridge, 2010). So rehabilitation efforts should embrace the viewpoint of social sustainability (Manzi, Lucas, Jones, & Allen, 2010) for the benefit of the existing residents.

From this aspect Budapest is an interesting example of the post socialist cities. After the collapse of communism, higher-status residents of the city centre moved to the suburbs of Budapest (Csanádi & Csizmady, 2002). No significant efforts were made regarding urban renewal in order to prevent suburbanization, nor were any plans made to counterbalance the rapid decrease of the population. By the early years of the new millennium it had become clear to city and district councillors that the only way to keep higher status residents within the inner city was to provide them with dwellings which matched their social status. Several proposed solutions can be found: large scale reconstruction in the ninth district, reconstruction in scattered spots (as in the seventh district), gated community developments on the outskirts of the city, and the purchase and renovation of old nineteenth century housing stock by young, middle class residents on a flat by flat basis (Figures 1-2). This offers the potential to improve the physical environment of the area and change the social composition of the population. The demolitions and new projects typically did not affect the most run-down and lowest social-status areas of the four districts of central Pest (Csanádi, Csizmady, & Olt, 2010; Csanádi, Csizmady, & Olt, 2011).

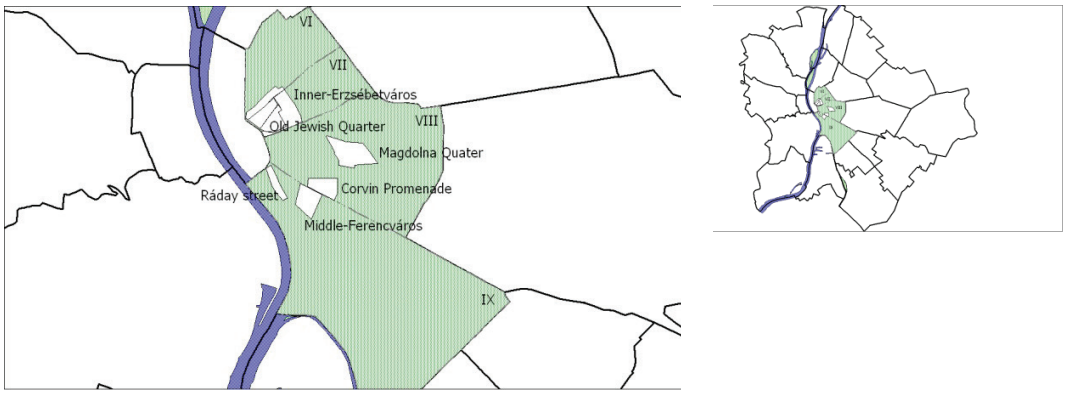


Figure 1-2. Map of Budapest and the map of neighbourhoods in Inner-city area (Source: prepared by the authors)

Our paper[1] attempts to demonstrate these transformations from the point of view of the residents affected by a so-called 'cultural investment', through the example of District VII of Budapest (Inner-Erzsébetváros neighbourhood). We present the effect of urban rehabilitation from the residents' point of view. We show

[1] The research was funded by the OTKA grant Nr. 84051 *New Trends in Suburban Development*. The interviews used in this paper were recorded between 2008 and 2014. Students of the ELTE Faculty of Social Sciences also participated in collecting the interviews.

that the top-down planning process fails to involve the residents, and harms their well-being.

The process is examined on the basis of the reports of the residents affected, but first the local context must be presented. Therefore, we review the rehabilitation practice of the local authority, turning then to the analysis of the 'Street of the culture' investment from the residents' point of view focusing on participation.

The rehabilitation practice of the local authority

The local authority of District VII was consciously looking for tools to render the neighbourhood more attractive for certain social groups and accelerate the gentrification processes. This interest is understandable since the population of the capital – especially of the inner city of Budapest and Inner-Erzsébetváros – was decreasing substantially[2] until the late 2000s (Dövényi & Kovács, 1999; Kovács, 1999; Csanádi & Csizmady, 2002; Szirmai, 2011). On the other hand, the policy can cause conflicts, since this type of intervention may result in the disappearance of the local milieu, as well as the affordable housing and retail places that are attractive for cultural producers and new (usually younger) residents; as such, the policy will not prove sustainable (Csanádi, Csizmady, & Olt, 2010). These changes are accomplished by two methods: urban 'rehabilitation by bulldozers' (aka. slum clearance) and changing the function or intensifying one of the functions of the area, usually supplemented by the rehabilitation of public spaces. The first method was facilitated by the increasing interest on the part of the investors of the area, the second by the urban rehabilitation funds of the European Union. Before the economic crisis the local authorities could cooperate with the growing number of investors and started to demolish the quarter and encourage new building constructions – in a physical form that did not fit into the environment. Besides the apartment buildings, new office buildings were constructed as well, but the 'city' function of the area was never developed. The slow increase in real estate prices and – following the demolition of public housing and the displacement of low status tenants – the spontaneous change of the population began, the gentrification process was induced. The resistance of the civil activists protecting the built environment (eventually reinforced by the heritage protection office), and later the crisis slowed down the process. Investments were cancelled and the fast and noticeable social transformations ground to a halt. Instead of the investors, since 2009, unrelated spontaneous and planned processes started to form the cityscape and, as a result, Inner-Erzsébetváros became the most frequented cultural and entertainment neighbourhood, with a substantial growth in the NTE year by year. The spontaneous changes were made possible by the great number of empty buildings that were rented first from the local authorities (after the displacement of the social tenants) and then later (after the privatisation of these empty local authority owned buildings) from private investors. The empty ruins of those buildings became first temporary and later stable hospitality venues and cultural places, establishing the so called 'ruin bar scene' in Budapest (Lugosi, Bell, & Lugosi, 2010; Csanádi, Csizmady, & Olt, 2012). The ruin bars were followed by a swarm of customary small and cheaper pubs, more expensive wine bars, 'economy ruin bars' targeting young and less affluent people (without any cultural activity), huge and more expensive 'ruin night clubs', as well as smaller clubs. In parallel with these developments, projects supported by the urban rehabilitation funds of the European Union were launched. One of these projects was named 'Street of the culture', which was meant to give a thematic profile for sections of certain streets, treating culture as a form of entertainment. But the project failed to facilitate coopera-

[2] In addition, the mostly higher status residents left the city and chose the suburban lifestyle of districts in the outskirts of the city.

tion between cultural activities and was unable to support the cultural and creative use of empty retail spaces and buildings like in the example of Berlin (Louekari, 2006). A further problem is that there was no other form of support for the culture in the strategic documents of the local authority (EÖK IVS, 2008). One reason for that may be that the local authority was mostly against such spontaneous projects since they first emerged, therefore, to invite them to support the local authority project was out of the question. Thus, it is no surprise that the plans show an image of a top-down initiated, sterile cultural area, as a main street[3] of the old Jewish Quarter of Pest – that hardly respects local specificities and in no way cooperates with the local stakeholders. The concrete parts of the project were the following: the aesthetical renovation of public spaces in a section of the Kazinczy street (between Dob and Wesselényi Street), the renovation of the orthodox Jewish synagogue in the Kazinczy Street, the building of the ELTE PPK, and the Electrotechnical Museum (implementing new functions in the latter), and the renovation of two residential buildings (Funkcióbővítő, 2008). However, none of the urban rehabilitation documents[4] could show clearly how the projects were connected with cultural production and in what way physical renovation and real estate development were connected with culture. The only part of the project that may be directly connected with cultural production is the renovation of the Electrotechnical Museum and its planned new functions. The contradiction is that before the development, there was a cultural site named AKKU on the same plot in an old industrial building[5]. Ironically enough in 2014 a 1000 people capacity new club will open in the building of the museum, besides the pubs already operating in two other buildings renovated in the project. Due to the above considerations we can label the planned development a 'place marketing' type intervention – involving primordially aesthetic and physical changes (Mommaas, 2004), but we could not discern even a minimal effort for cooperation with stakeholders that is customary in other examples of similar projects.

While the cultural plans were less elaborate, the displacement of the poorer, vulnerable residents was firmly articulated in these documents. Because of the planned 'information point' and the 'environmental education centre' ten public housing units were terminated in two adjacent buildings owned by the local authority so the number of cheap rental units decreased even further in the district[6]. One of the residential buildings to be refurbished (with the residents staying inside during the construction work), was a romantic residential corner house from the 1860s. The building was in a bad condition and in the 1970s the council warned new tenants that they probably could stay there only for a short term, because of the planned demolition of the building. Some of them live there ever since. The political and economic transition did not influence this uncertainty, 100% of the dwellings stayed in the hands of the local authority. The stress of uncertain housing conditions was fuelled by the accounts related to other buildings owned fully by the local authority that were demolished and the residents were relocated, or were paid in cash to leave the dwelling. So the residents were afraid they would have to leave even before the actual rehabilitation work started. These circumstances constitute the framework for the case study on the residents' point of view about the refurbishment of the area and the building. Our goal is to show how the vague rehabilitation plans of the neighbourhood may cause uncertainty and a feeling of powerlessness among the most vulnerable residents, despite slogans attempting to justify such changes. And also how the planned 'cultural' institutions turned out to be completely commercial entertainment venues with the exception of a small information point and gift shop operated by one of the pubs. So the 'cultural' intervention turned out to strengthen the NTE function.

---

3. Kazinczy Street on a section between Dob Street and Dohány Street.
4. Integrated Urban Development Strategy (EÖK IVS, 2008), and Action Area Plan (Akcióterületi, 2009).
5. The AKKU (Alternative Cultural Communities Union) had to leave because of the project in spring 2009.
6. The ratio of public housing units among all housing units was about 50% before the 1989 transition and by 2013 it fell below 5%.

Figure 3. 2010 - Construction site in Kazinczy street

The effects of the neighbouhood transformation

The 'Street of the culture' investment involved the refurbishment of two neighbouring houses. One of them was emptied completely the other one – where we did our case study – was emptied partly. Since this building is located in a segment of the neighbourhood that experienced the highest level of investment in the mid 2000s, the residents were 'participant observers' of the neighbourhood's transformation. They experienced at their own expense that the constructions process could have some negative effect on the closest neighbours as well. But they never had a real chance of participating neither in the planning nor in implementation phase.

The local authority made the plans of 'Street of the culture' based on the Integrated Urban Development Strategy of the District in 2008. Neither of these plans was made with any real participation of residents. The local government did not try to involve the inhabitants in the planning process and just announced the start of the project. The refurbishment of the given house began in early 2009. The residents tried to articulate their interests at this point of time. They could share some remarks regarding the plans, but these were not taken into consideration.

The complete lack of participation and the ignorance of the residents by the authorities – especially the involved residents' – opinion, financial situation and preferences, resulted in uncertainty for the tenants. After people heard the news about the relocation, everybody was afraid that they would have to leave as well. Though they did not receive any information about that, the uncertainty and distrust of the last few years and the complete lack of communication made them panic.

However, in the preparatory documents of the project – in accordance with EU regulations – there was a cost heading for funding for "work phases for the local acceptance, proper implementation and success"[7]. These costs were most probably planned to mentor the residents of the terminated social units. The lack of mentoring yielded significant disadvantages for both the residents and the local authority: the residents did not support the intervention which necessarily led to the modification of the plans.

[7] EÖK TÜ, 2011: 24–26, 842/2011 decree.

Figure 4. 2012- Kazinczy street

The refurbishment of the streets and the buildings were completed, but the way of life of the residents changed: more and more residents feel the negative effects of the cultural rehabilitation (nuisance and growing density of the NTE venues), and only a few experience the positive effects of the changes.

According to Pratt (2009), if the city decides to implement cultural investments, it is not enough to build something and give it to the public "to have an effect" on the neighbourhood. The smart planner integrates the development and if the cultural buzz starts, it takes the role of the manager instead of the developer. The 'Street of the culture' and the ensuing renovation of public spaces could have been part of this process, if the local authority had not been planning the different interventions in isolation. Instead, it should have combined them with the other projects and the spontaneous processes would have been channelled towards these plans. Also, there is no visible strategy for managing sustainably the side-effects of the NTE function. The former empty portals and bad condition buildings are now renovated and alive, but interests of the residents were harmed and instead of the social benefits of the projects entrepreneurs could profit from the changes. It is difficult to tell, how successful the 'Street of the culture' project will be and how long the 'world of the ruin bars' can remain 'sustainable', before these enterprises disappear, move away or turn into more mainstream and higher status venues. The latter process already started in 2013, but there are also new cheap chain pubs as well. Only the number of venues focusing primarily on culture and creative production decreased. But it is certain that the public renovation project gave a new boost to the touristic and NTE functions of the area, rendering many of the residents even more upset. The next section of the Kazinczy Street was transformed physically as well and the entire street was turned into a limited car traffic street[8]. Because of the popularity of the evolving entertainment district many new bars opened in the retail spaces that all had been empty for a long time. This also meant an increase in the night time traffic and noise levels of the area.

This effect was not accounted for in the plans of the 'Street of the culture' project. Among the risks of the investment it came up that the excessive cultural use of the area may disturb the residents, but the impact assessment estimated the probability of this scenario (on a scale from 1 to 7) to be a 2, and the significance of this effect a 3, with the following explanation:

"The increase of the touristic use is expected mostly at daylight while the amount of car traffic can decrease in the area. In the course of the organisation of the cultural events the demands of the residents will be respected" (Akcióterületi, 2009, p. 90).

The authors of the impact assessment were obviously not thinking on the scale of

[8]. It is important to note that in the plans and in the local authority PR leaflets the street is often referred as a pedestrian street, but the limited car traffic and the 20km/h speed limit sign only appeared in summer 2013. This can be another factor for supporting the NTE function.

the entire quarter, or they did not know about the night life of the broader neighbourhood and the planned noise orders of the local authority. They probably did not count with the effects in other nearby streets either, or they deliberately did not want to pay attention to these issues.

Figure 5. One of the ruin-bars

The changes have direct positive effects for young new residents, tenants of private flats and foreign residents using the neighbourhood at night, and those who own a second flat in the neighbourhood that they can rent for tourists for short term. Indirect positive effects are expected by the residents of the next section of the Kazinczy Street that has not been refurbished yet, but they expect that their turn will come soon.

The older, longer-term residents – because of the growing number of pubs and ruin bars – could only report negative effects of the changes. The residents of the building in our case study experienced the negative effects before the end of the construction /summer 2011/: they said the neighbourhood became noisier and they were disturbed in their sleep.

Naturally the transformation affects the long-term residents the most, because when they moved into their flat, the neighbourhood had a completely different milieu. Also, the function of the area was different, it was much rather a commercial and service oriented area than an NTE quarter.

The lower status residents living in the neighbourhood were sceptical as well. The story of their own building, the relocation of their acquaintances and other residents resulted in an uncertain situation, where they come to expect a negative outcome from every change, even if they have no particular reason for this.

The direction of the transformation, and the fact that the new retail spaces constructed in the 'Street of the culture' project are used almost exclusively for hospitality functions, is also interesting because in the western cases the local authority intervention in cultural quarters (often turned into NTE areas later) is about to break the monopoly of the entertainment function with other uses, so the conflicts resulting from the functional change may be mitigated (Roberts, Turner, Greenfield, & Osborn 2006). In this case the actions of the local authority had the opposite result: the refurbishment of the buildings funded by the EU was for cultural use, but at the end hospitality and entertainment venues opened in them so the noise level is increasing further. The changes are similar to the prediction of Roberts (2009): the local authority cooperates with any entrepreneur who starts economic activity in the neighbourhood regardless of the possible conflicts. These kinds of changes are obviously against the social sustainability of these neighbourhoods (Eldrdige, 2010).

Conclusion

Our case study presents the direct (negative) effects of a cultural urban rehabilitation project based on a top-down planning approach without cooperation with the residents and local entrepreneurs, failing to use their activities as a starting point. We also presented how vulnerable the residents may become for the lack of participation in the planning process. The involvement of the residents and other stakeholders would most probably have yielded more favourable results (as opposed to the Hungarian practice of technocratic and formal exercise of power). In case the 'Street of the culture' project had been planned and implemented in a more inclusive way, the image of the project would have been less negative among the residents. The residents know the costs of the project in spite of the scarce information they received, (800 million forints was funded by the EU, and 300 million by the local authority), and without the chance for participation they don't understand why only aesthetical renovations took place. As a result, they feel vulnerable, exploited and betrayed. The cultural function of the plans were never realised but the project looks good on the photos since decaying buildings became renovated. But this superficial version of urban management approach causes less visible social conflicts and harms the interests of the most disadvantaged.

References

Akcióterületi (2009). Budapest VII. Kerület Erzsébetváros Funkcióbővítő Rehabilitációja végleges akcióterületi terv „Kultúra Utcája" - Action Area Plan. Retrieved from http://www.kulturautcaja.hu/Kultura_Utcaja/dokumentumok.html

Atkinson, R., & Bridge, G. (2005). Introduction. In R. Atkinson, & G. Bridge (Eds.), *Gentrification in a global context: The new urban colonialism* (1–17). London: Routledge.

Csanádi, G., & Csizmady, A. (2002). Szuburbanizáció és társadalom / Suburbanisation and society. *Tér és Társadalom, 26*(3), 27-55.

Csanádi G., Csizmady A., & Olt G. (2010). Recent trends of the urban renewal in Budapest. *Urbani Izziv, 21*(1), 42-50.

Csanádi, G., Csizmady, A., & Olt, G. (2011). Urban renewal and gentrification in Budapest city center. In V. Szirmai (Ed.), *Urban Sprawl in Europe: Similarities or Differences?* (pp. 209-252). Budapest: Aula Kiadó.

Csanádi, G., Csizmady, A., & Olt, G. (2012). Átváltozóban / *In transformation*. Budapest: Eötvös Kiadó.

Dövényi, Z., & Kovács, Z. (1999). A szuburbanizáció térbeni-társadalmi jellemzői Budapest környékén. *Földrajzi Értesitő, XLVIII*(1-2), 33-57.

Eldridge, A. (2010). The Urban Renaissance and the Night-Time Economy: Who Belongs to the City at Night. In T. Manzi , K. Lucas, T. L. Jones & J. Allen (Eds.), *Social Sustainability in Urban Areas, Communities, Connectivity and the Urban Fabric* (pp. 183-198). London: Earthscan.

EÖK IVS (2008). Erzsébetvárosi Önkormányzat Integrált Városfejlesztési Stratégiája -Integrated urban development strategy of the Local Authority of Erzsébetváros. Retrieved from http://www.erzsebetvaros.hu/onkormanyzat-kozerdeku-adatai/erzsebetvaros-integralt-varosfejlesztesi-strategiaja-73

EÖK TÜ (2011). Budapest Főváros VII. kerület Erzsébetváros Önkormányzata

Képviselő-testületének rendkívüli nyilvános üléseinek jegyzőkönyvei - Reports of the council of the local authority of Erzsébetváros. Retrieved from http://www.erzsebetvaros.hu

Funkcióbővítő (2008). Funkcióbővítő rehabilitáció. / Expansion of functions by rehabilitation. Retrieved from http://www.erzsebetvaros.hu/?module=news&fname=kultura_utcaja

Kovács, K. (1999). A szuburbanizációs folyamatok a fővárosban és a budapesti agglomerációban. / Suburbanisation processes in the capital and in the agglomeration of Budapest. In Gy. Barta & P. Beluszky (Eds.), *Társadalmi-gazdasági átalakulás a budapesti agglomerációban / Socio-economic transformation in the agglomeration of Budapest* (pp. 91-114). Budapest: Regional Research Fund.

Lees, L. (2008). Gentrification and social mixing: Towards an inclusive urban renaissance? *Urban Studies, 45*(12), 24-49.

Louekari, M. (2006). The creative potential of Berlin: creating alternative models of social, economic and cultural organization in the form of network forming and open-source communities. *Planning, Practice & Research, 21*(4), 463-481.

Lugosi P., Bell D., & Lugosi K. (2010). Hospitality, culture and regeneration: Urban decay, entrepreneurship and the "ruin" bars of Budapest. *Urban Studies, 47*(14), 3079–3101.

Manzi, T., Lucas, K., Jones, T. L., & Allen, J. (Eds.). (2010). *Social sustainability in urban areas, communities, connectivity and the urban fabric.* London: Earthscan.

Martinez-Monje, M., & Vicario, L. (2005). Another "Guggenheim effect"? – Central city projects and gentrification in Bilbao. In R. Atkinson & G. Bridge (Eds.), *Gentrification in a Global Context The new urban colonialism* (pp. 155-171). London and New York: Routledge.

Mommaas, H. (2004). Cultural clusters and the post-industrial city: Towards the remapping of urban cultural policy. *Urban Studies, 41*(3), 507-532.

Pratt, A. C. (2009). Urban regeneration: From the arts "Feel Good" factor to the cultural economy: A case study of Hoxton, London. *Urban Studies, 46*(5-6), 1041-1061.

Roberts, M. (2009). Planning, urban design and the night-time city: Still at the margins? *Criminology and Criminal Justice, 9*(4), 487-507.

Roberts, M., Turner, Ch., Greenfield, S., & Osborn, G. (2006). A continental ambience? Lessons in managing alcohol-related evening and night-time entertainment from four European capitals. *Urban Studies, 43*(7), 1105-1125.

Scott, A. J. (2006). Creative cities: Conceptual issues and policy questions. *Journal of Urban Affairs, 28*(1), 1-17.

Szirmai, V. (2011). A nagyváros szélén: A városi terjeszkedés térbeli társadalmi problémái. / On the edge of the city: the socio-spatial problems of urban sprawl. *Tér és Társadalom, 25*(1), 21-41.

Zukin, S. (1987). Gentrification culture and capital in the urban core. *Annual Review of Sociology, 13*, 129-147.

The effect of resettlement on upward mobility and inclusion of the urban poor in India: A research proposal

Maartje van Eerd, Maria Zwanenburg

Institute for Housing and Urban Development Studies, Erasmus University, Rotterdam, The Netherlands

vaneerd@ihs.nl, m.zwanenburg@ihs.nl

ABSTRACT

The proposal presented is developed for a study that focuses on the effect of resettlement on livelihood assets of project affected people: to what extent it creates an opportunity to move out of poverty, to what extent affected people are forced deeper into poverty or to what extent their assets remain stable after resettlement. The overall research question of the study is: Does the new governance principle underlying the policy of slum resettlement lead to the upward mobility and inclusion of the urban poor? The research design is a multiple case study design, focusing on different models of resettlement: state-led, private-led and through Public Private Partnerships, collecting both qualitative and quantitative data through in-depth interviews, real-life cases and quantitative surveys and database research. It is assumed that private led resettlement would have a more negative effect on upward mobility as it is assumed that the private sector would be more interested in minimizing resettlement costs.

KEYWORDS: *resettlement, IRR, livelihood assets, inclusion*

Introduction

The proposed research on the effect of resettlement is funded by the EU through the Urban Knowledge Network Asia, based at Leiden University, the Netherlands. The research will be conducted in Chennai, India and is planned to start in November 2014. The study will focus on the effect of resettlement on livelihood assets of project affected people: the study will examine to what extent resettlement creates an opportunity to move out of poverty, whether it drives affected people deeper into poverty or to what extent their assets remain stable after resettlement. The proposal will present an overview of the most relevant literature, the conceptual framework, research objectives, research questions and a methodology.

Resettlement is often highly disturbing for project affected communities, and the most dominant outcome of resettlement worldwide is impoverishment. It is mostly the poor that are being resettled, who often end up even poorer than before. Although communities sometimes have to move when cities expand and infrastructure has to be provided or improved, the question is how those affected can also benefit from development instead of suffering from it.

Over the years different models of resettlement have emerged. Resettlement is not only executed by the state, it is also being more frequently enforced by the private sector, and there are also models of collaboration between private and public sector through PPP's. Therefore it is important to understand what the impact of resettlement is through these different models and what the differential impact is on different groups within the community. It is also important to identify whether and how people can also move out of poverty through resettlement. In cases in which they become poorer it is important to understand the reasons for this downward mobility.

Displacement and resettlement

There are three causes for resettlement: conflict, natural disaster and development, leading to three categories: Development-Induced Displacement and Resettlement (DIDR), Conflict-Induced Displacement and Resettlement (CIDR) and Natural-Disaster-Induced Displacement and Resettlement (NIDR) (Muggah, 2008). A distinction has also been made between Voluntary Resettlement (VR) and Involuntary Resettlement (De Wet, 2001). In this study we look at involuntary DIDR in urban areas.

Development induced displacement and resettlement

The most important causes of development induced displacement worldwide are: water supply, energy, agriculture and natural resources, population redistribution schemes, and urban development and transport infrastructure, the latter being the principal cause for development-induced displacement worldwide and the trend is likely to accelerate (Robinson, 2003, pp. 15-23).

Scale and impact of displacement and resettlement

Public and increasingly privately funded development projects are estimated to displace more than fifteen million people a year (M. M. Cernea, personal communication 2005, in Oliver-Smith, 2009, p. 3). Fernandes (2011) estimates that about 60 million people have been displaced by large projects since independence. According to Cernea (2009, p. 50) the dominant outcome of displacement worldwide is not income restoration but impoverishment.

According to De Wet, resettlement projects often go wrong because of inadequate inputs such as national legal frameworks and policies, political will, funding, pre-displacement research, careful implementation and monitoring. The fact that often no

base line study was conducted before the people are resettled is mentioned by many scholars. Another problem is the time frame, which often is very tight. Complete reconstruction of neighbourhoods requires time. For instance in infrastructure projects this is not incorporated in the project. Another problem is that many governments and companies see resettlement as a cost rather than an investment and try to limit their expenses (De Wet, 2001).

Dupont (2011a, p. 88) mentions that many resettlement and rehabilitation programs generate new forms of exclusion. Exclusion mechanisms stem first of all from the very design of most of these programs in urban areas, specifically their eligibility criteria: the application of the cut-off date of arrival in the settlement; and the financial contribution required from households. Apart from that, Dupont also mentions other exclusionary mechanisms that stem from the way that the programs have been implemented, which also result in exclusion of both households and tenants.

Resettlement as a development opportunity?

Although the empirical evidences are overwhelming in proving that resettlement often leads to impoverishment, it is not necessarily always the case. It could in principle also be a development opportunity. Cernea (1988) has identified five factors contributing to the effectiveness of overall development performance in resettlement projects and significantly influencing the success of formulation and implementation of resettlement projects: resettlement policy, legislation, pre-planning, public participation and adequate compensation.

An empirical study on the process of resettlement in Thailand has identified a number of pre-requisites for achieving success and grouped them into internal and external factors related to the community. External factors, according to Viratkapan and Perera (2006), are the location of the new settlement and the compensations, and internal factors are the unity of the community, the existence of strong leadership, active participation and the positive attitude of community members.

Mehta (2011) in her work on gender and displacement questions whether resettlement and rehabilitation in itself can ever be seen as a development opportunity, but if so she urges the need for a re-conceptualization, which includes the possibility of for resettlements being avoided, and if this is not possible, then minimized. Pre-conditions for resettlement to possibly provide a development opportunity mentioned by Mehta are that women are included as full beneficiaries of compensation and as independent or co-owners of land; provisions should be made for women's livelihoods along with housing and employment; recognize and build on women's livelihoods including housing and employment; recognize and build on women's informal rights in customary practices; avoid any violation of their rights; include strong gender analysis and gender sensitive data regarding the impacts of displacement; have special provision to include the full participation of women in decision-making processes around displacement and resettlement and build strong safeguards to facilitate women's access to compensation and any other benefits (p. 39).

The impact of displacement and resettlement

Cernea's Impoverishment Risks and Reconstruction (IRR) model arose in the 1990s in response to the recognition that the overall outcome of resettlement was impoverishment. The IRR model aims to identify the impoverishment risks intrinsic to forced resettlement and the processes necessary for reconstructing the livelihoods of displaced people. In particular, it stresses that, unless specifically addressed by targeted policies, forced displacement can cause impoverishment among displaced people. The model identifies the risks of resettlement and proposes strategies to mitigate impoverishment. It shows how displacement goes hand in hand with social, physical

and economic exclusion, which culminate in a range of impoverishment risks.

The model rests on three basic concepts of risk, impoverishment and reconstruction. The major impoverishment risks related to displacement are: landlessness; joblessness; homelessness; marginalization; food insecurity and a decline in health; increased morbidity; loss of access to common property resources; social disarticulation; and risks to host populations (Cernea, 2000, p. 22).

Another important aspect to take into account is the differential risk intensities, referring to the interconnectedness of the risks. Depending on the particular site and particular sub-group, the intensity of the individual risks may vary (Cernea, 2000, p. 28). The starting point of the IRR models is the understanding that resettlement has an enormous impact on the livelihoods of the poor, so it should be avoided as much as possible given that it leads to major losses and can violate their human rights if not conducted properly and fully respecting the laws and principles of displacement and resettlement in order to compensate for the losses encountered.

The IRR model "has played a significant role in the development of the research on involuntary resettlement, both at the theoretical and the empirical level. Many of the contributions to the topic have in one way or another arisen as an empirical application or as a criticism to it. Moreover, it has also contributed to focussing attention on the negative effects of displacement, explicitly establishing a link with the impoverishment of the affected population" provided a new departure points for many studies by breaking down the different risks associated with resettlement (Mariotti, 2012, p. 49).

The criticism on the model Dwivedi (2002) has articulated is that the model is seen as a planning tool. Another point of criticism on the IRR model and other so-called managerial and implementation oriented models, is that they can lead to a standardized action plan, which does not take into account the endogenous process that plays a role in the local context and the lack of political economy, so that all the focus is on the consequences with no consideration to the causes of displacement. On top of that, the role of the state is left out of the analysis (Mariotti, 2012). Another point of criticism is that is does not adequately explain the differences of risks across households (Quetulio-Navarra, 2014, p. 58).

Based on work from Downing and Muggah, Robinson (2003, p. 12) has identified the loss of access to community services including lost or delayed opportunities for education, and the violation of human rights as additional risks of resettlement.

Amongst applied scholars that work in the field of DIDR, Muggah (2008) has identified two camps: those who envision that DIDR is inevitable and that with effective planning the livelihoods of people can be improved; and action researchers who consider DIDR to be a failure of the development paradigm and an expression of deep power asymmetries. According to Muggah, most contemporary resettlement experts fall somewhere between the two camps.

The livelihood framework

A different model that is widely used to understand how people and communities are affected by outside change (e.g. resettlement), is the livelihood framework. While the IRR model has drawn the attention to the risks that DIDR implies, the livelihood framework (Rakodi, 2002) offers a more comprehensive framework to understand how poor people shape their lives and how they react to, and recover from, external shocks and influence. The livelihood framework has substantially contributed to the understanding of urban poverty, especially to dynamism and agency of poor people themselves. The focus is on the management of assets (human, natural, physical, financial and social capital) in poor urban households and the relation between this management and the wider context of the household and neighbourhood. The livelihood framework is especially relevant in explaining the responses of the urban poor

to certain trends, shocks and seasonalities that increase or decrease the vulnerability of households. To assess the effects of DIDR on the affected communities, we will use the livelihood framework as the conceptual foundation of this research.

De Haan and Zoomers (2005, p. 33) point out the weaknesses in the livelihood approach: "The fundamental question of the flexibility of these interchanges of capitals. They are still bound by property relations and configurations of power which play such a major role in inducing poverty in the first place. Although transformation structures, mediating processes, institutions and organizations appear in all livelihood frameworks, there is a tendency within livelihood studies to downplay these structural features and to focus on capitals and activities". In other words: the livelihood approach is not especially strong when it comes to assessing the interaction between settlement inhabitants and policy makers and implementers. We will therefore add the concept of social exclusion to the conceptual foundation of this research.

The concept of social exclusion is related to that of poverty, but differs on several crucial aspects. While poverty deals with material deprivation (income) there are other types of "poverties" and inequalities (social, cultural, political and geographical), social inclusion is concerned with a multidimensional concept of well-being. "Social exclusion is a process and a state that prevents individuals or groups from full participation in social, economic and political life and from asserting their rights. It derives from exclusionary relationships based on power" (Beall & Piron, 2005, p. 9). Social exclusion involves the processes of persistent disadvantage by which the social and occupational rights of persons are being undermined.

Impact of resettlement on women, children, minorities and other vulnerable groups

Resettlement often affects the groups of population which are economically, politically, and socially the most vulnerable and marginalized. However, at the individual and community levels, impoverishment risks associated with resettlement can be felt more intensely by certain segments of the displaced population, like the poorest in the community, women and children and minority groups.

Colchester (2000) found that indigenous populations and ethnic minority groups make up a disproportionately large percentage of those whose livelihoods are adversely affected by development projects and the dams in particular. According to Koenig (2002) women often experience the adverse consequences of forced resettlement more strongly than men as increased stress because of the loss of access to individual gardens, decreased fertility and greater dependence on husbands as often compensation is only paid to the head of the household. Many scholars have also described the impact on education, which often gets interrupted or in worse cases can also end when educational facilities become inaccessible. Mehta (2009, p. xxviii) mentions that female headed households are high amongst displaced people.

The literature on Internally Displaced Persons (IDPs) also presents empirical findings on the impact of women in general which in terms of impact has many similarities with development-induced displaces and resettlements. The overwhelming majority of internally displaced groups constitute women and children and therefore it is very important to specifically focus on these groups (Banerjee, Chaudury, & Das 2005, p. 28). Particularly female headed households are high amongst displaced people. Research has shown that these households constitute of the poorest groups in society, so the impact of displacement and resettlement is hardest for them. Research has also shown that in urban development projects, women can be harder hit by displacement because they are more likely to derive income from small businesses located at or near their residences. This is particularly so when they are relocated far off from their previous location.

In their study on domestic workers in a resettlement site in Chennai, Coelho, Venkat

and Chandrika (2013) speak about the "domestication of working class women" as, in the case of a resettlement site the cost of housing did not require a woman's contribution to the household income anymore. And although many of these women wanted to remain working, their husbands were opposed to this and therefore they had to stay at home.

Mehta (2011, p. 27) in her work on gender and displacement shows how displaced women are often caught in a "double bind" with male and gender biases impacting on resettled women in two ways: the male biases in many societies perpetuate the unequal distribution of resources in resettlement sites, and biases within the state institutions and structures and policies again perpetuate these societal imbalances. But Mehta also mentions that there are also some resettlement cases that have positively impacted the gender balance and have led to more egalitarian gender relations, although these seem to be the exception.

Mehta (2011) gives examples of policies and programmes neglecting informal and encoded rights, assets and institutions; lack of proper employment and productive activities in new sites all leading to male domination.

Current governance trends in india and its impact on the poor

Since the 1990's policies of economic liberalization have been initiated in India, partly stimulated by international funding agencies. These policies lead to an increased role of the market, and the introduction of stakeholder participation and Public Private Partnerships. Institutional reforms were introduced to support, sustain and manage micro-and macro level economic restructuring, and the state slowly withdrew (Stoker, 1998). Modernization of cities was seen as pivotal and since the public sector lacked funds private sector involvement, particularly in improving infrastructure increased enormously (Banerjee-Guha, 2009). Besides, political administrative decentralization was stimulated through the 74th Amendment Act, "which redefined the distribution of functions and resources between different levels of government and promoted local self-government" (Ruet & Lama-Rewal, 2009, p. 10).

Many scholars question the new urban development paradigm leading to more segregation and exclusion and the impact it has on the poor, many of whom are residing in slum areas (Bhide, 2009; Dupont, 2011; Banerjee-Guha, 2009; Fernandes, 2004; Kundu, Mohanan, & Vargese, 2013; Roy, 2011).

Bhide (2009, p. 375) speaks of the voice of the upward mobile middle and elite class citizens which has emerged in the last decade spearheading projects partnering with local government stimulating an "anti-slum" agenda, which she sees as a "new threat". Rao (2013, p. 763) speaks of the "dream of an ordered city being accompanied by unrestrained fantasies of segregation". Cities have to become orderly and contain clean spaces for the middle and upper classes, and those that do not fall under these categories will have to go.

Approaches to slums in India

Since the 1990s "metropolitan cities have become more segregated as squatter settlements were systematically evicted from within the city and displaced to the periphery, often to accommodate large infrastructural and 'beautification' projects that overwhelmingly benefit the better-off sections of the urban populace" (Baviskar, 2013, p. 307). In transferring land from the poor to the well-to-do, these projects have created a segregated spatial pattern where gated enclaves are separated from the congested and unsanitary townships where the workers live.

Many sources report the increased number of evictees in urban areas. COHRE reports that between December 2004 and March 2005 90,000 homes were demolished by the Mumbai Authorities affecting 350,000 slum and pavement dwellers; in

2005 over 30,000 residents living along the railways in Kolkata were evicted and in 2004 approximately 130,000 residents of Yamuna Pushta were forcibly evicted in Delhi (COHRE, 2006, pp. 72-75).

Bhan (2009, p. 127) mentions that between 1990 and 2003, 51,461 houses were demolished under the 'slum clearance' schemes. Between 2004 and 2007 at least 45,000 homes were demolished, and since the beginning of 2007, eviction notices have been served on at least three other large settlements. Fewer that 25 percent of the households evicted in this period have received any alternative resettlement sites.

Changing approaches to resettlement in India

The new era of economic liberalization in India has led to particular redevelopment practices in the 2000s. During this period, according to Doshi (2012, p. 847) "state interventions in slums shifted from welfare accommodations distributed through patronage to neoliberal resettlement practices aiding the proliferation of new land markets and lucrative redevelopment opportunities". New policies and partnerships for redevelopment and resettlement came into being. This opened up the market for private developers to get into the business of slum re-development and resettlement, by offering these private developers part of the original slum for private development in exchange for the construction of housing for the original slum dwellers. In this model, according to Dupont (2011a, p. 80) "it is likely that housing for the poor will be developed in the urban peripheries, which would require an efficient and affordable transport system to enable them to access employment centers located in more central parts of the city."

Furthermore, the developments in India with regard to turning cities into world class cities are increasingly leading to displacements, which is referred to in a number of studies from India (Lama-Rewal, Zerah, & Dupont, 2011; Birkinshaw & Harris, 2009; Dupont, 2011).

There are three types of resettlement that are currently in place: public sector driven resettlement, private sector driven resettlement and a combination of both through Public Private Partnerships. These models have never systematically been compared in terms of impact on livelihoods of affected populations. Therefore the proposed research has a central question whether there is a difference in impact on livelihoods between the 3 identified types of (urban) resettlement.

In India private sector involvement in slum resettlement and rehabilitation projects have been prevalent in Mumbai since the 1990s, and its role is now being promoted by the Delhi Development Authority for new in-situ rehabilitation projects. In Chennai the resettlement complexes for evicted slums dwellers have been developed and built by the public sector, namely the Tamil Nadu Slum Clearance Board (Dupont & Dhanalaksmi, 2013).

Public and private sector-led resettlement in Chennai

Previously resettlement was done with public sector and/or external funding through World Bank and coordinated by the TNSCB. Nowadays the Jawaharlal Nehru New Urban Renewal Mission- Basic Services of the Urban Poor (JNNURM-BSUP) programme requires partly private funding of/in resettlement projects.[1]

According to the NGO Transparent Chennai, 77% of all funding allocated under the BSUP for Chennai has gone to building large-scale resettlement colonies, the

[1.] Of a total of 24 approved projects in Chennai, 62% are now within the new Corporation limits and they make up 94% of the total approved project costs of BSUP projects in Chennai. This includes large allocations made for resettlement projects. The projects under the BSUP scheme include the construction of resettlement colonies, provision of houses and infrastructure for slum and slum-dwellers in the corporation and the provision of infrastructure for slums in the Chennai Metropolitan Area.

[2.] Kannagi Nagar is also called Okkium Thoraipakkum. There is another resettlement site mentioned by Raman 2011: Semmencheri.

entirety of which is being built by the TNSCB. There are three approved projects: 9,936 tenements in Ezhil Nagar, 10,452 tenements and infrastructure facilities at Perumbakkam phase 1 and 9,476 tenements in Perumbakkam phase 2 (in phase 2 only covering construction of housing, not infrastructure), at a total approved cost of INR 1,073.19 Crore.

From the Policy Note 2010-2011 of the TNSCB it can be seen that under JNNURM it was planned to "rehouse/resettle all the remaining slum families living in objectionable and unobjectionable locations in Chennai" (...) in self-contained tenements with required infrastructure "in order to make the mega cities 'slum-free' by 2013". This was supposed to be taken up under the BSUP component of JNNURM (p. 4).

Name of the scheme	Number of tenements	Amount (INR in Crore)	Status
Ezhil Nagar: Okkium Thoraipakkum (=Kannagi Nagar)	6000	225.60	Due to court orders the work has stopped
Ezhil Nagar: Perumbakkam (=Semmencheri)	3936	147.86	In progress
Perumbakkam I	10452	515.59	Commenced
Perumbakkam II	9476	449.75	Tender stage
Total	29.864	1.338,80	

Figure 2. The different resettlement locations in Chennai under JNNURM[2]. Policy note 2010-2011 TNSCB

Since the year 2000 slum dwellers were resettled to Chennai's premier resettlement colony Kannagi Nagar (Coelho, Venkat, & Chandrika, 2012). Kannagi Nagar is located about 25 kilometres south of the city centre of Chennai, has about 15,000 tenements of about 120-150 square feet in two and three-storey buildings and it is on 100 acres of reclaimed land from the Pallikaranai marsh. The expansion of the city boundaries in 2011 led to the incorporation of the resettlement site into the Chennai Municipal Corporation jurisdiction. From 2000 slum dwellers from different localities in Chennai were relocated to Kannagi Nagar, with a large group moving in after the Tsunami of 2004 (Coelho, Venkat, & Chandrika, 2012; 2013).

Research objective

To explain how the resettlement approaches under the new governance principle impact the livelihoods of the people affected.

Research questions

Overall research question:
Does the new governance principle underlying the policy of slum resettlement lead to the upward mobility and inclusion of the urban poor?

Sub-questions:
1. *How has the new governance principle influenced the design and implementation*

of resettlement policies and projects?

With this research question we want to focus on the aspects of the new urban governance in the different design and implementation stages of this particular policy. How inclusive does the policy aim to be (e.g. through participatory processes)? How inclusive has the policy been in its implementation? Have new processes of inclusion/exclusion been created and/or have old processes of inclusion/exclusion been reinforced. This will be assessed from the perspective of policy designers, policy implementers, private sector and citizens included in the policy, and citizens excluded.

2. *What have been the effects of the resettlement policies on the ability of the settlement inhabitants to move out of poverty?*

With this question we want to measure whether a difference in social mobility occurs between resettled and non-resettled populations and between resettled populations under different resettlement approaches.

3. *Why do the different resettlement approaches have a positive/negative effect on the upward social mobility of the resettled population?*

For this question we follow Narayan, Pritchett and Kapoor (2009) in the identification of different mobility groups within an urban settlement. They identify four groups: the "movers" (upward mobility), the "fallers" (downward mobility), the "chronic poor" and the "never poor". Apart from this we have the citizens included and those excluded from the policy (design and implementation) process. We will look at the effects of the resettlement on the different mobility groups and we will assess the influence of being included or excluded from the process on upward/downward mobility.

Definitions:

Relocation: The physical transfer of individuals or groups from their usual home (place of origin) to another location (place of relocation). Relocation may be voluntary, as with the migration of people from places of origin in the search for better economic opportunities in other places e.g. rural-urban migration, or involuntary as happens with forced displacement of people due to natural disasters or violent conflict. Relocations may be temporary or permanent (UN-Habitat, 2010, p. 152).

Resettlement: The provision of shelter, basic services and infrastructure, livelihood opportunities and security of tenure to displaced households in the place of relocation, or, on return, in their places of origin (UN-Habitat, 2010, p. 152).

Changing governance and trends in inclusion/exclusion: This study will focus on resettlement policies and projects comparing state-led, PPP and private sector driven resettlement and compares the impact of these 3 different types of resettlement on the livelihoods of project affected people and their ability to move out of poverty.

Research design

This research aims to measure the possible differentiating effects on livelihoods of different approaches to resettlement. The different approaches are:

1. The state-led approach
2. The public-private partnership-led approach
3. The private sector-led approach

We propose a multiple case study design that combines quantitative and qualitative data analysis, making use of existing data, as well as collecting new primary data. In this section, we will explain the choice for the case study, as well as the different methods that we will apply.

Multiple case studies: The selection

The local manifestations of the implemented approach will have common features with other manifestations and particularities that belong to the particular manifestation. Both are important, but we have to be able to distinguish between them. The common features are in the heart of the research design, since we want to detect differences between the three different approaches. The particularities may show us how a certain approach can be improved or how certain negative particularities should be avoided to make things work. We have to be able to distinguish since we need to know whether a certain positive or negative effect of the policy is due to the approach or to the particularities. Only a comparative case design in which several manifestations of the same approach are included, permits distinguishing between the common elements and the particularities. In a multiple comparative case analysis we will be able to detect the general trend per approach, as well as the particularities that influence in a negative or positive way. We therefore argue that a multiple case study including at least two cases per approach, six in total, is the minimum to conduct this research. However, the inclusion of more cases is preferred.

For the selection of the six case studies, we have different options, all with advantages and disadvantages.

1. Two cities; three manifestations each. We select two cities in which all three approaches have been applied in the same recent timeframe. The advantage is that we can compare the three approaches within a similar environment of one city. When comparing the other city, we will see what the common elements are in the two manifestations of each approach and what the particularities are that can be attributed to "the implementation in a particular city". This means that the common elements will come out more clearly, while the particularities will be reduced.

2.Three cities; two manifestations each. This selection will give more room for different particularities, e.g. how do stakeholders deal with the approach in a concrete situation and what is the effect thereof. It will be, however, more difficult to detect the common trends/to distinguish the common trends from three implementation realities, rather than from two.

Approach	City A	City B	City C
State led	X		X
Public-private	X	X	
Private		X	X

Sub-research question 1: Mapping the process

The first step in the case study will be a detailed process map of the different approaches, in theory and in practice. A review of relevant policy documents, from the national authorities and the cities under study, will be combined with interviews with key informants at national and city level. This first step will give an overview of the objectives of each approach, in general and in the specific cases. It will also show whether the approaches have been strictly implemented according to the official guidelines, or whether deviations, for the better or the worse, have occurred. Lastly, it will give us the perspective of policy makers and implementers on the objectives and implementation process of each approach, as well as their opinion on the effects that the resettlement has on the people involved.

Sub-research question 2: Measuring the effect, making use of existing data

We want to measure whether and to what extend resettlement has an effect on the socio-economic mobility of the resettled population. Secondly, we want to see whether there are significant differences in effect between the three approaches. We propose to

make use of the NSS data base. We understand that the NSS survey is an ongoing effort of data gathering among a representative sample of the population. We also understand that the survey on important socio-economic indicators like employment and consumption expenditure is carried out every five years. We propose to use the data of this particular survey for a time series analysis. Depending on possibilities the survey data offer us, we will apply one of the following modalities:

1. *Quasi- experiment with treatment and control groups*

The treatment group consists of a resettled population (2 for each approach). Socio-economic indicators of these groups from the NSS data base in several years before and several years after resettlement will be used for pre-treatment-test and post-treatment-test. The treatment in this case is the resettlement. A matching control group is selected that shows a similar socio-economic trend to the resettled population From among the non-resettled population at the times before resettlement. The control group represents the counterfactual situation that resettlement would not have happened.

After resettlement, the resettled population will be compared with the control group, as indicated in the following table:

	T0: before resettlement	**T1: resettlement process**	**T2: effect measurement**
Treatment groups (state-led, PPP and private)	Certain socio-economic profile	Resettled	Similar or different socio-economic mobility when compared to the other approaches and to the control group
Control group	Similar socio-economic profile	Not resettled	Socio-economic mobility compared to T0

In this table we have two points of reference in time. This can be extended to multiple points to generate a better picture of the trends. Multiple point before resettlement will however complicate the selection of a control group. The advantage of the quasi-experiment is that the same groups of people are followed over time. Data available at household level will also enable us to show differentiated effects: positive for some and negative for others. This is however only possible if the NSS survey follows the same sample over time and when the different point of measurement in time can be linked to the respondent (while maintaining their anonymity).

2. *Time series analysis comparing socio economic trends in resettled and non-resettled population*

Contrary to the quasi experiment, this design will only permit the analysis of average tendencies in socio-economic mobility among the resettled population and the non-resettled population. In this case we will use the NSS data from different points in time, before and after resettlement, and see if and how average socio-economic mobility among resettled population deviates from non-resettled population.

The starting point in this case is the average socio-economic trend among informal settlement dwellers in the city under study before resettlement. One condition is that the settlements to be resettled do not have significantly different average trends before relocation. At some point in time resettlement takes place and the resettled population breaks away from the average and will be followed as separate groups.

		T0	T1	T2	T3	T4
1	Non-resett-led popula-tion	Measure-ment socio economic indicators	Measurement socio econo-mic indica-tors	No interven-tion	Measurement socio econo-mic indicators	Measurement socio econo-mic indica-tors
2	Resettled state-led			Intervention: resettlement	Measurement socio econo-mic indicators	Compare trend with group 1, 3 and 4
3	Resettled PPP			Intervention: resettlement	Measurement socio econo-mic indicators	Compare trend with group 1,2 and 4
4	Resettled private			Intervention: resettlement	Measurement socio econo-mic indicators	Compare trend with group 1, 2 and 3

Sub-research question 3: Explaining the effect: qualitative data

In the last part of the case studies, the effects measured in the analysis of the NSS data will be explained. To that effect, we will apply different qualitative data methods and analysis. Here, we will present a general proposal; this may be adjusted based on the outcomes of the quantitative analysis.

In first instance, we will gather data in three resettlement areas: one for each approach. We will also select one non-resettled control neighbourhood, preferably all in the same city. In these four settlements we will apply the 'Moving out of poverty' methodology developed by Narayan and Petesch (2007). This starts with the participatory sampling technique 'Ladder of Life'. Settlement dwellers themselves will identify who in their neighbourhood are and have always been poor (chronic poor), who have never been poor (never poor), who managed to move out of poverty (movers) and who have experienced a process of impoverishment (fallers).

In all four settlements, we will have an in-depth interview with one respondent per identified group, applying the Life History approach. Out of these 16 life histories, we will develop semi-structured interviews, which will be applied among a sample of three respondents per subgroup, per settlement, as can be seen in the next table.

	State-led resettlement	PPP-led resettlement	Private-led resettlement	Control settlement	Total respon-dents
Movers	1 in-depth, 3 semi structured	1 in-depth, 3 semi structured	1 in-depth, 3 semi structured	1 in-depth, 3 semi structured	16
Fallers	1 in-depth, 3 semi structured	1 in-depth, 3 semi structured	1 in-depth, 3 semi structured	1 in-depth, 3 semi structured	16
Chronic poor	1 in-depth, 3 semi structured	1 in-depth, 3 semi structured	1 in-depth, 3 semi structured	1 in-depth, 3 semi structured	16
Never poor	1 in-depth, 3 semi structured	1 in-depth, 3 semi structured	1 in-depth, 3 semi structured	1 in-depth, 3 semi structured	16
Total respondents	16	16	16	16	64

Conclusion

The presented case study research will focus on the impact of development-induced resettlement in Chennai, India and will start in November 2014. It will focus on poor slum communities that have been resettled to make way for urban development projects in the city. As already known from empirical studies, the poor are almost always affected most and also most negatively by resettlement. The research intends to understand how resettlement impacts upward or downward mobility urban poor resettled communities, and also to understand the causes for differences in mobility within those communities.

References

Banerjee-Guha, S. (2009). Neoliberalising the 'Urban': New geographies of power and injustice in Indian Cities. *Economic and Political Weekly, XLIV*(22), 95-107.

Banerjee, P., Chaudhury, S. B. R., Das, S. K., & Adhikari, B. (Eds.). (2005). *Internal displacement in South Asia: the relevance of the UN's guiding principles*. New Delhi: Sage Publications.

Baviskar, A. (2013). Participolis: protest and participation in the city. In K. Coelho, L. Kamath & M. Vijayabaskar(Eds.), *Participolis, consent and contention in Neoliberal urban India* (306-308). New Delhi: Routledge.

Beall, J., & Piron, H. (2005). "DFID Social Exclusion Review", London, London School of Economics / Overseas Development Institute.

Bhan, G. (2009). "This is no longer the city I once knew". Evictions, the urban poor and the right to the city in millennium Delhi. *Environment and Urbanization, 21*(1), 127-142.

Bhide, A. (2009). Shifting terrains of communities and community organization: reflections on organizing for housing rights in Mumbai. *Community Development Journal, 44*(3), 367-381.

Birkinshaw, M. & Harris, V. (2009). The right to the "world class city"? City visions and evictions in Mumbai. *The Urban Reinventors*. Retrieved from www.urbanreinventors.net.

Cernea, M. (1988). *Involuntary resettlement in development projects: policy guidelines in World Bank financed projects*. Washington D.C.: World Bank.

Cernea, M. M. (2000). Risks, safeguards and reconstruction, a model for population displacement and resettlement. *Economic and Political Weekly, XXXXV*(41), 3659-3678.

Cernea, M. M. (2009). Financing for development. Benefit-sharing mechanisms in population resettlement. In A. Oliver-Smith (Ed.), *Development and dispossession, the crisis of forced displacement and resettlement* (49-77). Santa Fe, NM: School of Advanced Research Press.

Coelho, K., Venkat, T., & Chandrika, R. (2012). The spatial reproduction of urban poverty. *Economic and Political Weekly, 47*(47- 48), 53-63.

Coelho, K., Venkat, T., & Chandrika, R. (2013). Housing, homes and domestic work, a

study of paid domestic workers from a resettlement colony in Chennai. *Economic and Political Weekly, 48* (43), 39-46.

COHRE - The Centre on Housing Rights and Evictions (2006). *Forced evictions, violations of human rights* (Global survey on forced evictions No. 10). Geneva, Switzerland: The Centre on Housing Rights and Evictions.

Colchester, M. (2000). *Dams, indigenous people and vulnerable ethnic minorities. Report prepard for thematic review 1.2.* Cape Town, South Africa: World Commission on Dams Report.

De Haan, L., & Zoomers, A. (2005). *Exploring the frontier of livelihood research. Development and Change, 36*(1), 27-47.

De Wet, C. (2009). Does development displace ethics? The challenge of forced resettlement. *Development & dispossession: The crisis of forced displacement and resettlement, 77*, 96.

De Wet, C. J. (2001). Economic development and population displacement, can everybody win? *Economic and Political Weekly*, 4637-4646.

Doshi, S. (2012). The politics of the evicted: redevelopment, subjectivity, and difference in Mumbai's slum frontiers. *Antipode, 45*(2), 844-865.

Dupont, V. (2011a). The challenge of slums and forced evictions. In *Urban policies and the right to the city in India, rights, responsibilities and citizenship* (76-97). New Delhi: UNESCO.

Dupont, V. (2011). The dream of Delhi as a global city. *International Journal of Urban and Regional Research, 35*(3), 533-545.

Dupont, V., & Danalaksmi, R. (2013). Settlement Field Report. Chennai, India. In *Addressing sub-standard settlements. WP3 Settlement Fieldwork Report*, coordinated by E. Braathen, Chance2Sustain.

Dwivedi, R. (2002). Models and methods in development-induced displacement (review article). *Development and Change, 33*(4), 709-732.

Fernandes, W. (2011). Development-induced displacement in the era of privatisation. In H.M. Mathur (Ed.), *Resettling displaced people. Policy and practice in India*. New Delhi: Routledge.

Hemadri, R., Mander, H., & Nagaraj, V. (2000). Dams, Displacement, Policy and Law in India, prepared for Thematic Review 1.3: Displacement, Resettlement, Rehabilitation, Reparation and Development. *World Commission on Dams*. Retrieved from http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN021311.pdf

Koenig, D. (2002). *Toward local development and mitigating impoverishment in development-induced displacement and resettlement* (RSC Working Paper, 8). Oxford, United Kingdom: Refugees Study Centre, University of Oxford. Retrieved from http://www.rsc.ox.ac.uk/files/publications/working-paper-series/wp8-development-induced-displacement-resettlement-2002.pdf

Kundu, A., Mohanan, P.C., & Vargese, K. (2013). *Spatial and social inequalities in human development: India in the global context*. India: UNDP.

Lama-Rewal, S. T., Zerah, M. H., & Dupont, V. (2011). *Urban policies and the right to the city in India: rights, responsibilities and citizenship*. New Delhi, India: UNESCO.

Mariotti, C. (2012). *Displacement, resettlement and adverse incorporation in Andhra Pradesh. The case of the Polavaram Dam*. (Doctoral dissertation, University of London).

Mehta, L. (Ed.) (2009). Displaced by development, confronting marginalization and gender injustice. New Delhi: Sage Publications.

Mehta, L. (2011). The settler and his wife, gender and the politics of displacement, 25-43. *DEP-Deportate, esuli, profughe, 17*, 25-43.

Muggah, R. (2008). Relocation failures in Sri Lanka, a short history of internal displacement and resettlement. London: Zed Books.

Narayan, P., Pritchett, L., & Kapoor, S. (2009). *Moving out of poverty, successes from the bottom up*. Washington DC: The International Bank for Reconstruction and Development / The World Bank.

Quetulio-Navarra, M. (2014). *Mending new communities after involuntary resettlement in the Philippines and Indonesia* (unpublished doctoral dissertation). Wageningen University, The Netherlands.

Oliver-Smith, A. (Ed.) (2009). *Development and dispossession, the crisis of forced displacement and resettlement*. Santa Fe, NM: School of Advanced Research Press.

Rakodi, C. (2002). A Livelihoods Approach – Conceptual Issues and Definitions. In C. Rakodi & T. Lloyd Jones (Eds.). *Urban Livelihoods: A people centered approach to Urban Poverty*. Earthscan Publications.

Rao, U. (2013). Tolerated encroachment: resettlement policies and the negotiation of the licit / illicit divide in an Indian metropolis. *Cultural Anthropology, 28*(4), 760-779.

Robinson, W. C. (2003). *Risks and rights: the causes, consequences, and challenges of development-induced displacement. An occasional paper*. Washington, USA: The Brookings Institution – SAIS Project on Internal Displacement.

Roy, A. (2011). The blockage of the world-class city: dialectical images of Indian urbanism. In A. Roy & A. Ong (Eds.), *Worlding cities, Asian experiments and the art of being global* (258-278). United Kingdom: Wiley, Blackwell.

Ruet, J., & Lama-Rewal, S. T. (2009). *Governing India's metropolises*. New Delhi: Routledge.

Stoker, G. (1998). Public-Private Partnerships in urban governance. In J. Pierre (Ed.), *Partnerships in urban governance* (34-51). London: MacMillan.

Viratkapan, V., & Perera, R. (2006). Slum relocation projects in Bangkok: what has contributed to their success or failure? *Habitat International, 30*(1), 157-174.

Education

Civic Housing: Empowering dwellers to shape their living environments

Leandro Madrazo, Angel Martín Cojo

School of Architecture La Salle, Ramon Llull University, Barcelona, Spain
madrazo@salleurl.edu, amartin@salleurl.edu

Raül Robert

SostreCívic, Barcelona, Spain
raul@sostrecivic.org

ABSTRACT

A seminar has been dedicated to engage dwellers and architecture students in a co-design process whose final goal is the refurbishment of a multi-story housing building in Barcelona. The task for students has been to design ad-hoc tools and methods to enable dwellers to communicate their experiences about the spaces they live in. In this process, students have played the role of facilitators – providing dwellers with the tools they need to express their knowledge – and of mediators – engaging in a dialogue with users to understand their needs. The information obtained from the dwellers has been processed and analysed by students to derive the users' needs. At the end of the process, students proposed some architectural responses to the issues formulated by dwellers. The activities planned in the seminar have had a pedagogic value for both the future dwellers and for the architecture students. The result of this pedagogic experience has been the creation of a learning space that transcends academic limits, a space where knowledge is collaboratively constructed by experts and non-experts.

KEYWORDS: *user participation, co-housing, pedagogic innovation, blended-learning*

Introduction

Since the decade of 1960, when the crisis of modern architecture was proclaimed, there has been a permanent quest for user participation in architecture. In the *Design Participation* conference, held in Manchester in 1971, Reyner Banham contended that "There is a perceived need at the moment, in the disarray of the professions, for 'the people' to speak and to be heard" (Banham, 1972, p. 16). Nigel Cross, one of the organizers of the conference, considered that "User participation, by involving in the design process those who will be affected by its outcome, may provide a means for eliminating many potential problems at their source" (Cross, 1972, p. 6).

This acknowledgement of the need to incorporate the user in the design process, gave rise to a review of the relation between architecture and power, of the social role of the architect and of the logic of the design process as previously envisaged by modern architecture. In his article *Architecture's public*, published in 1970, Giancarlo De Carlo criticized modern architects for being concerned only with "how" problems, that is, with providing solutions for the problems which have been previously formulated by the representatives of power, namely, the architects' clients. According to De Carlo (2005), "Working on 'how', without rigorous control of 'why', inevitably excludes reality from the planning process." In this way, modern architecture became an academic, self-indulgent activity concerned with solving "its" own problems. These are, the problems created by architecture itself –e.g. form and function– or the problems defined by the power structures and assimilated as architectural problems –e.g. reducing the surface of a dwelling to the "existential minimum". An architecture committed to reality, that is, with the 'why', would mean for De Carlo "To discover the real needs of the users therefore means exposing and acknowledging their rights to have things and their rights to express themselves; it means provoking a direct participation and measuring oneself with all the subversive consequences that this implies; it means questioning all the traditional value systems which, since they were built on non-participation, must be revised or replaced when participation becomes part of the process, unleashing energies that have not yet been explored." (De Carlo, 2005, p.18). Precisely, the participation of users throughout all the decision making process, –from the discovery of their needs, to the formulation of formal and spatial hypotheses and, finally, to the transformation of the building through their use- would make it possible "to transform architectural planning from the authoritarian act which it has been up to now, into a process" (De Carlo, 2005, p. 16).

Today, more than forty years after De Carlo's claims about the need for an architecture committed to its users, participation in architecture remains a matter of debate. The mainstream of the architectural profession has not yet recognized the need of user's participation. This is confirmed by the fact that architecture schools are mostly dedicated to training architects to design and build for people, but without people.

In recent decades, however, the design disciplines have been steadily moving towards users with the purpose of integrating them as partners throughout the entire design process, from the generation of the idea to the evaluation of the final product (Sanders & Stappers, 2010). As a result, the traditional design focused on the product has given place to a design process where the user's needs are at the centre and, lastly, to a co-design process that takes into account the user's knowledge and experience. Such participatory design processes call for new professional roles – the designer as a researcher and as a facilitator who helps non-experts to feed the design process with their knowledge – and for new procedures which enable users to communicate their experience.

With regard to this trend, which seeks to achieve a greater involvement of users, architecture and planning are still seen as one of the last 'traditional' design disciplines. Sanders and Stappers contend that "one of the major challenges in the planning and architectural practices today, is the communication gap between the design team, the various levels of 'user groups' and the wide array of specialised consultants to the process" (Sanders & Stappers, 2010). They claim that co-design practices would help to bridge these gaps, thus giving rise to more sustainable living environments. Adopting such practices would require the creation of new design spaces – not circumscribed to the creation of an architectural object –, and of new methods and tools to promote dia-

logue between experts and non-experts. This would give rise to new professional roles that could be adopted by architects rather than by other specialists: being the designer of design processes, rather than the designer of objects; and becoming a mediator and facilitator of participatory processes.

Architectural education plays a key role in bringing architecture into the mainstream of the design disciplines concerned with the participation of users in co-design processes. Today training professionals as competent designers of architectural objects is not enough. They should also have the skills to develop their work as architects in collaborative design processes. Training this sort of professional, will demand some changes in the existing curricula and new forms of learning and teaching. It is necessary to create new pedagogic spaces – quite different to traditional courses or design studios – enabling students to formulate 'real' problems in collaboration with users and to design learning activities that enable future architects to develop the skills needed to play the role of process designers, rather than only product designers. This was the motivation behind the pedagogic experience which we carried out in the elective seminar "Civic Housing" held at the School of Architecture La Salle in the fall semester of the academic year 2013-14. In this seminar, architecture students and members of a co-housing cooperative participated in a collaborative process to define the housing needs of the dwellers of a multi-story building to be renovated. The task given to students was to design a collaborative process to enable dwellers to express their visions about their current and future living conditions. Students analysed and processed the inputs received from the dwellers and created some design guidelines based on these inputs which could be used as a starting point of the design of the new dwellings.

Learning design

The housing association SostreCívic promotes cooperative models to facilitate access to housing. The association reached an agreement with the planning authorities of the city of Barcelona to refurbish an existing building block in El Born neighbourhood, a five-story building completed in the early twentieth century (Figure 1).

Figure 1. Building to be refurbished in El Born neighbourhood, Barcelona

Members of SostreCívic receive some basic training about the purpose of the association, and the value of cooperation to transform the habitat. People join this association to get a housing that they could otherwise not afford. Therefore, they were disposed to engage in a learning experience to reinforce their capacities to participate in a collaborative design and building process.

This case provided an opportunity to bring together dwellers and architecture students in a joint process of reflection on the value and meaning of housing. The first stage of this process was to identify the users' needs. Jeremy Till contends that "The architect (as citizen-expert) needs to listen to, draw out and be transformed by the knowledge of the user (as expert-citizen)" (Till, 2005, pp. 34-35). This two-way communication, rather than threatening the role of the architect offers "an opportunity to reinvigorate it through challenging the very limits and constraints of specialist knowledge (Till, 2005, p.34). In the learning activities carried out in the seminar, architecture students were part of a dialectic process between experts and non-experts. The task of students was to design the methods and tools that would enable users to express their experience about the living environment. In this context, students played multiple roles: as design researchers, as designers of the design process, and as facilitators who helped users to express their thoughts and to elicit the knowledge they possess.

Engaging users in the design process of their future home is an educational experience for both, non-experts – the future dwellers – and experts – the architectural students and their tutors – involved in the process. Peter Stringer was persuaded that "The layman is very experienced, and often quite good, at planning other parts of his life. What is necessary is that he should be able to exercise that talent at some level of the more technical planning of his environment" (Stringer, 1972, p. 29). The participation in a design process is for users an educative experience for learning to confront their personal construct system that "enables one to make sense of events around one and order them in relation to one another" (Stringer, 1972, p. 27) with the construct system of professionals.

Therefore, the activities planned in the seminar had a pedagogic value for both the future dwellers and for the architecture students. What dwellers were expected to learn in this process was:

- To express and communicate their experience about the spaces they live in.
- To assess their living environment in qualitative terms, by describing what they consider good or bad about the places they live in.
- To empower them to participate in the subsequent stages of the design process of their future living environment.

And, for architecture students the pedagogic objectives were:

- To design a process for engaging dwellers in a reflective process about their present and future living place.
- To design the tools and methods that would enable users to express their knowledge and needs.
- To learn from users – rather than from the building regulations or from established architectural models – what the needs of the future dwellings.
- To analyse the insights obtained from the interaction with dwellers and to use them as input in the design process.

As a result of the interaction between non-experts and experts, we expected users to make a critical assessment of their living environment by means of the communication and representation tools provided by architectural students. In turn, students would learn to design a participatory process and to analyse and make use of the insights provided by dwellers. The collaborative work would end with a series of recommendations to be taken into account in the subsequent design stages, carried out after the seminar.

Learning activities

The purpose of the learning activities was to design a participatory process to identify the needs of the future dwellers. They were performed during the 14-week seminar in the following sequence:

- Reflecting on the need for citizen participation in architecture.
- Designing a participatory process: analysing existing methods and tools.
- Implementation of the participatory process: first working session with users.
- Evaluation of inputs obtained in the first participatory session.
- Re-designing of the participatory processes: improved methods and tools.
- Implementation of the participatory process: second working session with users.

Creating a design brief based on answers from participants.

Within every learning activity, a series of tasks were carried out. The structure of learning activities and tasks was created according to the structure provided by the OIKODOMOS Workspaces learning environment. Tasks were done in the same environment. In this way, other students and teachers from partner schools of the OIKONET program could follow the course development and had access to its outputs.

In the next sections, we summarize the scope of every learning activity, the tasks in each one and the outputs produced.

Reflecting on the need for citizen participation in architecture

The task consisted in the identification of research topics concerning contemporary housing that were related to participation. The objective of the task was to find out why participation plays an important role in architecture. Students summarized their findings in an A3 sheet which was presented and discussed in the classroom (Figures 2 and 3).

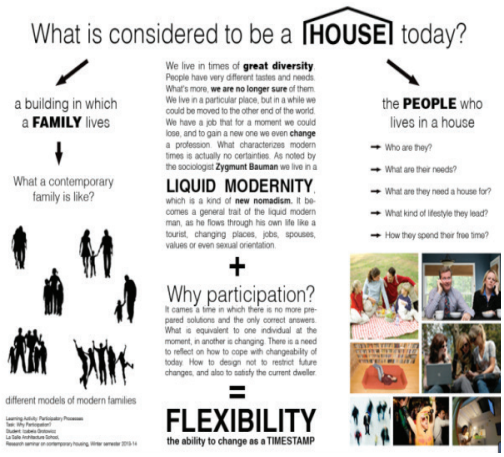


Figure 2. Preliminary reflections about the significance of citizen participation, by Izabela Grotowicz

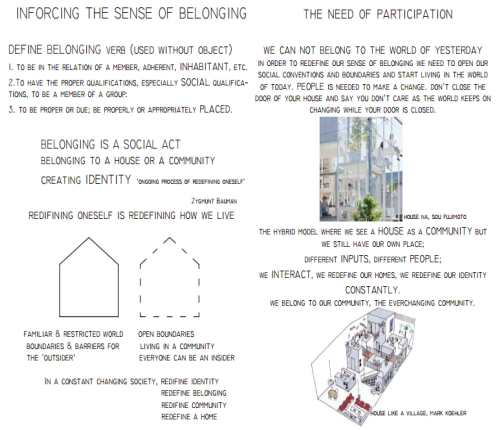


Figure 3. Preliminary reflections about the significance of citizen participation, by Ana Sofía Quirós

Designing a participatory process: analysing existing methods and tools

This learning activity consisted of two tasks: 1. To analyse some of the methods and tools used in previous participatory processes and 2. To design tools to enable dialogue with the dwellers.

1. Analysing existing methods and tools

Different models of participatory processes exist, which are based on dialogue (exchange of information and negotiation among participants), observation (extracting behavioural patterns of people in living spaces) and also on the implementation of generative techniques that reveal not only tacit knowledge but also expose users' latent needs (Sanders, 2001). Students analysed some previous communication tools and methods used in participatory processes found in the literature, among them those from De Carlo (2005), Alexander (1977), Erskine (1987), Habraken (1972) and Sanoff (2006). By studying these precedents, students realized the importance of having appropriate means of representation to facilitate the communication between professionals and non-professionals, between architects and dwellers (Figures 4 and 5).

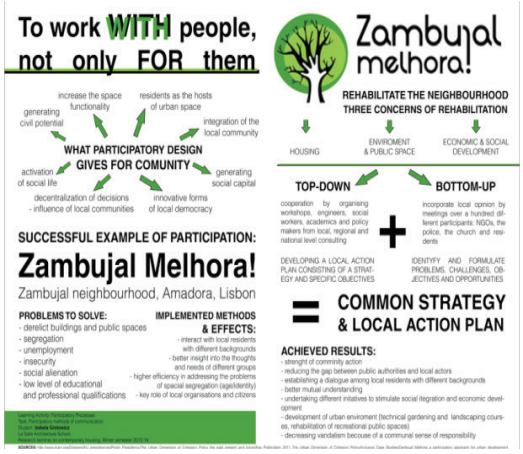


Figure 4. Preliminary research on participatory methods and case studies, by Izabela Grotowicz

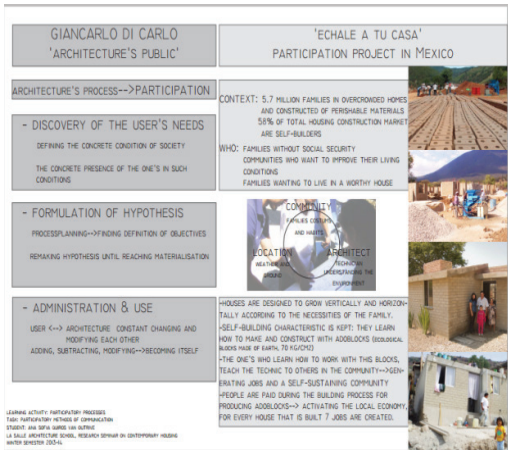


Figure 5. Preliminary research on participatory methods and case studies, Ana Sofía Quirós

2. Designing communication tools

Following the outcomes presented by students and the discussions held in the classroom (Figures 6 and 7), the idea of creating simple tools –made with simple objects, such as paper sticks, needles, threads and cardboards– to enable users to express and represent their knowledge in an intuitive manner emerged. Habraken et

al. (1987) already used simple objects to create “design games” with the intention to enable non-experts to formulate their ideas in an early stage of the design process. Visser et al. (2005) have used simple materials as generative techniques “to get access to a hidden world of user experience, and thereby build a better understanding of it, which can then be used for design”. In our case, the purpose of the tools designed by students was to find out about the spaces the users lived from their experiences.

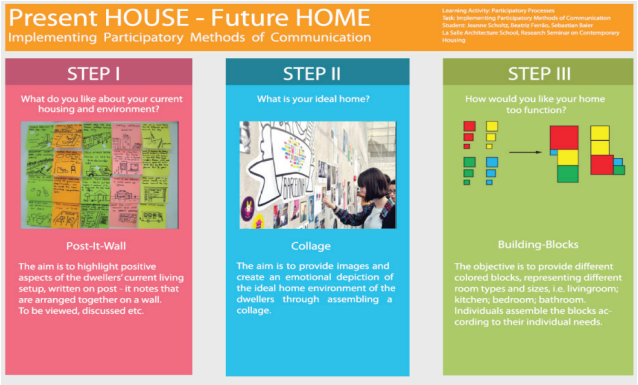


Figure 6. Students’ proposal of communication tools based on simple objects

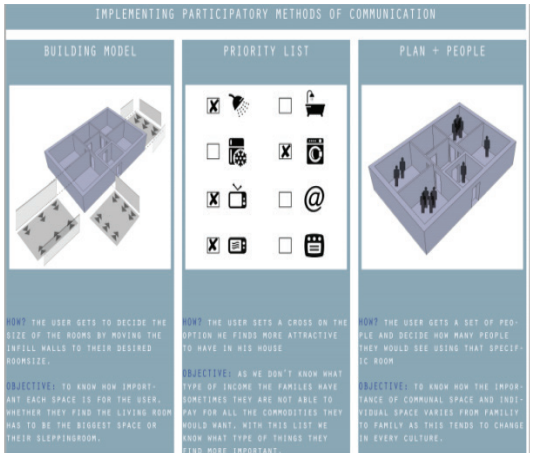


Figure 7. Students’ proposal of communication tools based on architectural representation (plans, models, perspectives)

The tools proposed were subsequently applied in the various activities carried out with the participation of the future dwellers in two working sessions with the students:

- **Activity 1. DESCRIBE the space you live in.** Conventional user study techniques, such as interviews, observations and questionnaires which help to understand people’s current and past experiences (Visser et al., 2005).
- **Activity 2. IMAGINE your ideal living space.** Generative techniques, such as drawings, collages and diagrams, which provide a view to reveal future states of people (Sanders & William, 2001).
- **Activity 3. PLAN your future home.** Design participation techniques, such as architectural models, plan drawings, etc., which allow a better articulation and resolution of the clients’ real needs in the design process (Lee, 2008).

Implementation of the participatory process: first joint working session

Communication tools and associated methods, which were devised in the previous learning activities, were implemented in a participatory session that took place at

the premises of SostreCívic in Barcelona on October 29, 2013. Forty members of the association and ten students participated in this session (Figure 8).

Figure 8. First participatory session with members of the co-housing association

The aim of this first session was to obtain from dwellers some visions about the places they would like to live in. The activities enabled students to apply the tools devised in the seminar. As for dwellers, this action represented the starting point of the design process of their future home.

- **Activity 1. DESCRIBE the space you live in.** Users were enquired about their experience in their current living environment. They were asked to describe in their own words what they liked most and least about their living places. The texts were written in post-its and shared with the rest of participants (Figure 9).

Figure 9. Activity 1. 'Describe your experience about the domestic space'

What was expected from this activity was a vocabulary describing the domestic space described with the language of the dwellers, rather than with the architects' jargon. These are some examples of the dwellers inputs: "Life in a building with plants and flowers gives vitality", "I would love to have enough space and tranquillity to be

with my daughter", "We should have rooms with different functions according to the activity wished to be done at that moment", "A cosy place to work and read", "To make it feel like home, I'd like to have my own private space but also a space to have some friends over, sharing a meal and talking without having to rush". These inputs were analysed by students in order to define the "problem" to be solved. In this way, the building program was not formulated in advance in professional terms –function, building regulations– but derived from the inputs of the dwellers

For the members of the cooperative that participated in this activity, the participation in this activity was an opportunity to make a critical reflection about their current living environment. Even though most of them had joined the cooperative because they were not satisfied with their living conditions, they still lacked the instruments to articulate their critiques. Carrying out the activity enabled them to identify the reasons for their dissatisfaction and to communicate them to other people.

- **Activity 2. IMAGINE your ideal living space.** Participants were asked to reflect on the visions and expectations of their future habitat by means of a conceptual map made up of images that illustrated domestic spaces. They had to choose some of the images that students chose for them and make a collage which represents their ideal living place (Figure 10).

Figure 10. Activity 2. 'Imagine your ideal living space'

This activity exploits the capacity that images have "to evoke deeper elements of human consciousness that do words" (Harper, 2002). The technique known as photo or image elicitation has been used since the 1950s by sociologists and anthropologists in combination with interviews to extract from the subjects the meaning or value they associate to them. In the participatory session, future dwellers were asked to describe the ideas that the photographs evoked. Their words revealed the hidden meanings of the images, but also their "idea" of home built in their memories (Rivera, 2011).

Through this activity future dwellers could express the kind of domestic spaces they had in mind. In a sense, it enabled them to move from assessing their current living situation to envisioning their future living space.

Evaluation of inputs obtained in the first participatory session

The objective of this learning activity was to start to forge links between the dwellers' visions and the professional responses to contemporary housing demands using the results of the previous participatory session (texts, photographs, videos).

The output of this activity was an A3 sheet where each student classified the answers received from dwellers under different topics: sociability, privacy, community, respect, comfort, identity, relation with nature, and integration within the neighbourhood (Figure 11).

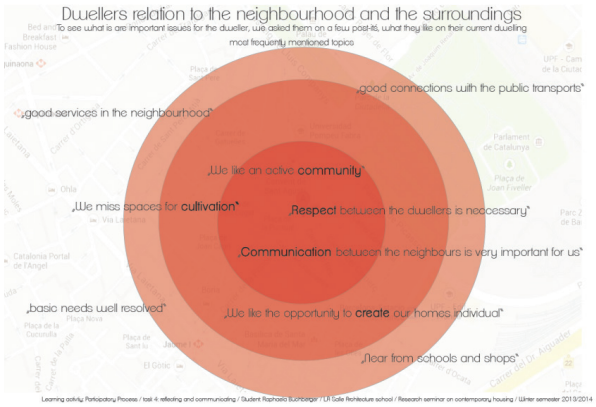


Figure 11. Student analysis of dwellers' inputs

Re-designing of participatory processes: improved methods and tools

After evaluating the outputs obtained in the first participatory session, students were asked to improve the design of the participatory process. Two new activities were proposed, both related with the ideal organization of the new dwelling: Plan your future home (Part 1) and Plan your future home (Part 2). These new activities were focused on the functional and organizational characteristic of the future dwellings.

Implementation of the participatory process: second joint working session

The second participatory session took place on January 14, 2014 (Figure 12). The aim of this session was to implement the new communication tools that had been created after the experience with the first session.

Figure 12. Leaflet of the second participatory session

- **Activity 3. PLAN your future home.** This activity was carried out in two steps, each one with a different representation.

Firstly, participants had to name the eight most important activities they perform at home. The activities were placed in concentric circles, with the most important

ones located at the centre. Afterwards, they had to draw lines to represent the activities that were related. Finally, they specified if the activities took place within the limits of the household or outside it (Figure 13).

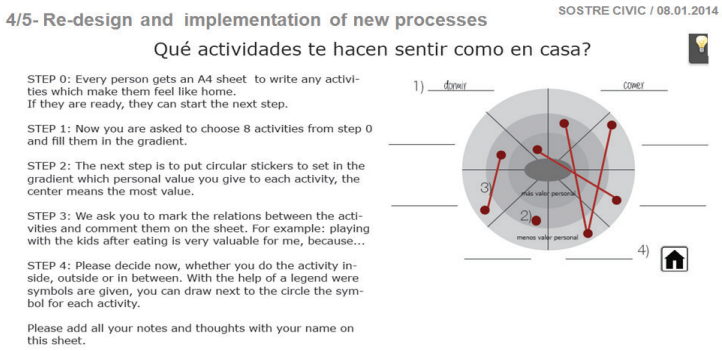


Figure 13. Activity 3. 'Plan your future home' (part 1)

Secondly, participants selected some of the activities from those named in the previous process. Each activity was written in a paper stick. The selected activity was broken down in smaller activities taken place at different times and places. Each of the activities was written in a paper stick whose size represented the value that the dweller assigned to it. Finally, they had to state whether the activities were carried individually, with family members or with the community (Figure 14).

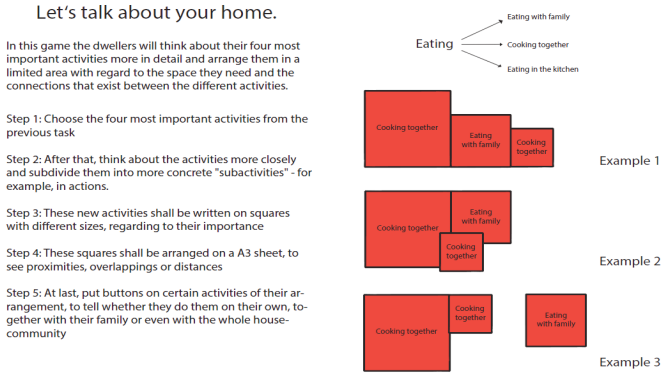


Figure 14. Activity 3. 'Plan your future home' (part 2)

This task enabled participants to rethink the established boundaries set up to organize the domestic space in rooms and functions attached to them. They were able to think about alternative spatial organizations derived from their living experience.

Creating a design brief based on answers from participants

As the final output of the participatory process, students produced a brief to guide the design of the future dwelling in the building to be refurbished. The objective of this task was to describe an architectural program and to produce design guidelines based on the information obtained from the dwellers. These design guidelines were the result of processing the information received from the dwellers that were summarized under a theme.

The design brief was created using a template that was given to students. It was structured in two major areas: at the top, the inhabitant's needs and expectations on their future dwelling, and at the bottom, the response given by architects (e.g. students) to those needs. The architectural responses to the dwellers' demands were described in a verbal and graphic language that should be understandable to non-professionals (Figure 15).

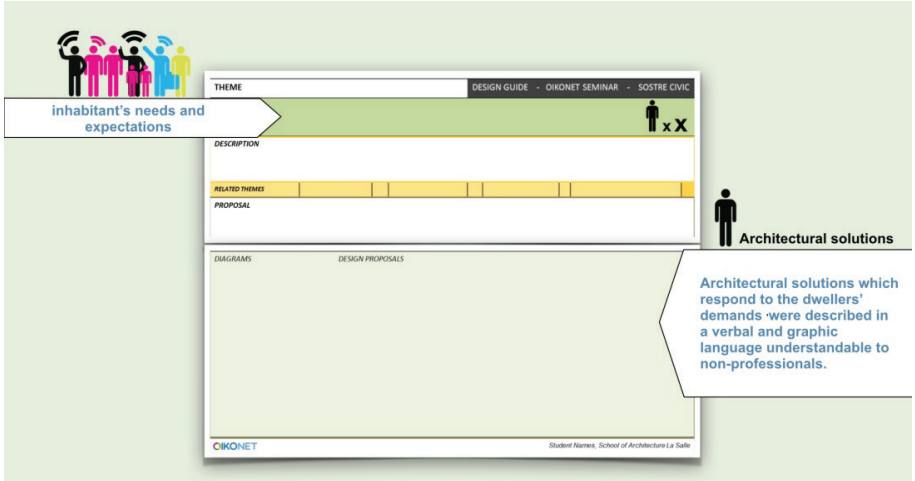


Figure 15. Design brief template

Using this template, students had to provide the following information:

- **Dwellers' inputs:** The information provided by users, literally transcribed, and classified in themes.
- **Description of the problem:** A summary of the issues identified after analysing the inputs from participants.
- **Context:** Other themes related to the one being proposed.
- **Architectural response:** Proposed architectural solutions to issues that were raised by dwellers.

Some of the themes provided by students using the previous template were:

- **Natural light:** "Natural light, large windows and beautiful views were often mentioned"
- **Community:** "Almost all of the participants mentioned that they wanted to share their life with the community, not only rooms but also activities"
- **Green housing:** "Many dwellers would like to have green spaces in their houses. Some of them suggested to have a place to plant fruits and vegetables" (Figure 16).

Figure 16. Students' design brief for the theme 'Green Housing'

- **Children development:** "Families with children stressed that it would be important for them to have a special place for their children to play outside their apartments. This place would have different functions, for example: a place to draw and paint, to play with other kids and to do outdoor activities."
- **Productive space:** "Many dwellers mentioned that they would like to have in their apartment a place of their own, to work or study, do their hobbies, to relax and listen to some music, to read".

- **Open kitchen:** “Many people wanted to have a room to share with friends and family to do some basic activities like cooking, eating or just sitting together” (Figure 17).

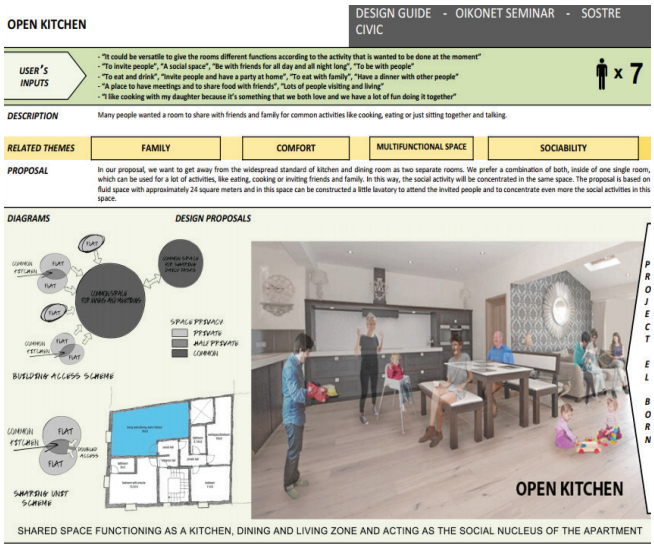


Figure 17. Students’ design brief for the theme for “Open Kitchen”

- **Relation with the exterior:** “Outdoors is the space where most of dwellers socialize with their neighbours and where they can better develop the feeling of living together. Being outside also contributes to feel more in touch with nature.”
- **Sustainability:** “Growing fresh organic products reinforces environmental and social sustainability. Re-using old materials and sharing equipment helps to create a sense of community.”
- **Comfort:** “Users clearly identify their needs. Natural light, large windows and beautiful views are most often mentioned. Need for a warm, homely atmosphere. Collaboration in the design process also enables them to personally identify themselves with the place of residence.”

Conclusion

Every participatory process is unique and, therefore, it needs to be addressed much like any other design task: understanding its specific context and needs, using the materials at hand within the existing constraints, and producing results – in this case, the methods and tools to support the participatory process – in accordance with the given conditions. The fact that every participatory process is born from some specific conditions also makes it difficult to come up with generic methods and tools which can be applied to different situations. The communication tools and the collaborative process created were effective for this particular experience, but there is no guarantee that they could be replicated for other situations. The two participatory sessions were enough to create a base to foster a dialogue between professionals and non-professionals. Deepening in this dialogue would have required more meetings and additional representation instruments. Despite the limitations, it was possible to complete a first interaction cycle including designing a collaborative process in the twelve-week semester, receiving the inputs from the dwellers, processing their answers and proposing some visions about their future living spaces.

The learning space where the collaborative activities took place has superseded the academic realm, in a physical and methodological sense. The fact that the parti-

cipatory sessions took place outside the school, on the premises of the association, made the students feel as if they were involved in a real problem rather than doing an academic exercise. The direct contact with dwellers was also decisive in giving a sense of reality to the learning experience. From a methodological point of view, the learning experience surpassed academic limits and added a social dimension to the project. Learners were not only students but also citizens with no background in architecture. Both, students and users, learned from each other's knowledge and expertise. In particular, both groups experienced the need to have a shared language (verbal, visual) to overcome the gap that separates experts from non-experts.

Students were able to develop the skills they need to play the role of "designers of design processes" rather than of "designers of architectural artefacts". They were exercising the role of mediators and facilitators of knowledge elicitation processes. Through the processes designed and implemented by students and their tutors, users became aware of the knowledge they hold with regard to the living environment. In addition to guiding the development of the students' work, teachers have played a role of learning designers, creating a blended learning space integrating academic with civic activities.

Acknowledgements

We would like to thank the students who participated in this seminar for their commitment and collaboration: Raphaela Buchberger, Alejandro Calleja, Jan Ernst, Izabela Grotowicz, Beatriz Martí, Ana Sofía Quirós, Jeanne Scholtz and Katarzyna Trochimowicz. We are especially grateful to the members of the SostreCívic association who dedicated their time to collaborate with us in the two participatory sessions. This pedagogic experience would not have been possible without their collaboration.

References

Alexander, C. (1977). *A pattern language: Towns, buildings, construction*. New York: Oxford University Press.

Banham, R. (1972). Alternative Networks for the Alternative Culture? In N. Cross (Ed.), *Design Participation*. London: Academy Editions.

Cross, N. (1972). *Design Participation*. London: Academy Editions.

De Carlo, G. (2005). Architecture's public. In P. Blundell Jones, D. Petrescu & J. Till (Eds.), *Architecture and Participation*. London & New York: Spon Press.

Erskine, R. (1987). *Architecture, the useful and universal art*. Discourse on the reception of the RIBA Gold Medal for Architecture.

Habraken, N. J. (1972). *Supports: an alternative to mass housing*. London: Architectural Press.

Habraken, N. J., Gross, M., Anderson J., Hamdi, N., Dale, J., Palleroni, S., Saslaw, E. & Wang, M-H. (1987). *Concept Design Games. Book One: Developing. Book Two: Playing*. Cambridge, USA: Department of Architecture, Massachusetts Institute of Technology.

Harper, D. (2002). Talking about pictures: a case of photo elicitation. *Visual Studies, 17*(1), 13-26.

Lee, Y. (2008). Design participation tactics: the challenges and new roles for designers in the co-design process. *CoDesign: International Journal of CoCreation in Design and the Arts, 4*(1), 31-50.

Rivera, O. (2011). *Procesos de participación: proyectar, construir y habitar la vivienda contemporánea* (Doctoral dissertartion). Retrieved from http://www.tdx.cat/bitstream/handle/10803/22702/TESIS%20FINAL%20MAQUETADA%20-%20Procesos%20de%20Participaci%C3%B3n.pdf?sequence=1

Sanders, E., & William, C. (2001). *Harnessing People's Creativity: Ideation and Expression through Visual CoCommunication. Focus Groups: Supporting Effective Product Development*. New York: Taylor and Francis.

Sanders, E., & Stappers, P. (2010). Co-creation and the new landscapes of design. Codesign: International Journal of Cocreation in Design and the Arts.*Taylor and Francis, 4*(1), 5-18.

Sanoff, H. (2006). *Programación y participación en el diseño arquitectónico*. Barcelona: Ediciones UPC.

Stringer, P. (1972). A Rationale for Participation. In N. Cross (Ed.), *Design Participation*, London: Academy Editions.

Till, J. (2005). The negotiation of hope. In P. Blundell Jones, D. Petrescu & J. Till (Eds.), *Architecture and Participation*. London & New York: Spon Press.

Visser, F., Stappers, P., Van der Lugt, R., & Sanders, E. (2005). Contextmapping: experiences from practice. *CoDesign: International Journal of CoCreation in Design and the Arts, 1*(2), 119-149.

Introduction to Housing: A collaborative learning space on the fundamentals of housing design and representation

Carla Sentieri
School of Architecture, Polytechnic University of Valencia, Spain
carsenom@pra.upv.es

Nadia Charalambous
Department of Architecture, University of Cyprus, Cyprus
nadiac@ucy.ac.cy

Mirjana Devetaković
Faculty of Architecture, University of Belgrade, Serbia
mirjana.devetakovic@gmail.com

ABSTRACT

This paper explores a collaborative learning space named 'Introduction to Housing' created by three European schools of architecture – Polytechnic University of Valencia, University of Cyprus and University of Belgrade – in the context of the Erasmus Lifelong Learning Project OIKONET (2013-2016). The learning space draws on the curriculum of the first year design studio of the School of Architecture of Valencia, the housing design studio at the University of Cyprus and the 3D Visual Communication course at the University of Belgrade. All learning activities developed in this learning space aimed to introduce students to housing studies and were supported by the web-based learning environment OIKODOMOS Workspaces. The paper starts with a brief discussion on design studio teaching, its importance in architectural education and recent impacts of emerging information technologies on traditional teaching methods. The transformation of the traditional design studio learning into a 'blended' learning space is then discussed through the presentation of the collaborative web-based learning space. The structure of learning activities (LAs) and learning tasks (TKs) are presented and discussed by each participating school.

KEYWORDS: *housing studies, pedagogic innovation, design studio, blended learning*

Introduction

The collaborative teaching activity described in this paper was initiated during the spring semester 2013-14, as part of the European research project OIKONET (www.oikonet.org), co-funded by the Erasmus Networks programme of the European Union (2013-16). During the first meeting of the OIKONET 'Pedagogical Activities' group held in January 2014 in Barcelona, it was decided to create a collaborative web-based learning space dedicated to introducing first year students to some architectural principles with a focus on housing studies. Three schools agreed to participate in the design of the pedagogic structure of the learning space titled 'Introduction to Housing': School of Architecture, Valencia (ETSA-UPV) as leader; University of Cyprus (UCY) and Faculty of Architecture of Belgrade University (AF Belgrade).

The new learning space builds on a pedagogic model developed and implemented in the OIKODOMOS[1] Virtual Campus, carried out in the period 2007-2011 with the support of the Lifelong Learning Programme of the European Union. This pedagogic model is based on the collaborative design and implementation of sequences of learning activities which are collaboratively designed and implemented in the on-line learning environment OIKODOMOS Workspaces[2], specifically developed for that project and on seminars and design studios held at the participating universities. This way, the OIKODOMOS Virtual Campus attempted to overcome the boundaries between physical and digital learning spaces by promoting a blended[3] learning approach across institutions.

The paper is mainly based on a reflection on the collaborative teaching process developed through the learning space 'Introduction to Housing' (available online at: http://www.oikodomos.org/workspaces/). Through the analysis of the implemented learning space, the discussion is directed towards examining the potentials and limitations of web-based collaborative learning in introducing housing issues to architecture students. It attempts to identify the benefits of exposing first and second year architecture students to learning basic principles about housing and architecture in an international context. It also highlights the challenges for both teachers and students to participate in a learning structure which is the result of the collaboration between different academic programs.

Design studio teaching

At the outset, it is necessary to give a short introduction of the design studio as the most representative learning space in architectural education (Charalambous & Hadjisoteriou 2007; Charalambous, & Phocas, 2012; Devetaković, Arsić, & Nikolić, 2011).

The design studio has undoubtedly been at the core of architectural design education since its inception in the 19th century. The traditional studio-based pedagogy has remained fairly stable and unchanged, based on the historical models of the Beaux-Arts and the Bauhaus. The idea of the design studio was first developed as a form of collaborative learning, in 19th century France, by students of the École des Beaux Arts. The school's formal activities consisted of lectures and the setting of design competitions, but there was limited opportunity for design tuition. Students consequently organized independently established workshops (ateliers), inviting and

---

[1] OIKODOMOS is a network: of European schools of architecture and urban planning; of themes of study about housing in contemporary Europe; of learning activities – courses, seminars and design studios – dealing with housing; and of learners – students and teachers – constructing knowledge in collaboration (http://www.oikodomos.org/resources/compendium.pdf).

[2] OIKODOMOS Workspaces is a web-based learning environment which facilitates collaboration among distant learners who are performing joint learning activities in different settings, both physical and virtual: design studios, seminars and courses (Madrazo, 2012). It is the learning space shared by a group of teachers who want to design and implement some shared processes of learning on a theme.

[3] The term 'blended learning' is used in two general contexts: firstly, through the creation of on-line learning spaces aiming at fostering the construction of knowledge as a result of the interactions among learners; and secondly, through integrated online (virtual) and face-to-face activities across institutions.

paying qualified architects to assist them with their design work. This system has continued into the 20th century, initially within the offices of architects (the atelier of Le Corbusier, for example).

The 'design project', as the vehicle for project-based learning, was adopted on the assumption that the expertise needed by architects could only partially be learned through the traditional methods of knowledge and experience transmission. The perceived benefits of the design project were that it simulated, albeit in a simplified and directed way, the actual processes of professional activity by requiring students to apply their accumulated knowledge and skills in an integrated way to a design problem. The model of 'practice informs teaching' in an environment which integrated theoretical and practical creative work with research can trace its origin back to the Bauhaus at the beginning of the 20th century. Architecture students became familiar with the materials and the profession, while at the same time possessing the theoretical knowledge and experience that enabled them to undertake a comprehensive project development. In fact, the integration of different types of knowledge into architectural education through a collaborative working environment such as the design studio has been a perennial concern since then (Cunningham, 2005).

The overriding primacy given to the design studio as the main forum for creative exploration, interaction and assimilation of professional skills remains a common characteristic in architectural education (Charalambous & Hadjisoteriou, 2007). Students develop fundamental design skills, supported by analytical and abstract thinking which is determined by the prevalent cultural and technological realms. However, contemporary research about the pedagogy of the design studio reveals substantial differences in the process of education of future architects around the world. Schools of architecture apply different learning models to the design studio. In some cases, students typically work on the same project, within a shared design studio environment during a semester or a year. In other situations, students from various backgrounds may work together in a similar way as they do in the Fine Arts ateliers.

Although studio teaching is still based on the traditional models of the design process, architectural education and practice within the design studio is undergoing a transformation as a result of the application on new learning models. The rationale for this change is based on widely recognized transitions from industrial societies and their linear, hierarchical thinking to the emerging post-industrial era characterized by deeply interrelated types of knowledge and complex system thinking.

Advances in disciplines, specialization, material- and systems-science and digital technology have brought a radical change in the contextual frameworks in which architectural design and production were placed. A major concern has been the relationship between the digital and the analogue realms which represents a central issue for contemporary architectural design, research and production. Advances in digital technologies are paving the way to achieve 'integrated inter-, multi- or even trans-disciplinary design' – in all cases a type of practice that covers a mind-set of collaboration and cross-disciplinary communication and experimentation, visualization and research at all or possibly at different stages of the design process (Charalambous & Phocas, 2012; Nicolescu, 1999). Simulation tools, for example, enable the designers to assess building performance with relatively high accuracy. Contemporary information technology provides the instruments to approach even cross-disciplinary experimentation However, to exploit these technologies, designers need to come up with alternative strategies in order to forge links between disciplines and specializations.

Today, it is necessary to adopt an open attitude to exploration during the entire design process, from the early conceptual stage until the production phase. This implies considering buildings as integral systems rather than as the juxtaposition of isolated functional layers. It entails also the rethinking of design pedagogy to meet the challenges represented by the convergence of virtual and analogue modes of design. In this regard, the web-based collaborative learning environment 'Introduction to Housing' which has been developed in the context of the OIKONET project, aims to contribute to pedagogic innovation in the housing programs of the schools of architecture.

Creating a collaborative learning space

The structure and contents of the new learning space 'Introduction to Housing' draws on the curriculum of the first year design studio of the School of Architecture of Valencia, the housing design studio at the University of Cyprus and the 3D Visual Communication course at the University of Belgrade. Altogether, the learning activities developed in this learning space aim at the introduction of students to the notion of the 'house'.

The house is undoubtedly one of the most important vehicles of exploring the social and experiential dimensions of architecture. Domestic spaces usually encode a wealth of social and symbolic information that may vary in different cultures and different contexts and may be observed in the way domestic space is designed and organized. Understanding the relationship between the spatial organization of domestic space and the social life of the inhabitants is one of the central challenges of a design studio in a pedagogic environment. An understanding of the ways in which the house – as a spatial form – relates the social, cultural, and individual dimensions with the increasingly divided, complex and differentiated experiences of contemporary life, is of fundamental importance for architecture educators across the globe. In this context, the pedagogic purpose of the learning space is to address those issues through the collaborative design and implementation of sequences of learning activities that introduce students to the basic principles of designing (and understanding) the what a house might represent in our contemporary culture (or cultures).

Contemporary pedagogical approaches related to the design studio reveal considerable differences in the process of education of architecture students. Schools of architecture adopt different models of how learning within a design studio in general or a housing design studio in particular may occur. Each school has embedded its own cultural milieu, and has a particular curriculum and schedule to carry out the study programs. So, the first challenge faced in the design of this learning space was to agree on a common plan of collaborative teaching on this specific topic which reflects the pedagogic objectives of the participating institutions.

At the outset, an important step was to establish a common understanding of the educational processes and the language used to describe them. This was based on the pedagogic methodology developed in the OIKODOMOS Virtual Campus (Madrazo, 2011). The definition of goals and learning outcomes in conjunction with the method of aligned learning and teaching to describe the process by which learning would take place is therefore used, as illustrated in Figure 1.

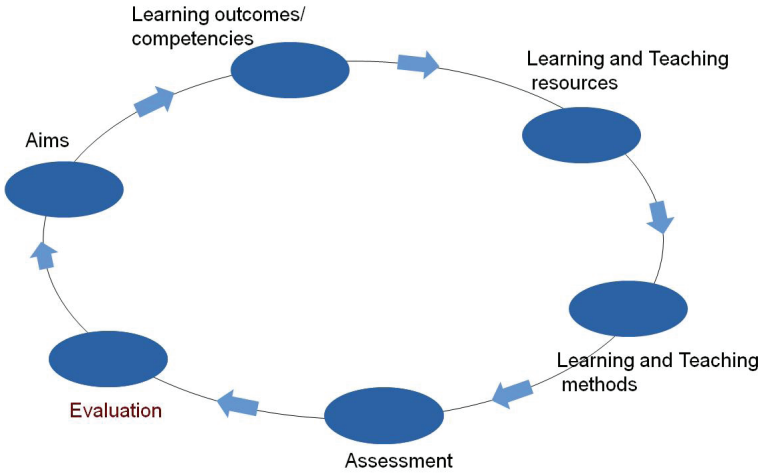


Figure 1. Aligned learning and teaching model (Source: J. Biggs & C. Tang, Teaching for Quality Learning at University, Buckingham: Open University Press/McGraw Hill, 2007)

The structure of the learning space enabled architecture educators from the three participating institutions to design a joint learning structure made up of collaborative Learning Activities and Learning Tasks. The pedagogic model underlying the learning environment is based on the structure presented in Figure 2.

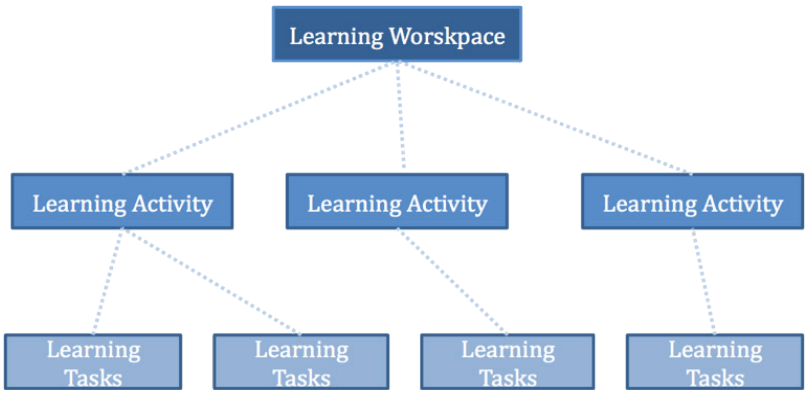


Figure 2. The pedagogic model of the collaborative learning environment 'Introduction to Housing' (Source: Madrazo, 2011)

Learning Activities and Tasks[4] were collaboratively designed in alignment with the common pedagogic goals which are reflected in the learning outcomes set by the participating institutions. Tutors from the three institutions aimed at collaboratively designed learning activities and tasks and described at the same time the learning outcomes to be used to jointly assess students' work. The Learning Activities and Learning Tasks of the learning space 'Introduction to Housing' are described in detail in the following section.

Learning space 'Introduction to housing'

The activities of the learning space 'Introduction to Housing' started in January 2014 and lasted until June 2014. Six Learning Activities were created (two were proposed by the University of Valencia and four by the University of Cyprus) aiming to introduce students to the basic principles of housing design.

The proposed Learning Activities addressed theoretical principles, design process, and representation techniques (verbally, textual and graphic-digital and analogue). Students carrying out the activities were expected to communicate their ideas (concepts as wells as designs) in an effective manner, while demonstrating team working skills and the ability to make a critical assessment of their own work and of the work of others.

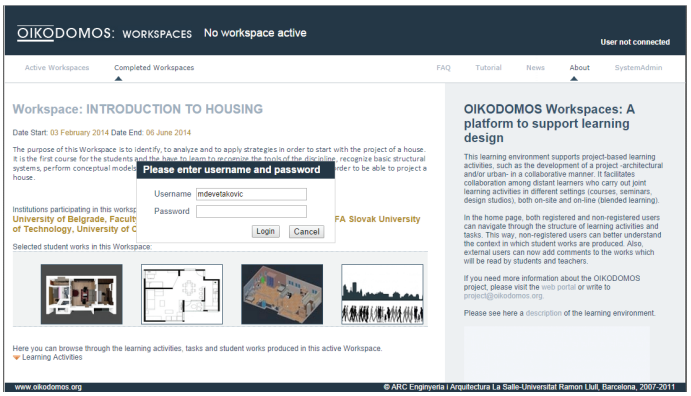


Figure 3. Home page of OIKODOMOS Workspaces

[4] In accordance with the OIKODOMOS pedagogic model (Madrazo, 2011), a Learning Activity is a well-defined stage in the process of learning, for instance, 'Site analysis', 'Analysis of precedents'. A Task, on the other hand, is an assignment given to students within the context of a Learning Activity, for example, 'Visual analysis of the site', 'Studying a set of concepts'.

Pedagogic structure of the Workspace 'Introduction to housing'

In this section an overview of all Learning Activities (LAs) and Tasks (TKs) is given in an attempt to highlight the pedagogic structure devised by teachers of the three schools with the purpose to introduce students to some fundamental issues about contemporary housing.

LA1: Recognizing space

Architects create spaces. Therefore, it makes sense that the first step in an introduction to architecture is to learn, perceive and represent space. The purpose of this activity is to learn to recognize the places we inhabit. Students can develop this capacity by analysing designs or by observing the spaces we live in. All the tasks included in this learning activity focus on the analysis of the spaces we encounter in a house: rooms and space-defining elements, furniture and other objects, dimensions and particularities.

TK1: What is a house?
The goal of this task is to distinguish the concepts of house and home: what makes a house important for us and why. Students are expected to address issues such as: what makes you feel good at home? To answer these questions they need to investigate what makes them feel good at home, how the inner space of the house relates to the outside spaces, in which ways the light penetrates the rooms. These reflections are summarized in an A3 document combining different materials and techniques (texts, drawings, photographs).

TK2: Objects
This task aims at introducing students to the language and graphic skills for describing their ideas and projects. First, students are requested to read the book *Experiencing Architecture* by Steen – Eiler Rasmussen. Then, they select five everyday objects and propose a series of five images expressing the following concepts: natural light, scale and proportion, rhythm, limit and texture. The student work is presented in an A4 document.

TK3: Rooms
The main goals are to identify the size of the spaces and furniture, to recognize the concepts developed in task 2 – light, scale and proportion, rhythm, limits and texture – and to represent a space with drawings – plans and sections – and a model. Students draw their sleeping rooms – plans and sections at a scale of 1:100 – and build a model at a scale of 1:50.

TK4: The house
Continuing with the process started in the previous task, students are requested to draw plans and sections of their house. In this task they learn about the size and the form of the spaces as well as furniture. They are able to start considering the use of spaces and can recognize the different spaces you can find in a home. They are asked to present an A3 document - plans and sections at a scale of 1:100.

TK8: Collective housing
Following the sequence of tasks, the next step after describing the house as a separate object is to group single dwellings to create collective housing. Examples of collective housing projects are presented and discussed in the classroom. Then, students make their own reflections about collective housing and present them in an A3 document.

TK10: A human and the objects in a living space
The students model a set of elements of a living space and represent their dimensions with regard to human scale. To create the model, they use SketchUp software.

LA2: Interpretation of a text

Argumentation is very important for architects, it is the way they explain ideas to people who are not familiar with drawings. Also, the interpretation of a text is never unique. The purpose of this activity is to explore the transformation of the ideas described in a text – or, more precisely, the interpretation of those ideas – into drawings that will become inhabited spaces.

TK5: Lecture and interpretation
This task aims to provide the students with the graphic skills which enable them to translate a text into drawings. The tutor reads a text from the book *Invisible cities* by Italo Calvino, which describes cities and places. Then, students draw the spaces described in the reading. Drawings are delivered in an A4 document.

TK6: Model of the place
Continuing with the process started in the previous task, the purpose of this task is to discuss the translation of ideas from words into drawings. After drawing and discussing, the classroom is divided in two sub-groups to make a model of the place described in the text. By doing the model, students become aware of the kind of decisions an architect needs to take in the process of translating a brief into a building. Photographs of the model are presented in an A4 document.

TK7: Construction of an idea
At the end of this sequence of tasks, each student reflects back on the process that has been followed. Students describe the process in a storyboard and compare it to the design process.

LA3: Predecedent analysis

The purpose of this activity is to learn from precedents, to identify solutions provided from previous projects and to transform them into new ones.

TK9: Analysis courtyard houses
Courtyard houses of different periods are analysed with the purpose of discovering their underlying patterns. Over a three week period the students visualize two pdfs each week in which different examples are described, and they have to recognize their functional, spatial and structural organization.

TK11: Analysis of residential architecture
Analysis of international examples of residential architecture (context, users, social, economic, environmental variables). The analysis focused on one issue: light, relation with the place, relation with the ground. At UCY students were asked to include the residential architecture's relation to local context in their analysis (social, economic, environmental) and the profile of the users where possible and represent their observations in 3d models. Results were presented in both A1 panels and abstract models.

LA4: User profile analysis

Houses are a complex expression of the social and individual worlds of their occupants, in which social structure, the patterns and conventions of everyday life seem to be closely related to the idiosyncratic and many times chaotic circumstances of people's everyday lives. Students are encouraged to understand that the design of a "home" needs to address the practicalities of everyday living while responding at the same time to the owner's idiosyncrasy, personality and dreams. It is therefore impor-

tant to be able to analyse, understand and address possible users' profile.

TK12: Analysis of potential domestic users (TK12)
Students are randomly given existing user profiles and are asked to analyse them (daily routines, hobbies, personalities, spatial patterns). Results are presented through the use of photos and diagrams.

LA5: Context analysis

Homes may often reflect differences between ethnic, cultural and social categories, including gender divisions between men and women or generational differences between adults and children. Many times homes may reflect differences in environmental conditions (climate, light, air, topography). The way these differences are found in the house may vary in different cultures and different geographic areas and may be observed in the way domestic space is designed and organized. In this activity, students are encouraged to understand the ways in which domestic space is site/context specific.

TK13: Visual mapping of context
Students are asked to respond to specific sites – contexts given by their tutors employing visual ethnography methods. They are asked to represent context specific characteristics (cultural, social, and environmental) through both digital and printed photo essays.

LA6: At home_ New design proposals

Taking into consideration all the work produced through the preceding tasks students are asked to design a 'home' in a specific context that addresses local conditions and culture, the practicalities of everyday living and the users' profile, personality and dreams. Understanding the context bound relationship between the spatial structure of domestic space and the social life of the inhabitants is one of the central challenges of this studio. We are interested in the ways in which the home as a spatial form relates to the social, the cultural and to the individual in the context of the increasingly divided, complex and differentiated experiences of contemporary life.

TK14: House design proposals, Initial concepts
Students are asked to develop initial ideas of new domestic spaces for a given context and user profile.

TK15: Courtyard house project
This is the first project they have to do. With some rules, a specific site (ideal site) the same for everyone concrete, the student should project a courtyard house. The student should present the project: plans, sections, perspectives in paper A3-pdf. They have to draw it with pencil.

Implementation of the learning activities

Each school implemented Learning activities and Learning Tasks that made the overall structure of the learning space in their curriculum develop in a different way. Overall, there were four groups of students enrolled with a total of 120 participants in the collaborative teaching and learning process. Students uploaded their work in each task in the OIKODOMOS Workspaces environment (Madrazo, 2012). Then, students and tutors from all participating institutions were invited to comment on the submitted work.

The University of Valencia carried out two of six learning activities and ten tasks. Two groups of students from Valencia, from the first and second year, participated in these activities.

The group of first year students carried out nine of the learning tasks (TK1, TK2, TK3, TK4, TK5, TK6, TK7, TK11 and TK15), eight of them were proposed by the tutor from the school in Valencia, and one by another school.

Figure 4. Valencia students' deliverables representing Learning Tasks 1-11

UCY students and tutors participated linked the activities in the joint learning space with the design studio at their school. At UCY studio work and resources are uploaded on a blog site (athome201.com) but students and tutors found OIKODOMOS Workspaces to be a fruitful learning environment. UCY students mainly participated in LAs 3-6 which fitted very well with the pedagogic structure and aims of the studio. This gave students the opportunity to be exposed to the work of fellow students from other schools but also to present their work to students and colleagues from the participating schools. It also gave tutors the opportunity to collaborate with peers, to become acquainted with the diverse teaching methods and to get to know the work of students from other schools.

However, it proved that more time and better planning was required in order to make full use of the potentials of the collaboration in Workspaces. The learning environment was not fully exploited due to different deadlines and timetables of the schools involved. This hindered the smooth implementation of the sequences of tasks. To compensate this lack of synchronization, the work uploaded by each school was presented and discussed in the class by the tutors and students.

Both students and tutors appreciated the potential and possibilities created through OIKODOMOS Workspaces learning environment and aim to take full advantage of it during the next studio. With this purpose, a thorough discussion of possible common activities and tasks through Workspaces will be proposed in advance, so that the pedagogic structure of the studio is formed in collaboration and is announced to students through the course syllabus at the beginning of the semester.

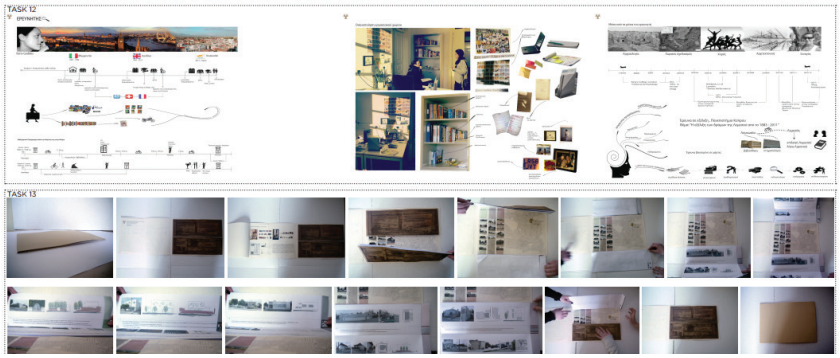


Figure 5. UCY students' deliverables representing Learning Tasks 12-13

Unlike the University of Valencia and University of Cyprus, in which the joint learning activities were linked to housing design studios, in the University of Belgrade they were related to the studio – CAAD Principles and 3D Visual Communication – CAAD, both taught by Dr. Mirjana Devetaković. This is a core course of the Bachelor programme, compulsory for all first year students, a total of 330. It consists of lectures covering various aspects of computing in architecture, and exercises that are submitted to a Moodle learning environment, in the form of an illustrated forum. Two out of eight exercises have been created according to the topics which are part of the Learning Space 'Introduction to Housing', both belonging to the Learning Activity 'Recognize the Space'.

The first exercise for the students was to model the space in which they currently live – be it a house (or a part of it), a flat, an apartment or a rented room. The students were required to use any of the software they were familiar with. Most of students decided to use SketchUp, some of them produced plans with AutoCAD or ArchiCAD, and few used other modelling software. The students who had not been familiar with any software could submit a photo or any other representation. This exercise fitted well to Learning Task 4 'The House', requiring students to draw their own house. This exercise was very interesting, not only because it enabled us to check the students' abilities to represent the spaces they are familiar with but also to better understand the physical context they are coming from, the size of the places they live in, and their functional and aesthetic qualities. In particular, the comparison of the results of this learning task in the two schools, Valencia and Belgrade, might be a valuable material for further analysis and study.

The second exercise, defined in the learning space as Learning Task 10, was to model a set of elements of a living space, representing their characteristic dimensions and relation to human figure. For modelling, the students used the Sketch Up software, applying some more advanced features like dimensioning, using the human figure as a scale. In addition, students complied a summary of the work done on an A4 sheet which was submitted to Workspaces.

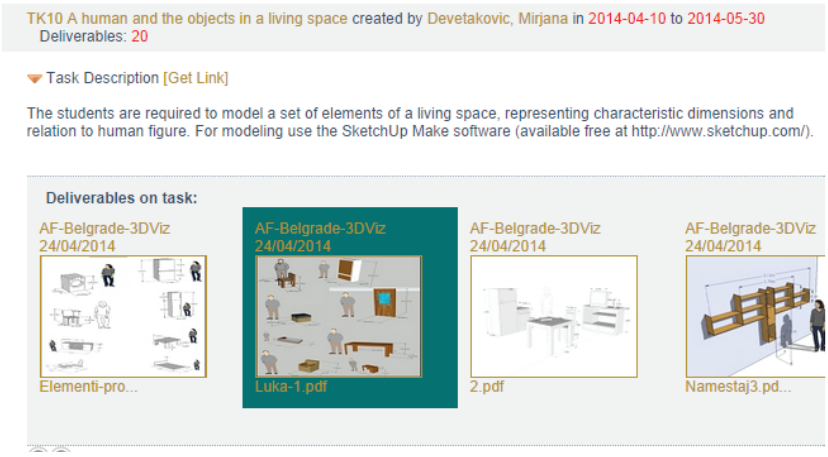


Figure 6. A human and the objects in a living space, Workspace 'Introduction to Housing', spring 2013

Not all of the 330 students were expected to contribute to Workspaces, just the students who had chosen the elective group CAAD within the course 3D Visual Communication; this means around 40 students. The following two tasks were completed by the same group of students, but within the course 3D Visual Communications, within which the students had to examine and design a housing structure consisting of shipping containers, based on a geometric Box Packing[5] concept.

[5] Box Packing, Wolfram Demonstrations Project, http://demonstrations.wolfram.com/BoxPacking/ (accessed September 2014).

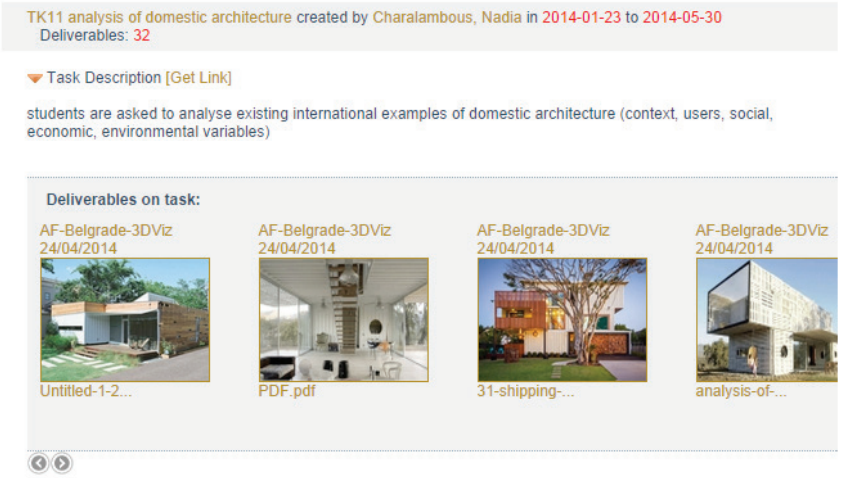


Figure 7. Learning Task 11 – Analysis of residential architecture, Workspace 'Introduction to Housing' (Spring 2013)

Learning Task 11 required students to analyse existing international examples of domestic architecture. Students from Belgrade focused on examples of container based housing examples (Figure 7). Within Learning Task 14 'Housing design proposals – Initial Concepts' students were asked to develop initial concepts of a new domestic space in a context of their choice.

Conclusion

The pedagogic experience described in this paper is regarded as the first in a series of on-going work which will continue within the program of pedagogical activities of the OIKONET project. The pedagogic structure created for this learning space is a base for future enhancements and developments.

The learning activities in all three schools were carried out with the OIKODOMOS Workspaces environment. Although all participating institutions were already using other on-line learning tools this was first time of using Workspaces. As a result, students end up using systems, the in-house one and the shared learning environment.

Both students and tutors found OIKODOMOS Workspaces a fruitful and potentially innovative learning environment. The tutors involved had the opportunity to incorporate blended learning in their teaching, to get feedback from colleagues from other schools and to become familiar with different and diverse teaching methods and learning resources. Participating students, on the other hand, were exposed to different cultural and academic milieus, were able to experience different methods of learning through the virtual campus environment and had the opportunity to comment on other students' work and to receive feedback from both peers and tutors.

The impression of participating teachers is that the OIKODOMOS Workspaces technology could be used more effectively, especially the commenting functions through which a more intensive interaction between the students from various institutions is expected to take place.

The experience from Belgrade University indicates that within the 'Introduction to Housing' it would be possible to include courses other than design studios, which would contribute to a better understanding of the multiplicity and complexity of contemporary housing issues.

References

Charalambous, N., & Phocas, M. (2012). Research in the Studio: Integrated, Research Based Design Process. In E. D. Vos, J. D. Walsche, & M. Michels (Eds.), *Proceedings of the international conference Theory by Design: Architectural Research Made Explicit in the Design Teaching Studio, 29-31 October 2012*. Antwerp: Artesis University College.

Charalambous, N., & Hadjisoteriou, M. (2007). Introductory Architectural Design Studio: (Re)Searching for a New Approach. In C. Spiridonidis, & M. Voyatzaki (Eds.), *Transactions on Architectural Education: Teaching and Experimenting with Architectural Design: Advances in Technology and Changes in Pedagogy*, (pp. 285-293). Lisbon: University Lusiada.

Cunningham, A. (2005). Notes on education and research around architecture. *The Journal of Architecture, 10*(4), 415-441.

Devetaković, M., Arsić, P., & Nikolić, I. (2011). Integration of E-Learning Concepts in Urban Design Studio. The case of a virtual learning environment supporting a specific educational mode. Y*U Info 2011, Kopaonik, 6-9 March 2011*. Kopaonik: Serbia. Retrieved from http://www.e-drustvo.org/proceedings/YuInfo2011/html/pdf/190.pdf

Madrazo, L. (2012). OIKODOMOS Technological Platform. In L. Madrazo, J. Verbeke, T. Ooms, & P. Riddy (Eds.), *OIKODOMOS Innovating Housing Learning* (48-61). Ghent: Hogeschool voor Wetenschap & Kunst.

Madrazo, L. (2011). *OIKODOMOS Compendium*. Retrieved from http://www.oikodomos.org/private/downloads/conferences/edulearn_oikodomos.pdf

Nicolescu, B. (1999). The transdisciplinary evolution of learning. In *Symposium on Overcoming the Underdevelopment of Learning at the Annual Meeting of the American Educational Research Association, Montreal, Canada*. Retrieved from http://artsci.unsw.wikispaces.net/file/view/Nicolescu-The+transdisciplinary+evolution+of+Learning.pdf/340978660/Nicolescu-The%20transdisciplinary%20evolution%20of%20Learning.pdf

Towards a pedagogic model for a cross-disciplinary approach to housing study and design. The potential of collaboration

Adriana Diaconu

Institut d'urbanisme de Grenoble, Université Pierre-Mendès-France – Grenoble 2, Grenoble, France

ad.diaconu@gmail.com

ABSTRACT

The paper analyses the different aspects of a pedagogic and learning experience created in the first year of the OIKONET project, aiming to prepare students for the forthcoming Lisbon workshop. In line with the main aims of the OIKONET project and with the workshop program, this experience aimed to foster collaboration between European institutions of architectural and spatial planning education. Moreover it aimed to foster a cross-disciplinary approach to housing study and design that would be innovative for architectural and planning studies.

The analysis of the design process, of the content of its web-based supporting environment and of different forms of collaboration and exchange between participants – students and tutors – show the emergence of a pedagogic model that we can describe as multi-disciplinary and multi-faceted. Three large categories of disconnected approaches have been identified in terms of content: the social sciences' approach, the 'urban morphological' approach and the 'technical innovative' approach.

Finally the paper claims that responses and outputs from students suffered from a lack of joint methodological guidance that was visible in the disconnected disciplinary approaches.

KEYWORDS: *housing studies, pedagogic innovation, multidisciplinary, cross-disciplinary*

Introduction

Debates on multi-disciplinarity in architectural and urban planning studies are long-standing. In many European countries they appeared in relation to architectural education reforms, as for example in France after the 1968 social movements, when social sciences were systematically introduced in architecture education (Denès, 1999). More recently, European Union's calls for projects in research and education, constantly favour the promotion of multi-disciplinarity and cross-disciplinarity. The OIKONET project fully engages in this direction and proposes to foster a cross-disciplinary approach to housing by allying design pedagogy, research and an associative civic perspective.

Crossing disciplinary boundaries, as a prerequisite to pedagogic innovation, is one of the main aims of the OIKONET project. In terms of the methods to achieve this objective, OIKONET proposes collaboration between people with different approaches to housing issues. These different participants, who defend their own disciplinary or cross-disciplinary points of view, come from areas of expertise such as research, education and society. OIKONET participants are expected to be actively involved in the creation of innovative learning spaces cutting across existing institutions and disciplinary boundaries.

This paper starts by questioning the way in which such an aim of cross-disciplinarity can be put into practice through the process of collaboration. It also looks into methods for fostering collaboration and for embedding a cross-disciplinary approach to housing in a pedagogic model for architecture and urban planning students. In order to do this, the article will analyse the experience of the first collaborative learning experience, created within the first year of the three-year OIKONET project involving fifteen European institutions[1] specialised in architecture and spatial planning education. This collaborative learning experience, entitled *Contemporary living patterns* was designed and implemented in relation to the first common workshop organised in Lisbon in July 2014. By preceding the design workshop, this learning experience was following the 'blended learning' model, a methodology already developed by the project leader in a previous project called OIKODOMOS, combining on-line and on-site activities (Riddy, Depuydt, & Madrazo, 2012). The experience analysed here was thus an on-line collaborative activity preceding and preparing the intensive face-to-face teamwork among the fifteen institutional partners – about fifty students and twenty academics – during the design workshop.

Two sets of questions will guide the analysis. A first set concerns methods for fostering collaboration and their results. Since the learning experience was based on remote collaboration, using a web-based environment, for a period of about three months, what specific methodologies for collaboration and joint activities appeared as appropriate in these conditions? How can dialogue and collaboration be developed among institutions, in spite of obvious difficulties such as timetable constraints, language barriers and, most importantly, the difficulties of on-line communication without face-to-face periodical interactions? This paper will assess the results of the methods employed and will pinpoint obstacles to communication, thus critically evaluating the advantages and shortfalls of this experience.

A second set of questions concerns the added value of the collaborative learning process in terms of pedagogic innovation and, more particularly, in terms of fostering a cross-disciplinary approach. How were personal skills and knowledge of different participants coming from different fields brought together in the pedagogic model created? What innovation does the project bring in the field of housing studies and design, and, more generally, how does it contribute to moving forward architectural and planning education?

---

[1] The fifteen participating European higher education institutions are: La Salle Barcelona-Spain, ETSAV Valencia-Spain, FASTU Bratislava-Slovakia, KU Leuven-Belgium, BTU Cottbus-Germany, UTH Volos-Greece, AAU Aalborg-Denmark, UCY Nicosia-Cyprus, UPMF-IUG Grenoble-France, GYTE Istanbul-Turkey, ISCTE Lisbon-Portugal, AF Belgrade-Serbia, BUT Bialystok-Poland, DIT Dublin-Ireland, ITU Istanbul- Turkey.

Based on these underlying questions, the paper will present, in the first part, the design process of the pedagogic experience, by focusing on the exchanges between participants and by analysing the content provided, from the point of view of multi-disciplinary approaches. In the second part, the article will analyse the results of the pedagogic experience in order to assess, quantitatively and qualitatively, the responses of participants, both students and tutors[2]. The assessment will focus both on collaboration and on cross-disciplinarity. This study aims firstly to inform project partners and to contribute to adjusting methodologies for collaboration within the OIKONET project, with the final aim of reaching the main goals of the project in terms of fostering cross-disciplinarity through collaboration. More generally, the paper aims to contribute to debates on cross-disciplinarity in the training of future architects and spatial planners.

The learning space design process

At the meeting, held in Barcelona, in January 2014, the organisers of the first common workshop of the program that was to take place in Lisbon, from July 14th to 19th, 2014 announced the topic of the workshop. At the same time, the partners decided to initiate this collaborative learning space that would prepare students for the workshop. The creation of such a collaborative learning space was a priority in order to truly kick-off the collaborative component of the project, as announced in the project description. So this initiative came at a time when it was urgent for the group of fifteen European institutions involved in pedagogical activities to start working together via the web-based environment. Only at a later stage of the OIKONET project, did the collaborative project include other stakeholders, such as members of research institutions, of NGOs, and partners from extra European countries. Therefore, the main aim of the *Contemporary living patterns* pedagogic experience was to foster collaboration between the fifteen education institutions and to start reflection on the topics that were to be developed in the Lisbon workshop.

In order to prepare participants for the workshop by introducing them to the foreign design context and to the topics of the workshop, the activities were to focus particularly on the intervention context, by understanding its urban specificities (socio-demographic, geographic, economic and historical), as well as on the particular topics proposed by the organisers for the workshop. The collaborative design process of the learning space was initiated at the end of March. In the beginning of April, the first decisions were made by a small coordination group, comprising tutors from four universities. Based on a first draft proposal sent by the workshop organisers, a second discussion permitted the drafting of a first version of the structure of the learning space. In the following section we will show how the on-line learning space was designed, based on the workshop program.

Organizing themes for the on-line learning space

It was the program of the Lisbon workshop that had already put forward the idea of a 'cross-disciplinary' approach that was to be embedded in the design process during the workshop: "The objective of the workshop will be to develop a cross-disciplinary dialogue aimed at finding answers to the meanings, ways and forms of contemporary living patterns of mass housing in Europe."

Therefore, the collaborative learning space assumed this challenge of a 'cross-dis-

[2] About three students and one or two teachers were involved from the fifteen institutions, which brings the total of participants to around sixty. Eight teachers from five institutions in five countries were directly involved in the design, organisation and creation of original content.

ciplinary dialogue' that the workshop was proposing to develop, in line with the overall project. Three main topics had been put forward in the workshop program as components of a cross-disciplinary design strategy:

- Co-creation methods. (community participation, participatory design theory and techniques, generative design research).
- Contemporary living patterns. (social housing; housing and quality of life; domestic scenario; new ways of life; new family structures; the changing of demographic trends and new housing needs; energy efficiency and construction materials).
- Digital tools CAD/CAM. (parametric design, modular systems and digital fabrication).

The learning space structure aimed to clearly identify the different themes of study. Therefore, different issues proposed in the workshop program that fall under the same theme have been grouped together (Figure 1).

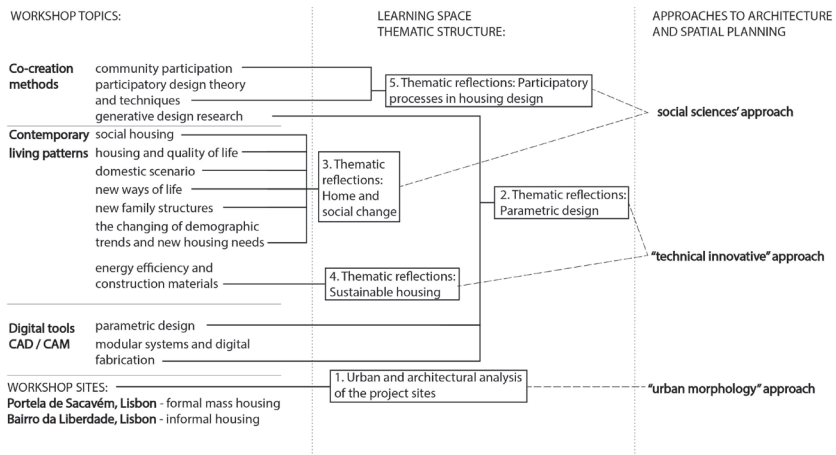


Figure 1. The relation between the workshop topics and the structure of the learning space

By reorganising the sub-topics proposed by the organisers of the workshop according to the areas of housing study and design they were covering, four themes of study resulted: parametric design, sustainability in housing, social aspects of housing and participatory processes in housing design. These topics started to be studied in the preparatory activities carried out before the start of the workshop at the home universities. They were aimed at providing participating students some fundamentals concepts and to start debating the issues that would be dealt later face-to-face during the workshop. In addition, a fifth theme focused on the analyses of the urban and architectural form of the two project sites:

The five themes were structured as Learning Activities (LAs) in the OIKODOMOS Workspaces learning platform (Madrazo, 2013) that was used to carry out the preparatory tasks:

- LA1. Urban and architectural analysis of the project sites.
- LA2. Thematic reflections: Parametric design.
- LA3. Thematic reflections: Home and social change.
- LA4. Thematic reflections: Sustainable housing.
- LA5. Thematic reflections: Participatory processes in housing design.

Each of the Learning Activities encompassed a series of assignments or Tasks (TKs) which were accompanied of the learning resources necessary to accomplish them (reading materials, video lectures, graphic documents such as maps and architectural plans, statistical data, etc.).

Organising time: Methodologies for fostering collaboration within a tight schedule

Time was an important constraint in the organization of the learning space, since the activities had a very firm deadline: the workshop in Lisbon started on the 14th of July, 2014. Moreover, the academic calendars and the exact periods of time when students from different universities could actually work on the proposed assignments were largely unknown when the activities were initiated. In most cases, the tutors from the institutions performing an assignment were involved in the design of the assignment. Since a small group was proposing all the different assignments, it was difficult to foresee the choices of the other participants. A second difficulty came from the fact that content (descriptions of the assignments and learning resources) had to be provided very quickly, as soon as the leaning space has been created.

Therefore, in order to give solutions to these two problems, the coordinator proposed a calendar table that had to be filled in by the tutors from the different participating institutions (a synthesis of this table is presented in Figure 2) The table indicated the students' and tutors' preferences for the different themes and assignments proposed and their planned work period. In this way, organisers could set themselves priorities and deadlines for providing content, such as the description of assignments and resources, before any of the groups of students were starting to work on the assignment. The table also indicated organisers' opportunities for collaboration. Some 'intensive weeks' appeared, when several teams were working on the same task. In those weeks, exchanges among groups of students could be organised.

Task	Week 3 19/05	Week 4 26/05	Week 5 2/06	Week 6 9/06	Week 7 16/06	Week 8 23/06
LA1. Task 1	ETSAV, UCY, LA SALLE	FASTU	AAU	AAU, DIT		KU Leuven
LA1. Task 2	ETSAV, IUG	FASTU, UCY, LA SALLE	AAU, UCY, LA SALLE	AAU, BUT		KU Leuven
LA1. Task 13						KU Leuven
LA2. Task 3		ETSAV	AAU	AAU, BUT		KU Leuven
LA3. Task 4	IUG	UCY	UCY		FASTU	
LA3. Task 8	UCY	ISCTE-IUL	ETSAV		FASTU	KU Leuven
LA4. Task 9			AAU	ETSAV, AAU, UCY, BUT, DIT, ISCTE-IUL		KU Leuven
LA4. Task 10			AAU	ETSAV, AAU, UCY, BUT, DIT, ISCTE-IUL		KU Leuven
LA4. Task 12			FASTU, ISCTE-IUL		ETSAV	UCY, KU Leuven

Figure 2. Final synthesis of the table showing the assignments chosen by partners and the period they were working on each task (in dark blue the 'intensive weeks' in which three or more partners were planning to work on the same task), updated by the end of June 2014

The content of the learning space

In terms of content, each of the five thematic learning activities mentioned above comprised one or several assignments and learning resources related to the assignments. Detailed descriptions of the assignments included the objectives, outputs and foreseen learning outcomes for each task. Eight tutors from four of the participating institutions independently defined the assignments and provided the necessary materials to complete them[3]. Through their different inputs, the eight contributors shaped collectively the learning space. However, collaboration for the creation of the assignments and for the conception or selection of resources was extremely limited: e.g. none of the assignments were conceived jointly by several contributors. The cooperation in the creation of the learning space consisted firstly in reacting to existing proposals by proposing complementary approaches that were missing, especially in the analysis of the two workshop sites. Another form of cooperation consisted in providing documents (historic maps, photographs, plans, etc.), indicating sources for statistical data concerning the two sites in Lisbon, or accomplishing the assignments proposed by other partners.

We will continue by analysing these different individual contributions (i.e. assignment descriptions, choice and preparation of resources) in order to characterise the overall learning space from the point of view of the disciplinary – and cross-disciplinary – perspectives on architecture and planning it conveyed. From the disciplinary point of view, we have identified three main approaches that we will explain further: a social science approach, an 'urban morphological' approach and a 'technical innovative' approach to architectural design.

The social science approach

We have identified this approach in three of the proposed assignments regarding the architectural and urban context of the project sites (LA1 – TK 1 and LA3 – TK 4 and 8). For example, TK 1 'Historical context analysis: Portela de Sacavém, Lisbon' was based on a video directed by Ana Vaz Milheiro (ISCTE) and produced in the context of a research project entitled 'Homes for the biggest number: Lisbon, Luanda, Macao' in 2012. This video presented the creation of the Portela housing scheme in the close periphery of Lisbon, a district planned in 1965-1969. The video showed that the development was a private investment aiming to attract the middle and upper class who were having difficulties in finding appropriate housing in the inner city. The author went beyond the presentation of the original project and of its implementation and explained the long process of negotiation between the different stakeholders: the architect, the municipality, the private promoter, the contractors, etc. The present configuration of the housing estate, with its public amenities and later additions, was thus presented not only in terms of an architectural vision but also as the result of this negotiation process, taking into account the complexity and specificities of the configuration of stakeholders. This is an approach to architecture influenced by social sciences that leaves behind the traditional understanding of architecture exclusively in terms of creation and of art, in order to include a classical social science approach (Weber, 1956). In this line, the video suggests that the configuration of stakeholders and their agendas are finally the ones responsible for the social acceptability of the project, to a lot larger extent than architectural form.

For LA3, TK8 'Thematic reflections: Home and social change' Sandra Marques Pereira (ISCTE-IUL) proposed as learning resource a video lecture offering a 'conceptual framework to mass housing'. In this lecture, Marques Pereira gave a definition of the term 'mass housing' by trying to encompass housing developments all over the world presenting similar architecture and construction techniques – i.e. slabs and towers in prefabrica-

[3] Four out of the eight assignments were created by the organisers of the Lisbon workshop (ISCTE-IUL) and three other institutions contributed with one or two assignments (AAU, KU Leuven and UPMF-IUG).

ted concrete elements. From this perspective, 'mass housing' is synonymous of 'high-rise' and closely related to the French term 'grand ensemble' (Dufaux & Fourcaut, 2004). The lecture, aiming at extended international comparisons used well-known French urban sociology literature from the 1970s that argued that physical proximity did not imply social closeness in the neighbourhoods of high-rise developments dating from the 1950s and 1960s in France (Chamboredon & Lemaire, 1970). The lecture also used other international references such as a European comparative monograph (Turkington, Van Kempen, & Wassenberg, 2004), and New York Times video documentaries.

Even if the author showed that public ownership was the widespread ownership model in mass housing schemes, she claimed that there are many differences among projects, and that public-private or entirely private developments with a similar architecture also fall in the category of 'mass housing'. The author concluded by raising a question for reflexion: what patterns distinguish successful projects of mass housing from less successful ones? In line with the video of Vaz Milheiro, Marques Pereira suggested that the very similar architectural form of the different projects guaranteed neither their social acceptability, nor their social failure.

Another assignment in LA3 was TK 4: 'Socio-demographic analysis of the two project sites'. This assignment was proposed by a contributor from another institution, Paulette Duarte (UPMF-IUG) in order to balance the tasks proposed by the workshop organisers that were focusing extensively on Portela and were not tackling the social characteristics of the present inhabitants of the two districts. Students were asked to search for data concerning socio-demographic specificities and dynamics in Portugal as compared to other European countries, using the Eurostat portal of the EU. Secondly, students were asked to compare data on the Portuguese society to statistical data concerning Lisbon, and to the available data concerning the inhabitants of two chosen Lisbon districts, in order to highlight the characteristics of the two districts. For this, they could use mainly the website of the National Institute of Statistics of Portugal.

The 'urban morphology' approach

A different approach for analysing the two urban sites chosen for the Lisbon workshop was proposed in LA1, TK2: 'Urban context analysis: Portela de Sacavém and Bairro da Liberdade, Lisbon'. As in the previous assignment, the author of this task, Adriana Diaconu (UPMF – IUG) aimed to balance the approach proposed by the workshop organisers and to widen the analysis to the larger urban context of the two sites. In addition to a larger geographic scale, it was proposing to extend the temporal frame and study the historical evolution of the two areas in relation to the evolution of Lisbon urban area.

From the theoretical point of view, this task was inspired by the French literature on urban morphological analysis (Yedid, 1987; Castex, Depaule, & Panerai, 1977; Panerai, Demorogon, & Depaule, 1999). Based on the study of a series of old and more recent maps of the city, students were asked to formulate hypothesis explaining the patterns of the urban expansion of the city. They had to identify, describe and understand specificities in the present urban layout and to formulate hypothesis for explaining these specificities. These underlying reasons could be identified in the characteristics of the original natural site and in the presence and configuration of infrastructure (railway, main roads, motorway, viaduct, aqueduct, etc.) in order to understand their role, either as barriers or as generators for urban growth.

The 'technical innovative' approach

Nicolai Steinø (AAU) and Vasco Rato (ISCTE-IUL) proposed assignments and learning materials for the two learning activities concerning innovative design tools (LA2 and

respectively, LA4) that have been announced in the workshop description: parametric tools for architectural design (LA2) and respectively assessing the sustainability of housing design (LA4). The accompanying video lectures of the proposed assignments (TK 3 'From principle analysis to schema creation', and TK 9 'Sustainable housing design and performance') can both be described as hands-on approaches to knowledge areas potentially unknown to architecture students. These introductions are presented in a very friendly and accessible way for beginners.

Vasco Rato's lecture was conceived as a 'teaser' announcing a practical and easy way to evaluate architectural sustainability that would be taught during the workshop, by calculating the energy and carbon embodied in buildings. Even if it remained on a high level of generality, the lecture sent a powerful message about the environmental impact of buildings and building materials. It encouraged students to reflect on buildings in terms of their long process of production, starting with the extraction of resources necessary for building materials, until their destruction, including their potential recycling and finally buildings becoming waste.

The approach Nicolai Steinø proposed to parametric design was also extremely accessible: it showed simple ways of analysing different architectural forms with the purpose of enabling students to create their own parametric design scripts.

The results of the learning space

This section of the paper will analyse the outputs received from students and tutors to the proposed assignments. We aim to identify the assignments that stimulated students to choose and to complete them and those who were less successful. We will also try to understand both the reasons for success and shortfalls: why did students answer certain questions and not others? We will consider this issues by looking at the different results on the web-based environment, both in quantitative terms, of number of deliverables uploaded by students for each assignment, and in terms of content of the different outputs. A first set of remarks and the counting of outputs are synthetized in Figure 3.

Concerning timetable, we should notice that the first output was uploaded on the 16th of June, nearly one month after the publication of the first tasks. It is obvious from Figure 2 that there was a connexion between the publication date of the assignment and the number of outputs received, however it is not so clear if the presence of a detailed presentation of the assignment was a fundamental precondition either for choosing it, or for completing it thoroughly.

Learning activity	Task nº	nº of groups that have completed the task	nº of groups that have partially completed the task	Total	Collaborative activities	Observation (date of on-line publication of the task)
LA 1	Task 1	3	4	7	Comments from teachers (an average of 1,69 per valid entry)	19/05/2014
	Task 2	1	6	7	Collaborative task – based on the analysis formerly produced by the other groups (accomplished by one group)	19/05/2014
	Task 13	0	1	1	Collaborative task – based on the analysis formerly produced by the other groups	27/06/2014 (supplementary collaborative task introduced two weeks before the workshop starting date)

LA 2	Task 3	0	3	3	-	12/05/2014
LA 3	Task 4	3	0	3	-	02/06/2014
	Tasks7-8	3	1	4	-	18/06/2014
LA 4	Tasks 9-10	4	0	4	-	09/06/2014
LA 5	Tasks11-12	0	2	2	-	20/06/2014

Figure 3. Synthesis of the outputs and collaboration within the Learning Space *Contemporary living patterns*

Students' responses to the proposed tasks

In order to consider the added-value of collaboration and the disciplinary point of view, we will focus on answers to assignments that required comparative or collaborative methods. In line with the general hypothesis of the OIKONET project, we consider that collaborative methods, going beyond a classical or an individual exercise, are more likely to foster new and innovative results.

Comparative tasks

A comparative assignment that received a high number of answers was TK 1 'Historical context analysis: Portela de Sacavém, Lisbon' in which students had to produce a short report in which they had to compare the Portela de Sacavém example to another similar housing program in the cities where they live: "densely populated housing designed for the middle class, built by private promoters in the same period as Portela de Sacavém". Students were also asked to analyse the articulation between the architectural plan and its surroundings.

Six institutions answered to this assignment end eleven examples were presented: five from Spain (four from Valencia: Isla Perdida Group, Vírgen de la Fuensanta Group, Virgen del Carmen group and the Antonio Rueda group and one from Barcelona: Bellvitge district – L'Hospitalet de Llobregat), three from Slovakia (Raca and Krasnany, in the periphery of Bratislava and Foncorda in Banska Bystrica), one from Ireland (Ballymun Housing in Dublin), one from Denmark (Gellerupparken in Aarhus) and one from Serbia (Block 21 in Belgrade).

However, only three out of these eleven contributions answered the given instructions of comparing the proposed housing program to Portela. Moreover, even if the main given criteria for the selection of the 'similar housing programs' was the social category of inhabitants and the private promotion, only two out of the three authors who completed the exercise gave details on these aspects. Generally speaking, comparisons were mainly focusing on urban form, using graphical analysis based on plans and photographs, and very few the explanatory texts.

Collaborative tasks

The synthesis in Figure 2 shows that for two tasks that comprised both an individual and a collaborative phase (TK 2 'Urban context analysis' – responding to the submitted paper of another team and in TK 3 'From principle analysis to schema creation'– 'combine your first design with someone else's first design') only the individual phase was accomplished. The short time available does not appear to be the reason for this failure, since these two tasks were among the first to be published.

Comments

Another form of collaboration consisted of students' and teachers' comments responding to student's work. Generally, the on-line platform did not prove very stimulating for exchanging ideas on the basis of the submitted work. Obviously

students found it difficult to comment, since only one comment made by a student was registered.

More numerous comments were made by tutors, especially on TK 1: 'Historical context analysis: Portela de Sacavém, Lisbon', where the author of the video lecture commented all outputs received from students. Task 1 had the highest comment rate of 1,69 comments per entry, which is still quite poor. However, since students' outputs have been uploaded very late, this can be explained by lack of time.

Concerning the content of these comments, they generally suggest satisfaction with the provided work: "Good work, the purpose of the task was achieved", "Nice video, just what we asked for", "Excellent example", "Great example", or "Good useful information well presented in this infographic format". The very few more critical comments were rather expressing the difficulties of the reader to understand the intentions of the author – "I am wondering about the intentions of this piece of research", and asking further explanations: "how can this be applied to housing? Or am I missing something? Please explain."; "A short commentary would help clarify what the intentions are. Could you clarify?"; "I'm confused too". All these indicate the puzzlement of the observers in front of a piece of work that does not speak of itself, and that was obviously conceived by its authors as an isolated training exercise and disconnected from the other reflexions present in the learning space.

Finally, very few critics pointed out the aspects of the assignment that have not been addressed: "[...] although you could have submitted a small text with the principal data about the neighbourhood."; "it would be nice to have a larger map [...] just to see the connections with the surrounding area, are some of the facilities shared with the surrounding neighbourhoods? The question of the distance to the city centre is particularly relevant [...]".

As compared to the original task descriptions, especially in what the above mentioned 'social science' approach' is concerned, we can notice that the discussion shifted in students' outputs as well as in comments from the approach of the project as process, originally proposed, to more technical issues regarding architectural and urban form, such as urban planning principles like zoning and density.

The Learning Space as an introduction to the Lisbon Workshop

The final phase of the Learning Space *Contemporary living patterns* took place on the first day of the Lisbon workshop, on the 14th of Jul 2014, when students presented their group work. Each group of students participating in the workshop had to synthetize their work in two ways: an oral presentation and a poster that was to be exhibited on the workshop's premises.

This exercise of synthesising the provided work and presenting it in the context of the workshop brought students out of the context of the isolated self-sufficient tasks and encouraged them to take over and interpret in their own way the initial assignments. Just as comments have also suggested, during the presentation session one could notice that certain students failed to consider the link between their work on the individual assignments and an overall design strategy for the workshop in Lisbon. As students freely adapted, interpreted and combined the assignments in their final presentations, their interpretations contributed to diluting the initial specificities of approaches put forward by the different contributors to the learning space. The incontestable added value of their synthesis and presentations was to start debate among all participants in this pedagogic experience, and to bring to light some of the most interesting reflexions on housing, regardless of their original disciplinary perspective.

Conclusion

First and foremost, one of the most significant results of this pedagogic and learning experience was, as proposed, getting acquainted with a foreign context in order to provide

the conditions for a significant design workshop to take place afterwards. By doing this, the experience was successful in preparing students to perform in an international environment. It was also useful for improving both students' and tutors' communication skills in an international context. Especially in terms of graphic representation, the very good level of some of the outputs contributed to creating a benchmark for all students in graphic representation techniques.

Concerning time management and on-line collaboration, we can conclude that the obligation of getting things done in a very short time, in relation to the lack of extended dialogue, led to a series of shortfalls. First of all, no pedagogic strategy was defined prior to the design and implementation of the learning space, concerning the use and promotion of the different skills and knowledge of contributors coming from different disciplinary areas. Therefore, a unitary and coherent picture in terms of objectives, approaches and methodologies to be encouraged by the pedagogic model was missing.

With respect to disciplinary approaches to housing studies, we claimed that assignment' descriptions and learning resources were pointing to several approaches that we have classified in three large categories: the social science approach, the urban morphological approach and the 'innovative technical' approach. Thus the initial input was multidisciplinary, mainly because it consisted of the sum of contributions that reflected the pedagogic and research interests of different individual authors. Moreover, a concern for completing existing proposals with complementary ones contributed to a complex collection of approaches and documentation. However the general methodology was not truly cross-disciplinary, since no dialogue or 'bridge' was established between the different disciplinary approaches. We can thus describe both the process and the content of the web-based collaboration environment as multi-disciplinary and multi-faceted.

We have observed that even if the original content of the learning space was aiming to point at elements that are not traditionally present in architecture studies – such as the stakeholders' approach for analysing architectural and urban projects as processes – students' output redirected the analysis towards more traditional issues, such as density and zoning principles. Therefore the need to establish common methodologies and objectives in order to guide students and maintain the aim of cross-disciplinarity all through the process seams imperative.

Moreover, the lack of coordination between teachers had further an impact on the imprecise or even contradictory way of using terms and concepts between several contributions. A critical discussion on the way concepts were to be used was missing. Therefore, an ambiguity persisted in these definitions, since for example 'mass housing' was defined as synonymous to 'high-rise housing' or 'grand ensemble' (in French) in the video lecture *Home and social change*, whereas the same term characterised both Liberdade and Portela districts in the workshop presentation. Main terms and concepts would require further discussion for a coherent use by different contributors having different disciplinary views on the same subjects.

Finally, the multi-disciplinary multi-faceted approach suggests the objective of training polyvalent students, capable of performing tasks that require skills and knowledge from several fields. However, a question that could be explored further in the OIKONET project concerns the methodology and specific approach that could give students the necessary tools to communicate, exchange and reflect on their activities in a multi-disciplinary manner, thus enabling them to truly transcend disciplinary boundaries. However such an achievement appears to be impossible without a preliminary thorough work of discussion and harmonisation of objectives and methodologies, to be accomplished by the teaching staff. Acknowledging disciplinary differences between academics in terms of interests, competences and skills, is a first essential step for negotiating these interests and for co-building a pedagogic and learning experience.

Since this pedagogic experience took place in the first phase of the OIKONET project, we can conclude that its general objectives of starting collaboration between

all partners and becoming familiar with the on-line environment were reached. In the following phases of the project, priorities should shift from starting collaboration, and a predominantly quantitative approach to it, to a more qualitative approach, focusing extensively on the content of interactions that could allow to transcend disciplinary boundaries in architecture and urban studies.

References

Castex, J. & Depaule J.-C., & Panerai P. (1977). *Formes urbaines: De l'îlot à la barre*. Paris: Dunod.

Chamboredon, J.-C., & Lemaire, M. (1970). Proximité spatiale et distance sociale. Les grands ensembles et leur peuplement. *Revue Française de Sociologie, 11*(1), 3-33.

Denès, M. (1999). *Le Fantôme des beaux-arts: L'Enseignement de l'architecture depuis 1968*. Paris: Les éditions de La Villette.

Dufaux, F., & Fourcaut, A. (2004). *Le Monde des grands ensembles*. Paris: Créaphis.

Madrazo, L. (2012). OIKODOMOS Technological Platform. In L. Madrazo, J. Verbeke, T. Ooms, & P. Riddy (Eds.), OIKODOMOS Innovating Housing Learning (48-61). Ghent: Hogeschool voor Wetenschap & Kunst.

Panerai, P., Demorgon, M., & Depaule, J.-C. (1999). *Analyse urbaine*. Marseille: Parenthèses.

Riddy, P., Depuydt, J., & Madrazo, L. (2012). Designing for learning. In L. Madrazo, J. Verbeke, T. Ooms, & P. Riddy (Eds.), OIKODOMOS Innovating Housing Learning (32-47). Ghent: Hogeschool voor Wetenschap & Kunst.

Turkington, R., Van Kempen, R., & Wassenberg, F. (Eds.). (2004). *High-rise housing in Europe. Current trends and future prospects*. Delft: Delft University Press.

Weber, M. (1956). *Wirtschaft und Gesellschaft*. Tübingen: Mohr.

Yedid, A. (1987). *Centres historiques. Les outils de lecture*. Paris: Les éditions du S.T.U.

Contemporary living patterns in mass housing in Europe: From collaborative design to digital fabrication

Alexandra Paio

ISCTE-University Institute of Lisbon, Portugal, ISTAR-IUL and VitruviusFablab-IUL

Alexandra.paio@iscte.pt

ABSTRACT

This paper describes the results of the first OIKONET International Workshop held from 14th to 19th July 2014 in Lisbon at ISCTE-IUL. The objective of the six-day workshop was to develop a cross-disciplinary dialogue aimed at identifying the meanings and forms of contemporary living patterns in mass housing in Europe, by studying "formal" and "informal" housing. The overall housing design process was addressed during the activities, starting from the participation stage and ending with fabrication. The teaching methodology was based on a combination of multidisciplinary lectures, field studies, and design studio work including the construction of a full scale prototype of part of the project. Pedagogical activities brought together different stakeholders, learning environments and disciplines. This paper suggests a new pedagogical framework based on the necessity of introducing new architectural curricula in academia and new design strategies to approach technology, implement digital thinking, and foster collaborative interdisciplinary environments and digital processes.

KEYWORDS: *design studio, collaborative design, digital fabrication*

Introduction

The topic of the OIKONET Lisbon workshop was contemporary living patterns in mass housing in Europe. Mass housing in Europe has been studied for long period, because it has been a solution to democratize the access to dwelling for a large number of people. In its origins, mass housing represented an innovative solution to respond to the housing needs of the population. In recent decades, however, mass housing programs have fallen into disrepute and have begun to decline. This type of housing became associated with uniformity, repetition, anonymity and uprooting (Rowlands, Musterd, & Van Kempen, 2009). On the other hand, 'informal' mass housing – self-built housing – brings about more diversity and a greater sense of appropriation and identification of the dwellers with their living place (Hernández, Kellett, & Allen, 2009).

In this context, the work carried out in the workshop focused on two neighbourhoods in Lisbon: one, representative of formal mass housing – 'Portela de Sacavém' and, another one – 'Bairro da Liberdade' which is typical of informal mass housing (Figure 1). The 'Portela de Sacavém' (1965-1978) mass housing plan created by Fernando Silva (1914-1983) became a model of how to intervene in the urban periphery. The 'Bairro da Liberdade' (1969-80) is an informal settlement. Dwellings were built for the proletariat and landowners sought to minimize construction costs and optimize land value. These two sites provided the opportunity to rethink the contemporary living patterns in mass housing design. Today, we should look at these forms of housing – formal and informal – in order to understand the way people live.

The main goal of the Lisbon workshop was to develop a cross-disciplinary dialogue aimed at finding answers to the meaning, ways and forms of contemporary living patterns of mass housing in Europe. Fifty students from fifteen European Schools of Architecture were challenged to develop an evolving housing design based on customized prefabricated wood panels that could be used: to re-adapt pre-existing dwellings to contemporary living patterns; and to produce new incremental homes as a response to contemporary living patterns. Eight student groups discussed, designed, fabricated and assembled a full-scale prototype. Teachers from OIKONET organizations participated actively in all the design strategies, discussion presentations and fabrication process.

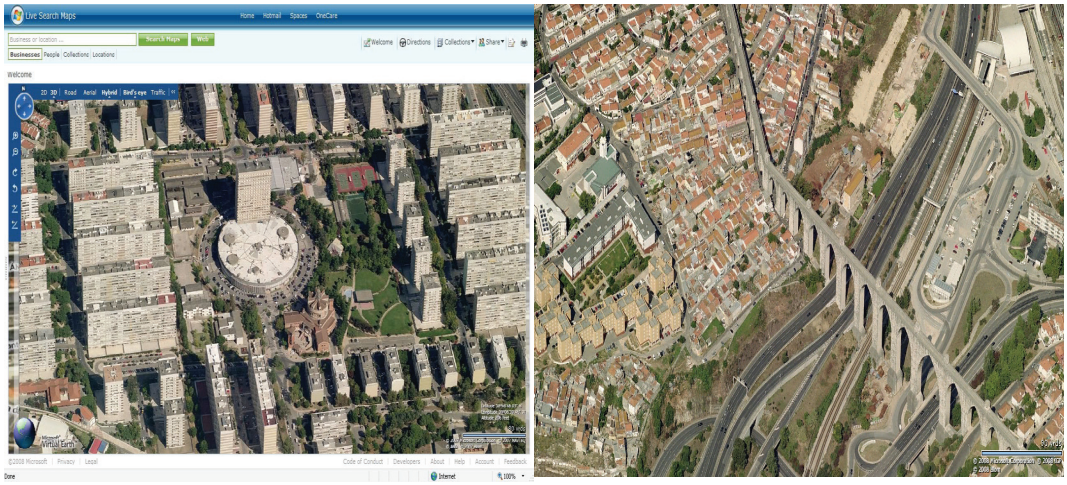


Figure 1. Case studies: Formal and Informal mass housing

At the end of the Lisbon workshop students were able to: (1) Explain the interlinking between sustainability, technology and society underlying contemporary living patterns ; (2) Identify concepts and examples concerning these topics: participatory design methods; contemporary living patterns (housing and quality of life; domestic scenario; new ways of life; new family structures); energy efficiency and construction materials; and digital tools CAD / CAM (technologies); (3) Apply methods and design strategies to build a prototype of economically and socially sustainable housing; (4) Incorporate contributions from citizens in the customization of prefabricated houses.

OIKONET Lisbon Workshop

As Vitruvius reminded us, architecture is fundamentally concerned with three core activities: thinking, designing and building. This relationship has played a vital role in the development of all areas throughout architecture history. But in the beginning of the 21st century, these matters took on new forms. The creative processes have been transformed based on multidisciplinary approaches and the use of computer as part of the everyday life of the architects.

In this context, the Lisbon workshop was organized to explore four main topics in the design process: (1) Participatory design; (2) Home and living conditions; (3) Digital fabrication; and (4) Energy efficiency. The overall housing design process was addressed, starting from participation and ending with digital fabrication. Participatory design plays a key role in today's democratic societies. Between 1974 and 1976 a Portuguese governmental decree created the SAAL (Serviço Ambulatório de Apoio Local – Local Mobile Support Service) (Portas, 2012). It was an attempt to foster the direct involvement of the population in the housing design process as well as to seek an alternative to the neighbourhoods which had developed from the indiscriminate aggregations of blocks. The participation of social scientists in these processes can help to better understand aspirations of the people. Moreover, progress in digital design methods and production technologies are contributing to the emergence of new housing paradigms. We are witnessing a renewed interest in prefabrication generally within construction that is based on customization. This also applies to the production of housing. Digital innovation is also redefining the relation between design and production. The use of CAD/CAM technologies can help address the current concerns with social needs and sustainability in our industrialized world (Donath & González, 2006).

The six-day workshop was organized to experiment and demonstrate how new digital processes can introduce singular solutions to re-adapt pre-existing dwellings to contemporary living patterns. As Donald Schön (1983) argued the design process is led by 'frame experiments'. The possible scenarios are exemplary frame experiments and intend to envision a possible future outcome as a response to the design situation. The Lisbon workshop design process aims to enable the end user to participate in the design process, utilizing generative computational methods and Computer Numerically Controlled (CNC) fabrication techniques to permit design customization.

The program of the Lisbon workshop was divided into four parts: (1) Keynote speakers, introductory thematic lectures and presentations; (2) Field work; (3) Thematic studios; and (4) Design studio.

Introductory Lectures

The four introductory lectures allowed the students to acquire basic knowledge about various subjects that were used and incorporated in the final group solution developed in the design studio.

The first lecture about *Participative Processes* (António Brito Guterres and Sérgio Oliveira) focused on the key role that participatory design plays in today's democratic societies (Cornwall, 2011). Over the past decades a wide variety of techniques and tools have been employed in participatory design. From the area of the social sciences, the paradigm has been growing. The lecture focused on contemporary participatory design processes to approach complex problems and to identify future opportunities. This approach is based on the democratic concept of involving people in the decision-making process by allowing them to make design decisions (Brennan & Sanchez, 2012).

The second lecture *Home and Social Change* (Sandra Marques Pereira) was an overview of the historical/societal turning-points in recent Portuguese history (dictatorship; revolution; adhesion to UE; crisis), a characterization of the Lisbon Metropolitan Area (the context of Portela's Estate) and its evolution (demographic; morphological; sociological), and a brief summary of the evolution of housing in Lisbon

Metropolitan Area and its sociological implications (Pereira, 2013).

The third lecture *Energy and construction materials* (Vasco Moreira Rato) was an introduction to life cycle principles which were presented together with a brief overview of methodologies for the life cycle assessment (Hegger, Fuchs, Stark, & Zeumer, 2008). Embodied energy and carbon emission reduction were explained as indicators of environmental impact.

The last lecture *Computational design (CAD/CAM tools)* (Alexandra Paio and Sancho Oliveira) was an overview of the new challenges of the twenty-first century digital revolution (Kolarevic, 2003). An introduction to digital manufacturing processes and the fabrication technologies available (Dunn, 2012). The advantages and disadvantages of the CAD/CAM technologies were presented in order to build a customized solution economically and socially sustainable. The lecture was complemented with a visit to the ISCTE-IUL digital fabrication laboratory – Vitruvius Fablab.

Field work

In field work the students had opportunity to meet the citizens and visit the neighbourhoods where the prototypes were planned to be built (Figure 2).

Figure 2. Studio: Participative process and generative research in 'Bairro da Liberdade'

Studio work

The Studio was a theoretical-practical framework where students worked in groups to develop specific exercises. In the *Participative Processes Studio* the students discussed and sketched basic solutions to 'Bairro da Liberdade' based on the field work (Figure 2).

In the *Home and Social Change in Portela Studio* the students developed a proposal to renew an original apartment of Portela facing the actual sociological context of the neighbourhood and the general (social and housing) changes of Portuguese society as presented in the lecture. The studio was divided in two parts. The first part of the studio presented some sociological characteristics of Portela's population: demographic evolution; type of household; social class; age structure; post-occupancy evaluation; future intentions (leaving or staying). In second part the 4 groups of students that were working in the Portela neighbourhood sketched and presented solutions based on the some pre-defined principles: (1) Distribution to each group of an original layout of a flat of Portela; (2). Critical analysis of the layout: identification of the strengths and weaknesses of it; and (3) Comparative reflection of their own national contexts based on their perceptions of the high-rise estates they know; (4) Definition of a new functional program of the apartment, a new layout that should be justified in terms of: target-population, purposes and strategies. The teachers from OIKONET organizations participated in the discussion of the results.

The *Energy and construction materials Studio* the students estimated the envi-

ronmental impact of the proposed building solutions by performing a detailed calculation of embodied energy and carbon emission with the support of a simple calculation tool developed at ISCTE-IUL. Additionally, an energy-related functional assessment were performed and integrated with environmental impact.

The last studio was *Computational design (CAD/CAM tools)*, the Vitruvius Fablab team presented a brief introduction of digital fabrication applied to sustainable housing (Botha & Sass, 2006; WikiHouse). The application of CAD/CAM and physical computing processes were introduced: from the idea (sketch and 3D modelling with generative and parametric parameters), to digital fabrication, implementation and product assembly. CAD technologies (Rhinoceros and Grasshoper software) were used to generate design iterations. At the end, a small part of the prototype fabrication was fabricated to demonstrate the subtractive procedures in a CNC milling machine.

Design Studio

The Design Studio challenged the groups of students to develop an evolving housing design using customized prefabricated wood panels, to re-adapt pre-existing dwellings to contemporary living patterns and to produce new incrementally built homes as a response to today's living conditions (Figure 3). From the eight groups of students, four groups designed a solution to re-adapt the typologies of 'Bairro da Portela' and the other four worked on the re-adaptation of a house with a patio in 'Bairro da Liberdade'. The ultimate goal was to fabricate and assemble some components of the housing designs on a full scale.

Figure 3. Design Studio

The teaching methodologies enable students to accomplish the learning outcomes associated to the participatory design processes and fabrication of a full-scale prototype based on sustainable and collaborative housing design (Figure 4). The students were asked to design their dwellings types in relation to a group of future users or present users, and to determine whether they could adapt their proposal to suit several specific situations or not. The studio was a place for students to apply a diversity of methods and design strategies to design a solution economically and socially sustainable. Students used CAD/CAM technologies to design and fabricate a customized solution. The teachers from OIKONET organizations followed the work of the students groups, supervising the solutions.

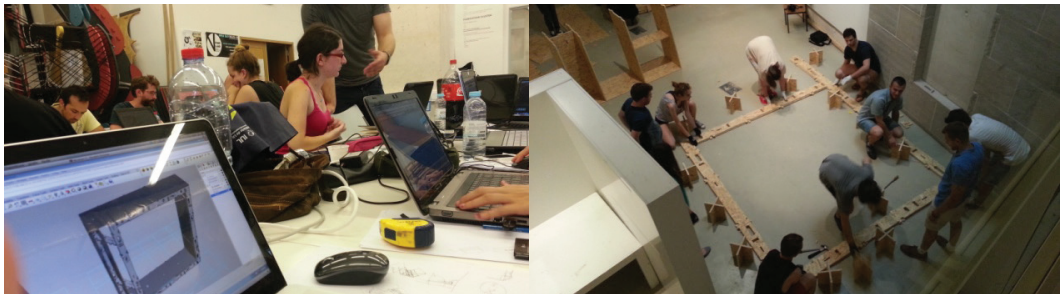


Figure 4. Design Studio

OIKONET Lisbon Workshop final results

'PORTELA: Adaptable Living' (Ana Sofia Simões; Cláudia Carreras; Frederik Peter Kæmsgaard; Ilze Antonova; Nele Santy; Yasemin Kilic)

The goal of 'PORTELA: Adaptable Living' project was to adapt the apartments of 'Bairro da Portela' to the needs of contemporary families based on the developing of flexible apartments and a common semi-public space on each floor, in an effort to young people and new families. Students considered social issues as a change in social structure for innovative new solutions (Figure 5).

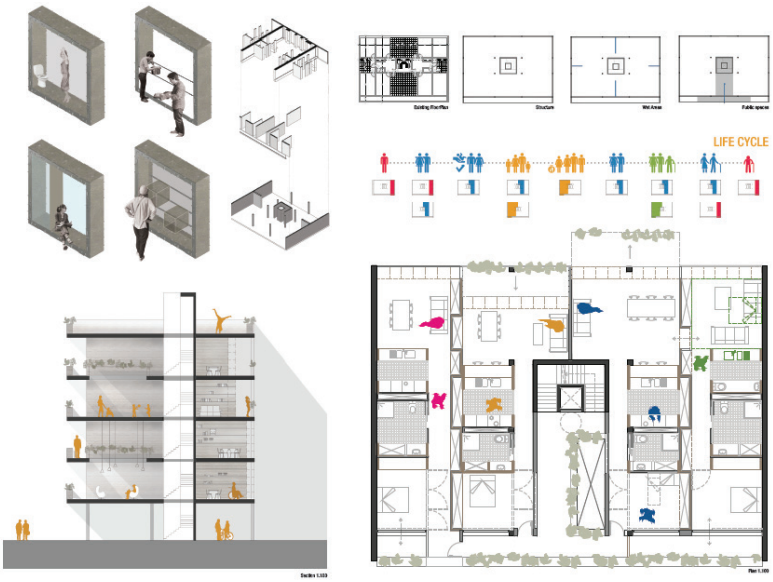


Figure 5. PORTELA: Adaptable Living design strategy

The flexible housing will allow different mixed age users to expand or to shrink the living space according to their changing needs. Flexibility is achieved by altering the physical composition of the building, thus it applies to both internal and external changes on the building. The need for flexible housing is a recurrent topic in architecture. Architecture history has several wonderful examples of flexible housing (Schneider & Till, 2007). Nevertheless, the introduction of CAD/CAM technologies in everyday life has meant that flexibility has once more become an important topic. Thus, choosing this topic for the project is very applicable and contemporary. The group adopted a design strategy that shows interlink age between sustainability, technology and society.

'PORTELA: S.I. Box – a package for social interaction' (Andronikos Kalli; Dede Guclu; Izabela Grotowicz; Jan Wyszkowski; Leonie Hagen; Monica Cardoso)

The 'PORTELA: S.I. Box' intended to adapt the apartments of 'Bairro da Portela' to the needs of contemporary families based on the concept of co-housing (Figure 6). The proposal is based on the developing of a common public space that will improve the inhabitants' social life. The concept of common public space and common multifunctional areas (community gardens, community kitchens) underline the need to rethink the use of collective public and semi-public space, in present-day dwellings. The design strategy explores social sustainability, by giving the dwellers some control on major decisions in the different stages of the community social life.

Figure 6. S.I. Box – a package for social interaction

'PORTELA: A contempory solution for a modern design' (Carlos Ochando Seva, Lukas Kolb, Bruno Trabut, Afonso Patinhas, Evi Stavraki, Milos Jelisavcic)

This design proposal was to adapt the apartments of 'Bairro Portela' to the needs of contemporary families based on the demographic problems of the neighbourhood. The group decided to take out all the non-structural walls and introduce a intervention of dwellings according to the proposed typologies. The solution is based on the open building principle that was explored in the 1970s by Habraken and the SAR research group in Netherland (Habraken, 1972). The group designed a variety of housing typologies founded on the clear analysis of socio-demographic statistic presented in the Sandra Marques Pereira Lecture and Studio, and in the modularity of the prefabricated system (Figure 7).

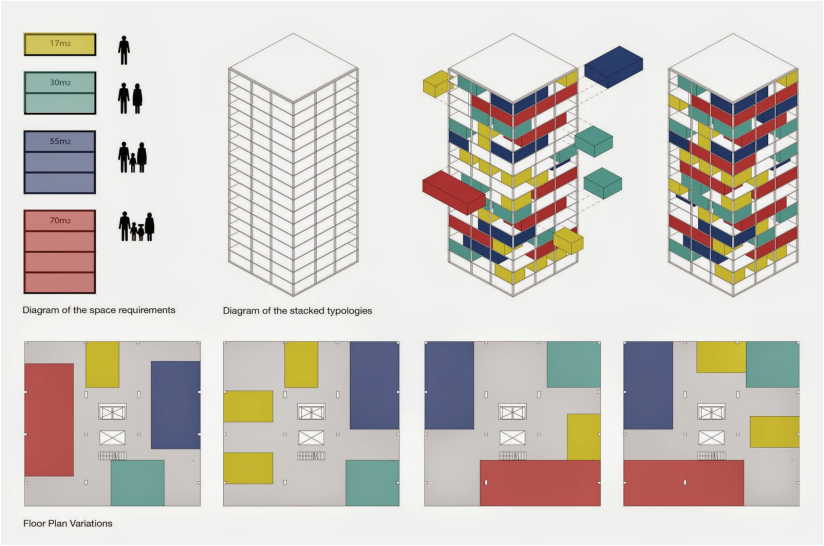


Figure 7. PORTELA: A contemporary solution for a modern design. Concept Diagrams

‘PORTELA: One Floor, One Family’ (Karol Görner, Inger Kirstin Rahbek, Rémi Avril, Francisco Alves, Chrysa Pierrakou, Shilan Gharanfoli, Héctor Ruiz)

The solution ‘One Floor, One Family’ objective was to adapt the apartments of ‘Bairro da Portela’ to the needs of contemporary families based on two concepts: (1) One Floor, One Family; and (2) Build yourself (Figure 8).

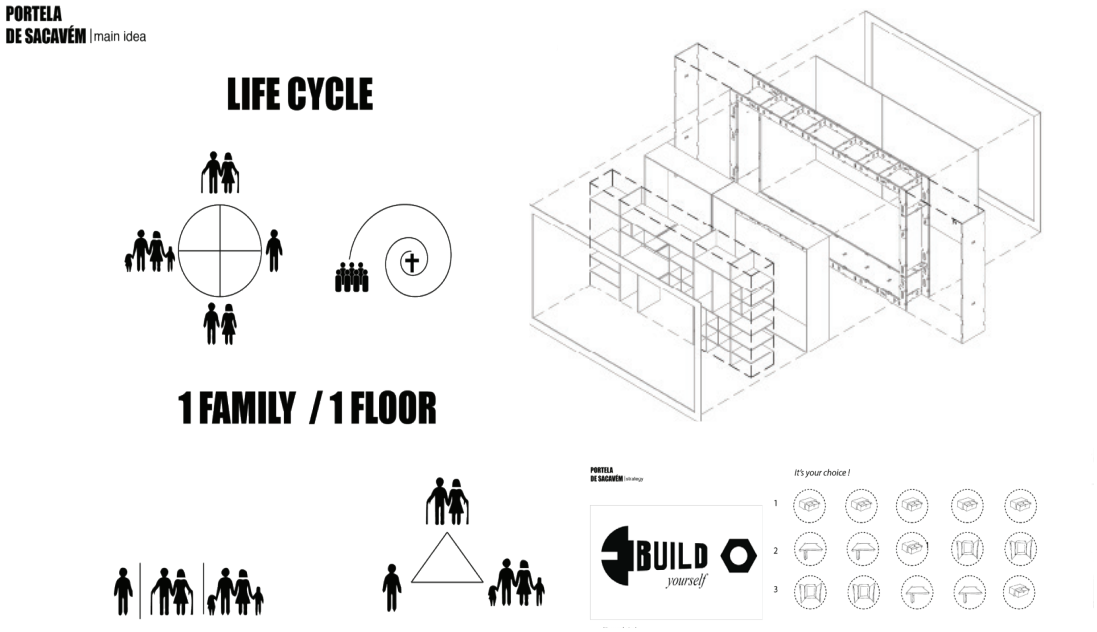


Figure 8. PORTELA: A contemporary solution for a modern design. Concept Diagrams

The group designed a flexible design system that generates several solutions to re-adapt the present typologies to the needs of the present or future inhabitants. This group explored the capacity of CAD/CAM technologies to allow users to customize the housing solutions over time based on family composition. The full scale prototype is a very good example of the prefabricated system application to the proposal re-adaptation of the present housing typologies. The group discussed all the ideas in the design studio and the end result met the goal of the workshop.

‘LIBERDADE: Creating patterns of improvement’ (Marina Clusella, Caroline Melders, Georgia Papasozomenou, Orhan Kemik, Aleksander Cosic, Marek Sipko)

The goal of this project was to re-adapt the Liberdade Patio according to the needs of the local users based on three case studies: (1) dwelling for family; (2) dwelling for an old lady; (3) social common space. The proposal design solutions are a consequence of the dialogue with all the local users of the patio and the morphology analysis of the current space. Despite the complexity of the problem, the group concentrated on the task at hand and suggested a multifunctional common space taking into account the needs of the local users. The full scale prototype is a very good example of the prefabricated system application to the proposal (Figure 9).

Figure 9. LIBERDADE: Creating patterns of improvement. Virtual and physical solutions

'LIBERDADE: The Roofbox' (Jose Luis León Lora, Christopher O'Keeffe, Vasco Reis, Raquel Martins, Emmily Delbare, Léa Garcia)

The 'ROOFBOX' project was to re-adapt the 'Liberdade' house to basic living conditions. The students had to propose a solution to solve a real problem: the lack of an extra bedroom. But they also carried out some other transformations: the bathroom was moved back in the actual unused space of the terrace to allow a new entrance door. The staircase was reversed to provide access to the new external terrace. Then the wood structure was fixed on the new terrace which also supports the room above. The structure that support the room can be used to hang up clothes to dry inside the house, a part of the kitchen wall will be removed to open the space. Despite the complexity of the problem the group proposed an interesting solution that made it necessary to redesign the prefabricated wood panels to adapt the modular system to real scenario (Figure 10).

Figure 10. THE ROOFBOX project

'LIBERDADE: The Garden of Eden' (Pavol Dobšinský, Anton Kunau, Serdar Aktan, Diana Gabão, Alina Dimitroulopoulou, Andrew Cleary, Ana Lopes)

'The Garden of Eden' project was to re-adapt the Liberdade Patio to the needs of the local users based on: (1) improving the houses basic living conditions; and (2) creating a rest area / garden area. The design solutions are a result of the dialogue with all the local users of the patio and the morphology analysis of the current patio space (Figure 11). The group proposal focused more on the exterior rest area / garden area for the patio local users. The usage of the modular system as an exterior rest area / garden area is very interesting because it takes into consideration the profiles and needs of the local users.

Figure 11. LIBERDADE: The Garden of Eden - from analysis to local users

‘LIBERDADE: House 1’ (Eva Andrasova, Troels Broch, Gorkem Varlik, Catarina Alvares, Malgorzata Budlewska, Tugba Cavusolglu)

In ‘House 1’, students proposed a solution to solve a real problem: design an extra children’s room and also to keep the terrace, and find a low cost solution, that could be achievable for the family living in the house (Figure 12). The design solution was a consequence of the dialogue with the family living in the house.

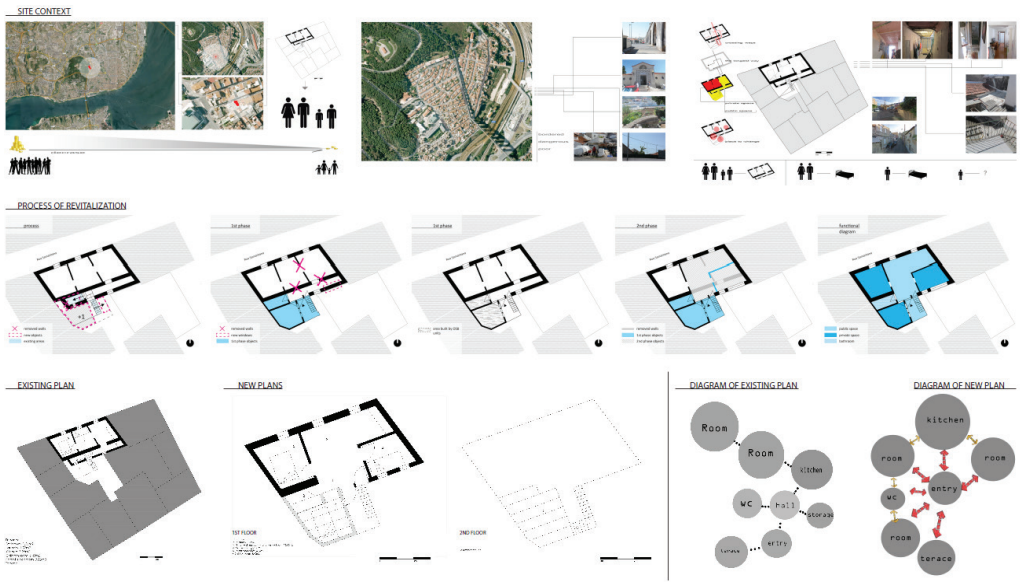


Figure 12. LIBERDADE: House 1 design process

Conclusion

The results presented in this paper helps to understand the significance that a multidisciplinary approach towards contemporary housing problems has for the field of architecture and design education. Results have demonstrated the growing impact of digital

design media as a mediator between content and skill. The main goal has been to explore the new digital technologies and their contribution to resolving some of the challenges presented to society and architecture. Social responsibility requires greater sensitivity to innovation and this must encompass the school culture. Architecture schools around the world are creating digital fabrication laboratories to provide their students with the skills to support new learning processes, scientific innovation and development linked to architectural practice. The digital fabrication laboratory supports innovation through the materialization of ideas. Digital technologies have released a multiplicity of new career opportunities for graduates and advanced architectural education.

The adopted methodology gave the students 6 days to use informed and conditioned design strategies based on theoretical concepts of design thinking and digital processes of design making. The students explored the advantages and disadvantages of building with social, economic and time constraints. In addition, the workshop allowed students to work with a global perspective of integration, inclusion and diversity. The collaborative design promoted a reflexive awareness to design-by-doing methods.

Acknowledgements

The workshop would not have been possible without the generous help and effort of all OIKONET participants – students and teachers – and specially of the Vitruvius Fablab team: João Pedro Sousa, Maria João Oliveira, Bárbara Varela, João Salvador Ventura, Rúben Viegas and Rúben Ferreira. We are also grateful for the support of Sanitana, in particular to Isabel Costa.

References

Brennan, M., & Sanchez, T. (2012). *Planning as if people matter*. Berkeley: Island Press.

Botha, M., & Sass, L. D. (2006). THE INSTANT HOUSE: Design and digital fabrication of housing for developing environments. *Proceedings of the 11th International Conference on Computer Aided Architectural Design Research in Asia, Kumamoto, 30 March - 2 April 2006* (pp. 209-216). Kumamoto, Japan.

Cornwall, A. (Ed.) (2011). *The Participation Reader*. London: Zed Books.

Donath, D., & González, L. (2006). Constraint-based design in participatory housing planning. *International Journal of architectural computing, 1*(6), 96-117.

Dunn, N. (2012). *Digital Fabrication in Architecture*. London: Laurence King Publishing Limited.

Habraken, N. J. (1972). *Supports: an alternative to mass housing*. London: Architectural Press.

Hegger, M., Fuchs, M., Stark, T., & Zeumer, M. (2008). *Energy Manual. Sustainable Architecture*. Basel: Birkhäuser.

Hernández, F., Kellett, P. W., & Allen, L. K. (Eds.) (2009) *Rethinking the Informal City: Critical Perspectives from Latin America*. New York / Oxford: Berghahn Books.

Kolarevic, B. (2003). *Architecture in the Digital Age. Design and Manufacturing*. New York: Taylor & Francis.

Pereira, S. M. (2013). *Casa e Mudança Social. Uma leitura da transformações da sociedade portuguesa a partir da casa*. Lisbon: Caleidoscópio.

Portas, N. (2012). *The urban being: On the trails of Nuno Portas*. Lisbon: INCM.

Rowlands, R., Musterd, S., & Van Kempen, R. (Eds.) (2009). *Mass Housing in Europe. Multiple faces of development, change and response*. New York: Palgrave Macmillan.

Schneider, T., & Till, J. (2007). *Flexible Housing*. London: Routledge.

Schön, D. (1983). *The reflective practitioner: How professionals think in Action*. New York: Basic Books.

WikiHouse. Retrieved from http://www.wikihouse.cc/

Designing and constructing for a sustainable future – community urban housing in timber: Projects by 4th year architecture students at DIT

Jim Roche

Dublin School of Architecture, College of the Built Environment,
Dublin Institute of Technology, Ireland

jim.roche@dit.ie

ABSTRACT

There is some agreement and much debate among interested parties about what constitutes 'sustainable housing'. The term 'sustainable' is used somewhat liberally to mean different things to different listeners. Governments, institutions, interest groups and individual designers often address certain aspects while ignoring the bigger picture. But the bigger picture is such a multivalent issue that includes aspects outside the architect's immediate remit such as location, transport, security, procurement policy and post-occupancy analysis and management.

Teaching sustainable housing within conventional architecture programmes means educators are restricted to identifying certain key issues that students should learn within a specific teaching timeframe, given the necessity for the students to demonstrate ability in the mainstay of architectural education – individual design approach, urban design, apartment planning, regulatory compliance and aesthetic aspiration.

This paper reflects on the teaching and learning of sustainable housing in challenging urban contexts by staff and students in 4th year at the Dublin School of Architecture, DIT in Semester 2, 2014 with reference to international examples and key texts on the issue.

KEYWORDS: *sustainable housing, timber structure, flexibility, adaptability, energy, threshold*

Introduction

The considerations of sustainable housing span across a myriad of inconclusive, multivalent issues and disciplines from:

- Location and public transport to higher densities.
- Stable family accommodation to third age flexibility.
- Building form and layout to universal access.
- Construction systems and embedded energy-to-energy usage over time with the related environmental assessment methods.
- Provision of communal amenities to management and maintenance and much more, with the word 'balance' featuring strongly in much of the declarations and literature.

Edwards and Turrent (2000) gives a myriad list of issues but notes ultimately that "quite simply sustainable housing is a matter of both the design and the management of the housing stock" (p. 124) and that it must have "good, intergenerational asset value" (p.20).

EU ministerial meetings have issued many policy papers on sustainable development that include guidelines on housing. The Bristol Accord (Office of the Deputy Prime Minister, 2005) for example defines eight characteristics of sustainable housing, included terms such as "sufficient range, diversity," "appropriate size, scale, density, design and layout, mixed-use, durable, flexible and adaptable buildings, using materials which minimise negative environmental impacts."

An Irish Government publication notes that: "Sustainability involves the construction of homes that are structurally sound, energy efficient, environmentally friendly and adaptable over time to changing household needs" and that housing provision must be integrated "with necessary transport and other physical infrastructure, social infrastructure and amenities (Department of Environment, Heritage and Local Government DOEHLG, 2007).

Given these broad parameters what can teachers and students achieve in a 12-week sustainable housing studio project? I will address this question by reflecting on four issues of a student project in the 4th Year Architecture studio at DIT from January to May 2014.

The students' challenge

The challenge that staff set to 4th year architectural students at DSA/DIT was to design and part detail a new urban community housing scheme that would be SUSTAINABLE economically, socially and environmentally. The students' design had to respond to a varied demographic profile hence have a range of apartment typologies. Universal design principles were mandatory while their response to the sustainability brief were to include strategies to minimise environmental impacts by selective material specification. Each design had to demonstrate how embedded carbon and energy were minimised in construction and during the lifetime of the project. They were also encouraged to include improved thermal performance, rainwater harvesting and on-site energy.

All projects were to be designed with a timber structure with the ideal of achieving a carbon neutral proposal. The students were expected to demonstrate an ability to respond to the dual themes of environment and tectonics from concept through to a constructed detail.

This was quite an ambitious ask given that much of the time would be spent designing and planning dense housing projects on tight urban sites addressing the normal range of urban and architectural issues.

The four sites chosen, all close to the historic Georgian core of Dublin's north side, had some shared characteristics but also unique challenges (Figure 1).

Figure 1. The four sites in Dublin's north inner city

The teaching methodology was relatively conventional and included lectures by staff and visiting experts in all of the above topics, one-to-one studio tutorials and group reviews with visiting critics. Visits were organised to local residential and community centres where students could engage with community activists, facilitators and residents. The class of 55 students was divided into three tutorial groups with two or three staff responsible for each group.

I will examine the students' responses to four key topics of 'sustainable housing' that we covered on this project.

Site, form and orientation – economic, social and environmental sustainability

Siting, orientation and building form are crucial to sustainability and in particular energy usage. In the Irish climate, we strive to use the form and section of buildings to get good sunlight in to private and communal spaces while striving also to increase densities. Students were given many examples of this.

The densities and contexts generally required between 3-6 storey perimeter blocks. Thus the south facing street edges on two of the sites presented difficulties as students strove to accommodate this need with the desire that their schemes have a strong urban presence.

Figure 2. Getting the light in (Students: Celine Jamin and David Graham)

Students also juggled the balance between these concerns and developing appropriate urban and architectural forms (Figures 2, 3). Schemes varied between a subtle response to the contextual urban grain and using their proposal as a strong urban marker.

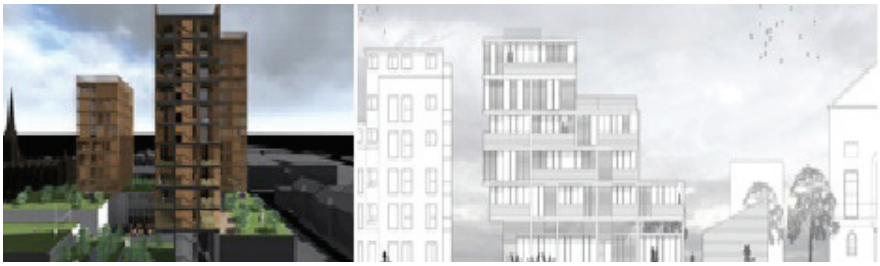


Figure 3. Strong urban markers (Students: Christopher O'Keeffe and David Graham)

Flexibility and adaptability – social and economic sustainability

Though having varied interpretations these two terms are an essential aspect of sustainable housing. Broadly interpreted they require that new housing should be able to be adapted to suit changing needs to prolong its life in order to avoid obsolescence (Schneider & Till, 2007, 35). Schneider and Till have categorised flexibility into 'hard', which determines how the design may be used, but provides options for use of spaces such as sliding walls and fold-down beds, and 'soft' which refers to "tactics which allow a certain indeterminacy" (p.7). Quoting historian Adrian Forty they note that hard flexibility provides "the means of allowing architects 'the illusion of projecting their control over the building into the future'" (p.7) while soft flexibility relinquishes that illusion and allows occupants to change the design according to their needs (p.7).

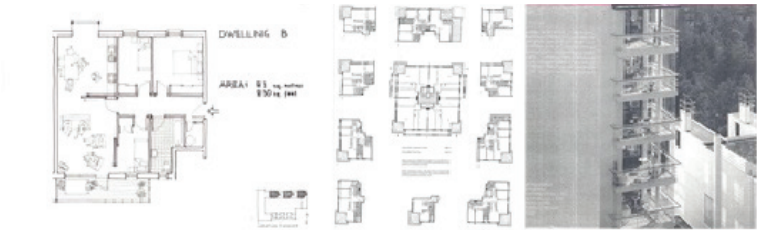


Figure 4. Hard flexibility

A case study seminar illustrated hard and soft flexible strategies to the student group. An example of the hard type may be York Street Housing (Figure 4, left image) by Seán Harrington Architects in Dublin that allows options for the use of the third bedroom. In theory all the non-structural walls can also be removed within the apartment, pending fire regulation compliance and service positions, allowing the occupier to completely re-design the interior. The scheme by architects Gullichsen Vormala Kairamo in Finland (Figure 4, right images) where, through clever positioning of structure and services, a basic shell and core affords multiple options for apartments sizes and types. While offering more than most hard flexible schemes the multiple results are still limited by the architects.

Figure 5. Soft flexibility

The soft flexible scheme of Quinta Monroy Housing, Chile by architects Elemental offers users the ability to adapt the space to their needs over time, an idea that led to intense debate among the students about the role of the architect, particularly when examples of the tenants' interventions were shown (Figure 5). The students' own schemes generally opted for the 'hard' interpretation of flexibility often allowing for manipulation of rooms around a central core or removal of floors to create double height living spaces (Figure 6).

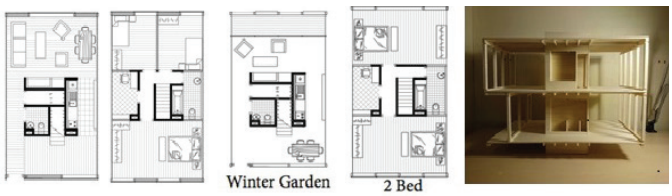


Figure 6. Student example of hard flexibility (Student: Daire Kelly)

A challenging proposal of soft flexibility, combined with user participation and community engagement, came from student Sophie Kelleher whose project (Figure 7), entitled 'The Stacks', envisages the urban site full of drying timber stacks that can be developed in to homes over time. In her own words: "There is a creation of purpose, pride and community on the ground floor through a timber workshop where unemployed people learn life skills and trades which in turn will be used to build their own homes. The edge is no longer protecting and barricading its inhabitants but is activated by the building programme as the drying timber is built up in to apartments – a tower of timber slowly inhabited."

Figure 7. Student example of soft flexibility (Student: Sophie Kelliher)

A noble aspiration, evocatively represented and, while somewhat undeveloped in plan and detail, it challenges the conventional mode of housing production and suggests another way of inclusively and collaboratively providing housing as well as an alternative approach to architectural practice along the lines of some of the methods espoused in the Spatial Agency project (Awan, Schneider, & Till, 2011).

Energy, construction and materials – environmental sustainability

The use of a timber structure was a determined requirement of the project. Wood is a carbon sink – it removes carbon from the atmosphere and stores it for its life – and the process to produce timber uses much less energy than for e.g. steel or concrete (Skidmore, Owens and Merrill, 2013). The regeneration of new forests continues the cycle of carbon sequestration. Prefabricated timber buildings can be erected quickly thus reducing site wastage and costs. This knowledge informed our insistence on a timber structure for the students' projects – despite some protestations. Students were asked to explore how energy conservation measures and environmental concerns can inform an architectural design in a holistic manner.

Figure 8. Stadthaus timber residential building in Murray Grove, Hackney, London by Waugh Thistleton Architects and KLH Austria

One case study highlighted to students, Murray Grove is a recently completed 9-storey tall timber residential building in London (Figure 8). The 8-storey structure was erected in 27 days with 4 people. Gordon Miller, director of Sustain Worldwide notes that the sequestered carbon in this building is "equivalent to 29 years of operational energy; and with 20 per cent renewable energy, it would take 144 years to save the same amount of carbon" and that's allowing for the transporting energy costs of the manufactured timber panels from Austria (Miller, 2012). These facts offer compelling arguments for the use of timber in multi-storey residential buildings.

Students focused their research on the structural, environmental and aesthetic implications of the timber options available. Given the scale of the projects almost all students choose either an engineered Cross Laminated Timber system (CLT) from spruce, larch or pine, the Brettstapel system (similar to CLT except that hard wood dowels are used thus reducing the harmful effects of glue) or a glulam (glued laminated timber) post and beam structure in-filled with Structural Insulated Panels (SIPs).". Finishes were varied including timber cladding, tiles and render.

Figure 9. Examples of varied finishes to student's projects (Students: Julie Molloy and Ronan Keane)

Students were also introduced to the CASAnova software (Figure 10) and were required to utilise this to calculate the energy demand of their buildings and then reduce this through design, or at least gain an understanding of the energy implications of their designs.

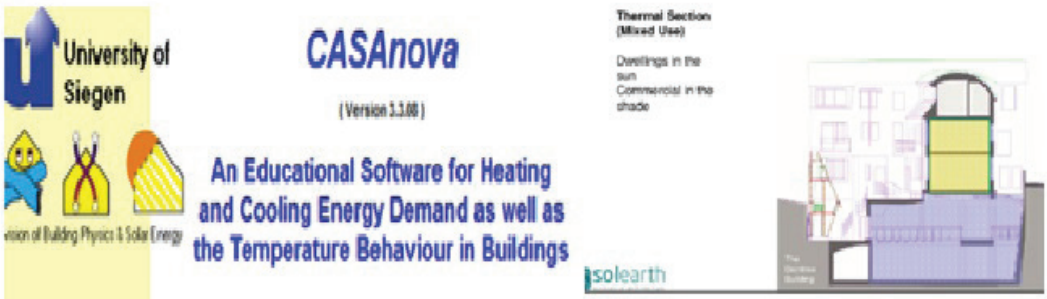


Figure 10. Images from a lecture by my colleague Brian O'Brien

Several multi-disciplinary workshops in both structure and detailing occurred between the architecture students and 3rd year engineering students and 3rd year architectural technology students to facilitate the students' learning. The final task of this aspect and the whole project was for each student to carry out a detailed investigation at a scale of 1.20 and a full-scale model of a crucial junction, the intention being to demonstrate an ability to carry design ideas through energy analysis to construction detail (Figure 11).

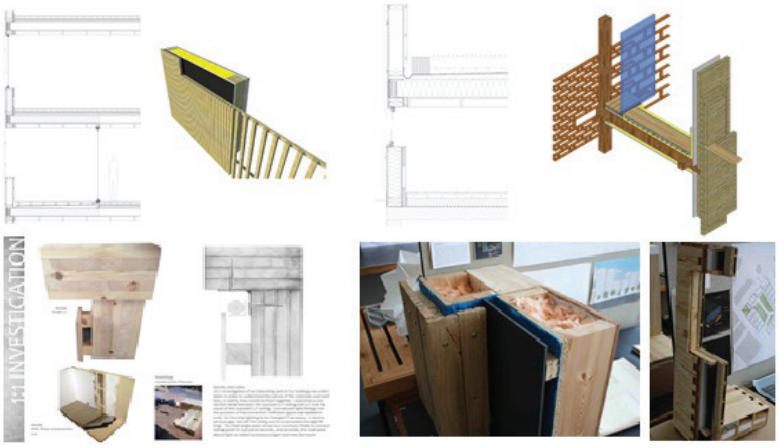


Figure 11. Detail sections and 1.1 models (Students' work: clockwise from top right, Ronan Keane, Christopher O' Keeffe, Niall Lennon and Fiona Muldowney)

Threshold matters – social sustainability

This issue was introduced to the students as an OIKONET workspace developed by colleagues Tomas Ooms and Sedef Ozcelik with input from Adam Jakimowicz and myself. Different tasks were assigned to different groups of students in different institutes and they were asked to upload their results to the OIKODOMOS Workspaces environment and to comment on their fellow students' work.

Dutch architect Herman Hertzberger has noted that "The threshold provides the key to the transition and connection between two areas with divergent territorial claims and, as a place in its own right, it constitutes essentially, the spatial condition for the meeting and dialogue between areas of different orders" (Hertzberger, 1991, p.32).

Ambiguous yet affording opportunities, threshold thus affords options for socializing and amenity, a place to meet neighbours, survey shared territory and watch children at play while also serving as a transitional space between the very public realm of the street and the very private world of the dwelling.

The DIT students were asked to consider both the nature of threshold in housing, those multiple zones between the public and private realm that have many layers, meanings and often-varied treatments across different cultures and climates. In particular students were asked to consider threshold's detail treatment of an entrance from the street, a courtyard, an access gallery, a staircase or a hallway (or part of any of these) and other more private spaces and develop one or more drawings showing this treatment (Figure 12).

Figure 12. Varied thresholds: plazas and portals, setbacks and underpasses, corner cafés and courtyards. (Students: clockwise from top left – Oksana Lastovetsky, David Graham, Cormac Murray and Christopher O' Keeffe)

Some students used devices of public or semi-public activity or even expressive portals to ease the transition from the public to the private realm, thus creating many layers of threshold along the way (Figure 13).

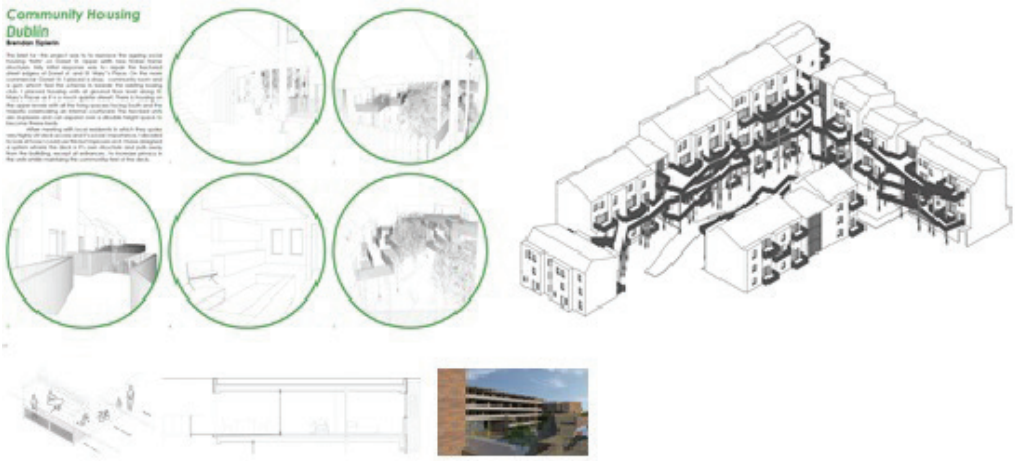


Figure 13. Varied thresholds: the problem and opportunity of gallery access (Students: clockwise from top left – Brendan Speirin and Cormac Murray)

Others reflected strongly on the issue of gallery access to apartments, often perceived as a difficult and contested space in the Irish context. In my own previous experience in practice Dublin City Council officials and many residents regarded gallery access in social housing projects as hugely problematic. On a visit to the Dominic Street flats students were inspired by the desire of residents to maintain gallery access as a necessary social function, a clear example of the social power of threshold. Many students explored this problematic in their schemes: how to achieve this useful social function yet offer privacy in the apartments.

One student pulled the galleries away at key points making for an interesting sculptural array of flying timber galleries within the courtyard (Figure 14) another used the section and varied surface treatment to define thresholds from gallery access to apartment (Figure 14).

Figure 14. Varied thresholds: another approach to gallery access (Student: Ronan Keane)

As an alternative to delineating threshold zones, Ronan Keane's extensive but varied timber cladding treatment to the walls and soffits of the access galleries (Figure 15) gives a feeling of containment yet breakout within what appears to be a sculpted timber block. Timber is literally everywhere and the spaces are no less enjoyable for that.

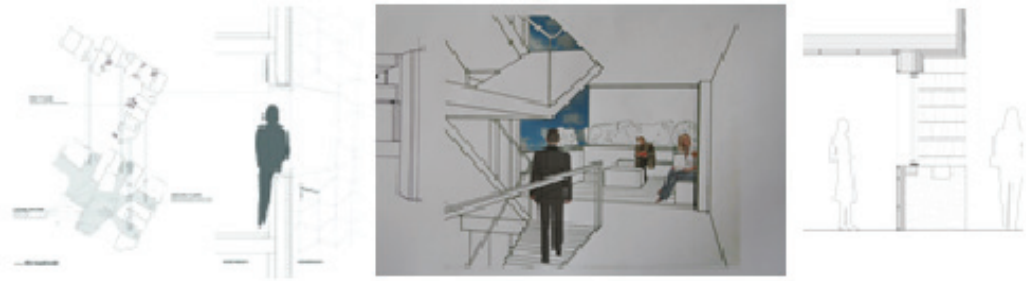


Figure 15. Varied thresholds: windows, staircases and the street (Students: Davina Moody, Hadrien Pouhaer and Thomas Mc Phillips)

Other students focused on windows, hallways and staircases or that difficult transition between the public and private realm at street level.

Many factors influence peoples' interactions with each other. One sociological study of a US suburban context, while acknowledging the role of physical space and planning, posits the stronger influence of homogeneous or heterogeneous communities as powerful catalysts for social contact (Gans, 1961). Hertzberger and others, however, argue for the designing in of options for possible social encounters, thus affording choice to residents. Some of our students began to address how the design of the threshold spaces in their projects could possibly influence social relations and thus contribute to social sustainability.

Conclusion

Writer and lecturer Peter Buchanan gives a cogent critique of the state of British architectural education (2012). He observes: "detached from the ferment of epochal change, the groves of academe are failing to engage with current critical realities" (p.91) where "rather than relevance, what is sought is startling originality, no matter how spurious" (p.93). He bemoans the lack of multidisciplinary projects noting: " ..... architects collaborate with a widening array of consultants in multidisciplinary design teams in which even the architect component is made up of individuals of different expertise..... yet architectural education is still geared to producing the solitary genius, rather than today's collaborator." (p.92). He notes that: "sustainability is reduced to a much too narrow, peripheral subject added on to the curriculum rather than forming the core of a radically restructured education" (p.92). He outlines his vision of how sustainability should be taught to become the core of any architecture course beginning with a multidisciplinary foundation course for architects, urban designers and planners and landscape architects.

Considering Buchanan's critique in relation to the DIT project described here it should be noted that teachers work within given structures that are often not ideal. While not all aspects of sustainable housing could be addressed in this one project, and some that were attempted were not always engaged in meaningfully by all students, in general the students did grapple with "current critical realities" and designed convincing, universally accessible apartments, with timber structures, with many exploring hard and soft flexibility options, diverse threshold treatments, and all exploring a range of issues from the urban scale down to 1.1 details of the construction system and texture treatments.

Though much was learned in this 12-week project, more community engagement, more meaningful multi-disciplinary collaboration and more rigorous scientific analysis of the energy performance of the students' designs would be an aspiration for future projects.

Acknowledgements

The module coordinator and project leader was Paul Kelly. Peter Crowley, Patrick Flynn, Emma Geoghegan, Brian O'Brien, Lenzie O'Sullivan and the author of this paper also taught on the module.

The students on the module were: Ilze Antonova, Mark Bailey-Smith, Conor Bourke, Sarah Brehonnet, Marta Carta, Anne Canavan, Cora Carbajo Melón, Edoardo Cerpelloni, Ailbhe M. Cunningham, Aoife Cunningham, Brendan Daly, Vitor Denetello, José Ángel Díaz, Amandine D. Di Ciaccio, Max Fedorov, Niall Fitzgerald, Hadrien Garnier, David W. Graham, Eva, L. Hemmingsson, Peter, M. Hogan, Wayne Holmes, Celine Jamin, Ronan Keane, David Keegan, Sophie Kelliher, Daire Kelly, Rebecca Kelly, Carl Laffan, Oksana Lastovetsky, David Lawless, Craig Leavy, Nathan Leclercq, Niall Lennon, Gillian Mc Allen, Ross McCarty, Mark Mc Cormack, Laura J. Mc Dermott, Thomas Mc Phillips, Julie Molloy, Davina Moody, Thomas, A. Moore, Fiona Muldowney, Eoin Murphy, Cormac Murray, Susie Newman, Caisin Nic An Bheatha, Vincent O'Byrne, Eoin D. O'Donnell, Christopher O'Keeffe, Hadrien Pouhaer, Donal Ryan, Andrea Rodriguez, Ciaran Sheridan, Brenda W. Spierin and Lisa Wischermann.

References

Awan, N., Schneider, T., & Till J. (2011). *Spatial Agency: Other Ways of Doing Architecture*. London: Routledge.

Buchanan, P. (2012). The Big Rethink - Architectural Education. T*he Architectural Review, 1388*, 91-101.

Department of Environment, Heritage and Local Government DOEHLG (2007). Delivering Homes, Sustaining Communities - Statement on Housing Policy. Retrieved from http://www.environ.ie/en/Publications/DevelopmentandHousing/Housing/FileDownLoad,2091,en.pdf

Department of the Environment, Heritage and Local Government DOEHLG (2007). *Quality Housing for Sustainable Communities. Best Practice Guidelines for Quality Housing for Sustainable Communities*. Retrieved from http://www.environ.ie/en/Publications/DevelopmentandHousing/Housing/FileDownLoad,1979,en.pdf

Edwards, B., & Turrent, D. (Eds.). (2000). *Sustainable Housing – Principles and Practice*. London, New York: E&FN Spon.

Gans, H. J. (1961). Planning and Social Life: Friendship and neighbor relations in suburban communities. *Journal of the American Institute of Planners, 27*(2), 134-140.

Hertzberger, H. (1991). *Lessons for students in architecture*. Rotterdam: Uitgeverij 010 Publishers.

Miller, G. (2012). Cross-laminated timber: the sky's the limit. *The Guardian Sustainable Business Blog*. Retrieved from http://www.theguardian.com/sustainable-business/cross-laminated-timber-built-environment

Office of the Deputy Prime Minister (2005). *Conclusions of Ministerial Informal on Sustainable Communities in Europe*. Retrieved from http://www.eib.org/attachments/jessica_bristol_accord_sustainable_communities.pdf

Schneider, T., & Till, J. (2007). *Flexible Housing*. Amsterdam, Boston: Architectural Press.

Skidmore, Owens & Merrill (2013). *Timber Tower Research Project*. Retrieved from http://www.softwoodlumberboard.org/Portals/0/Funded_Programs/Timber%20Tower%20Research%20Project%20-%20FAQ%20Document%20-%20FINAL.pdf

Teaching parametric urban design in a blended learning format: Entering the pocket University

Nicolai Steinø

Aalborg University, Department of Architecture, Design and Media Technology

steino@create.aau.dk

ABSTRACT

On the basis of a theoretical discussion of the concept of blended learning, this paper presents the preparation, execution and evaluation of a 5 ECTS blended learning course on parametric urban design for a group of some 50 BSc students of architecture and design at Aalborg university in the Spring of 2014.

The paper takes its point of departure in a stated ambition to seek ways to not only maintain but to also increase the quality of learning in higher education, despite declining budgets for higher education, changing student demographics, lack of time, support and funding for course and curriculum development, and difficulties to find time for research.

Despite the general consensus that developing online/blended learning courses requires both technical support, complex software installations, and substantial preparation time, it is shown that free web services and low-tech adaptations of traditional teaching assets are sufficient to get started with blended learning with only little extra effort.

While the pilot blended learning course which provided the insights for this paper has room for improvement, it represents a decent first shot at developing blended learning courses for higher education in a guerrilla manner, without having to mobilise university administrations, IT support, specialized labs for content production, nor to depend on special funding.

KEYWORDS: *blended learning, pedagogy, course design*

Introduction

Traditionally, architecture and design programs are oriented towards studio teaching and project based learning. Originating in the beaux-arts tradition, there is a focus on learning by doing, and the predominant mode of instruction is one-on-one studio supervision, where supervisors discuss project ideas with students. Alongside studio, architecture and design programs typically offer "theoretical" courses such as architectural history and theory, typically in the lecture format, and skills courses such as computer-aided design (CAD) or model-making, typically in the workshop format.

Maybe because of this dual focus on one-on-one student-instructor interaction and the creation of artefacts (drawings and models), there is typically very little focus on e-learning. Teaching, it seems, is something which is based on dialogue and takes its point of departure in design ideas which are conveyed by means of drawings and models. And this may not seem particularly meaningful to transfer into virtual space. The use of online systems, hence, is often reduced to the use of email, program websites/intranets, and course administration platforms such as Moodle.

In planning and executing the blended learning course which is the topic of this paper, I was met with surprise and even scepticism from several colleagues. What could blended learning possibly benefit both teaching and learning? Wouldn't it simply pave the way for further cutbacks on teaching to put lectures online rather than performing them in front of live student audiences? Isn't online teaching like threading a needle with boxing gloves?

In other fields of higher education, e-learning in various forms has been around for at least 10-15 years. Hence, it is nothing new. Contrary to the attitude of some of my colleagues, many higher education instructors cherish its potential. Sometimes more than it might deserve. But even if e-learning is in continuous formation due to constant device and software system innovations, not only has it come to stay, it also radically challenges traditional ways of teaching and learning in higher education in a number of different ways.

Blended learning

The advent of massive open online courses (MOOCs) in recent years has caused a great deal of attention. On the one hand MOOCs are seen as a means to democratize learning and make it accessible to the world across geography and economic capacity. On the other hand, they are seen as a disruptive technology which may erode the "business model" of traditional, campus-based universities. But as several studies seem to suggest, the biggest promise for learning with the advent of new information and communication technologies lies not in the complete substitution of online courses for campus-based courses. Rather, the combination and integration of such technologies with face-to-face learning in what is generally referred to as blended learning is what may drive learning to new levels (Aspden & Helm, 2004; Garrison & Kanuka, 2004; Lim, Morris, & Kupritz, 2007; Rovai & Jordan, 2004).

However, much research into distance learning has been atheoretical (Lynch & Dembo, 2004) and the term blended learning is used differently by different researchers, leaving uncertainty about its definition (Mortera-Gutierrez, 2006; Oliver & Trigwell, 2005; Osguthorpe & Graham, 2003). Oliver and Trigwell even argue – quite convincingly – that by all of its definitions it is redundant and unnecessary (2005). A declaration of how the term is used is therefore appropriate. This paper follows the mainstream definition of blended learning as a learning format by which online and face-to-face learning are mixed.

Blended learning as a mix of online and face-to-face learning presents both threats and opportunities compare to traditional learning formats. While interacting with different media and interfaces takes places in virtually all learning formats (books and blackboards are media with interfaces) what makes online learning particular is not the media (online material) or the interface (the computer screen) per se, but the fact, that online

interaction with media offers the opportunity to learn independently of time and space.

This capacity of online learning makes it possible to interact with learning assets (texts, videos, etc.) without having to go to the physical location of the library at whatever opening hours it may have. Likewise it also makes it possible to interact with peers and instructors without being physically present at the same location at the same time. In addition, online learning systems make it possible to share work in progress, thus enabling collaborative learning and evaluation across time and space. These three qualities of online learning seem to represent the most important advantages of blended learning to traditional learning.

If not properly designed, the interface of the online learning environment may inhibit rather than facilitate interaction with content and people and cause frustration (So & Brush, 2008). The interface must offer affordance (Gibson, 1979), in other words, it must speak of itself as to how it should be used. This is particularly important as it may otherwise enhance the alienation and frustration which may stem from not being physically present with peers and instructors (Rovai & Jordan, 2004).

The latter relates to the notion of social presence which has to do with the psychological distance between students and their instructors and other students (So & Brush, 2008). Social presence is affected by the sense of intimacy and immediacy and the feeling of being connected and belonging, both of which are important for successful collaborative learning (ibid.) as the emotional learning climate is an important indicator of learning effectiveness (Wu, Tennyson, & Hsia, 2010). While social presence may not necessarily be sensed in face-to-face learning, establishing a sense of connectedness is important in online collaborative learning (So & Brush, 2008).

Contexts

There is a number of contexts which makes it worthwhile to consider the integration of some form of e-learning in higher education. In the economic context, there is pressure on funding and an increased focus on research production. Here, e-learning holds an efficiency potential. In the pedagogic context, e-learning offers new ways of learning which are not possible by conventional means. Here, e-learning holds an effectiveness potential. Finally, in the geographic context, e-learning offers the possibility for students and instructors to work independently of space. Here, e-learning holds a collaboration potential.

In most parts of the world, higher education faces cutbacks on teaching funds. The ratio of young people seeking a higher education is increasing, leading to pressures on public spending. Neoliberal politics generally favour low taxes over welfare services, leading to smaller budgets for public services. New public management has put an increased focus on quantifying research, leading to an increased orientation in academia away from teaching towards fundraising, research and research administration.

Despite new pedagogical insights, much teaching in higher education is still performed in traditional formats such as lectures, individual studies and text-based in- and outputs. Students studying from fixed syllabi, attending live lectures and writing individual papers under the sole guidance and subsequent grading of supervisors are not things of the past. And while project and problem based learning, group work, and formative and peer evaluations take place in many universities, e-learning can effectively enhance student cooperation and peer learning.

Face-to-face learning, by matter of definition, is tied to a particular point in space. E-learning in blended learning formats makes it possible, not only to supplement face-to-face learning off-campus, but also to substitute online learning assets for one-way communication formats such as traditional lectures. This frees up valuable teaching resources to engage in more interactive learning formats such as workshops and seminars. And online, communication formats such as chats, blogs and blog comments enable peer learning in new and powerful ways.

Students and instructors in most higher education programs are likely to come from a variety of social, cultural and professional backgrounds and to have different views and understandings of the learning content. Nonetheless, interaction between different programs is often beneficial, as local paradigms, traditions and idiosyncrasies are likely to emerge everywhere. Therefore, interaction between related programs in different universities may be an eye-opener to students and enhance their learning. E-learning formats which enable cross-institutional learning and collaboration may therefore contribute qualitatively to the learning.

Conditions for the course design

The preparation and design of the blended learning course which is discussed in this paper was conditioned by a number of factors. First, the ambition to design the course as a blended learning course was solely that of the course instructor. Therefore, no extra time, resources or technical support was allocated for the purpose. Second, the Moodle configuration used by the university did not offer the desired functionality in terms of peer learning and ease of use. And as there was no technical support, it could not be adapted. Therefore, another e-learning platform had to be found. Third, the platform of choice had to be free (as there was no money), easy to set up (as there was no technical support) and be easy to use and support peer learning (which the university Moodle didn't).

E-learning systems

A number of e-learning platforms exist, which aim at different learning contexts and which offer different functionalities. A number of massive open online course systems (MOOCs) exist. They offer courses which can be taken remotely and online, without face-to-face learning events. Examples of such MOOC systems are Coursera, Udacity and EdX which are all associated with North American universities and Futurelearn by the British Open University. Independent systems such as the Khan Academy also exist ('Massive open online course'). Such MOOC systems are proprietary and the choice of courses is defined by the system administrators.

The same is true for Itunes U offered by Apple through the Itunes online store, where universities can register to set up their own course repositories. However, Itunes U also offers the possibility for individuals to open independent courses. While independent courses will not display in the Itunes online store, they make use of the same infrastructure, which includes specialized apps for tablets and smart phones. Sign-up links to independent courses must be distributed separately and there is a limitation to the number of students who can sign up for any one course as well as to the amount of learning material which may be uploaded for each course (Apple). While Itunes U is very well designed, it suffers a serious drawback as it only runs on Apple devices and some features even only on Apple tablets (iPads). Furthermore, peer-to-peer learner communication was only integrated very recently, after the survey for this paper was done.

A host of learning management systems exist, which offer institutions to manage student enrolment, provide course content (learning assets) and schedules, and manage submissions, assessment and grading. They also offer various formats for communication such as news and discussion forums. The most widespread learning management systems are Moodle which is open source, and Blackboard which is a proprietary system ('Learning management system'). Learning management systems are major software installations which must be set up by the institution's IT service department in order to be made available to instructors and students.

Apart from dedicated e-learning platforms, which involve various gate-keepers in order to be accessible, different free online services exist, which may serve the purpose of e-learning platforms, even if they are not specifically designed for it. Essentially any blog system may work as an e-learning platform. Blog systems typically offer the possibility to post texts (blog entries) which may be commented. This feature can be used for practically any type of instructor to student communication, whether the announcement of learning events, links to teaching assets, or general messages. As most blog systems offer the possibility of having multiple authors, students would similarly be able to post (links to) work in progress, submit final work, ask questions and engage in discussions. Also, blog systems offer different ways to organize and navigate content in the form of pages, categories and tags.

However, a course blog should preferably be closed in order to avoid interference from people not taking part in the course. Also, with large numbers of students, assigning author rights should be easy to manage. And on these two accounts, several blog systems fall short. Facebook offers the possibility to set up closed groups and is very blog-like in its design and functionality. But Facebook groups do not offer easy ways to organize content. Furthermore, as a commercial product based on advertising, the interface is scattered with ads which are distracting and improper in a learning environment. Also, many people may prefer to use Facebook for private purposes and not mix it with professional or educational uses, or to not use it at all.

Similar in idea to Facebook groups but with a much cleaner design, Google+ communities seem to be the choice which offers the most advantages and the least disadvantages, when it comes to identifying an e-learning platform which is free and add free, easy to set up and manage, is easy to navigate, which comes with apps for tablets and smart phones, and offers privacy and peer to peer learner communication. While Google+ communities do not have integrated file storage for learning assets, a host of file storage systems such as Dropbox or Google Docs exist which can be linked. As a Google product, it is integrated with YouTube for video content.

While Google+ communities completely lack the administrative features of learning management systems, it cannot be used for administrative purposes such as formal sign-up, submissions and grading. Nor can it work with booking systems for teaching spaces or course calendars across courses and programs. But as formal activities either take place before or at the end of courses, they are of little importance while the course is running. Hence, the only major drawback is the lack of a course schedule feature which integrates with the university timetabling, particularly in the case of rescheduling of events, or rebooking of teaching spaces.

Setup

Once Google+ had been chosen as the online platform for the course, the different learning assets were produced. Learning assets could be original content in the form of video lectures, teaching papers and instruction sheets, all of which were produced specifically for the course, as well as software files and templates, external readings (mostly software manuals and tutorials) and academic papers by the course instructor.

In order to explicate the learning cycles of the course, it was organized into five titled parts (Figure 1). Each part would typically consist of three face-to-face learning sessions: a brainstorming seminar, a workshop and a presentation seminar. The 15 sessions were posted in the course community with time and date, a short description and an assignment, along with links to relevant learning assets (Figure 2).

Introduction to parametric urban design	**Form and shape analysis**	**Structure and system analysis**	**Parameters**	**Applications**
Session 01: Lecture: The theory and principles of parametric urban design	*Session 04:* Seminar: Form principles underlying cities, sites and buildings	*Session 07:* Seminar: Elements and connections	*Session 10:* Seminar: Quantitative, geographical and relational parameters	*Session 13:* Seminar: Analysis, design, communication
Session 02: Seminar: Introduction to CityEngine	*Session 05:* Workshop: Scripting form principles	*Session 08:* Workshop: Scripting connections	*Session 11:* Workshop: Scripting parameters	*Session 14:* Workshop: Completion
Session 03: Workshop: CityEngine: First steps	*Session 06:* Seminar: Form analysis	*Session 09:* Seminar: Structural integration	*Session 12:* Seminar: Parametric design	*Session 15:* Seminar: Student project presentation, conclusions, evaluation

Figure 1. Graphic representation of the course parts and sessions. 1 event was a live lecture (red), 5 sessions were workshops (yellow), and 11 sessions were seminars (green)

As no special funding was allocated for the production of online learning assets, simple, low-tech techniques had to be used. Video lectures were produced on the basis of slide shows as for live lectures. The slide shows were recorded with voice-over using a standard computer and presentation software. Small live video introductions showing the presenter were recorded using the computer's built-in camera and standard video recording software. The videos were recorded using a green cloth as a background in order insert a graphic background behind the live picture of the presenter (green screen).

Apart from initial testing, this technique required minimum effort, as the only editing consisted of putting together the live introductions and the recorded slideshow in a standard consumer video editing program. As the slide show was recorded in one take, coughing, rephrasing, occasional ambient noise, etc., would occur as in a live lecture.

Due to the lack of existing course readers, a couple of teaching texts were written from scratch. The texts were uploaded in both pdf and epub format. While pdf documents can be accessed from most devices, epub documents offer better annotation features (bookmarking and note taking) when accessed from smart phones and tablets. Also to this end, standard software was used.

As Google+ does not comprise online file storage, a cloud service (Dropbox) was used for uploading text files, while YouTube was used for uploading video lectures. All learning assets were linked from the Google+ community.

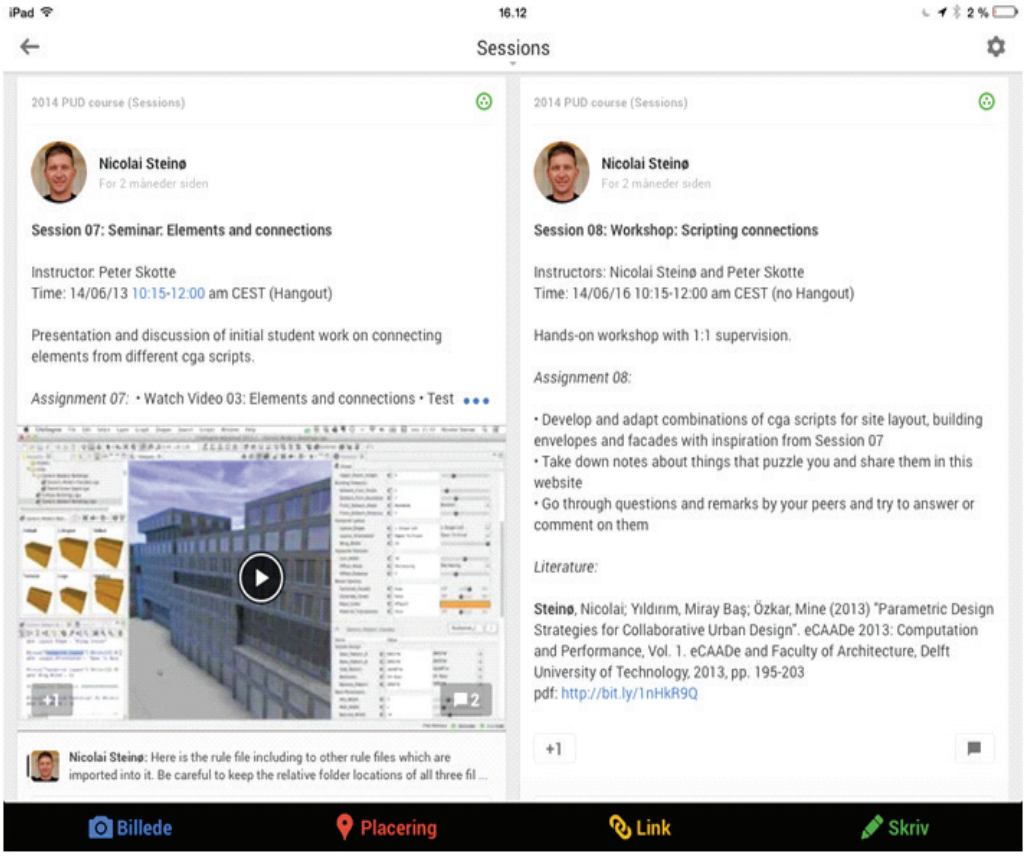


Figure 2. Visual appearance (on a tablet) of posts with session info

Execution

A link was distributed to the students from which they could sign up for the course community. Despite the fact that a Google account was required, most students signed up immediately at the beginning of the course, and the rest signed up in a matter of days. The course was introduced with a traditional face-to-face introductory lecture, explaining the content structure and setup of the course. On this occasion, the students were asked about their access to hand-held devices. Only 1 of the present students did not have access to either a smart phone or a tablet.

Apart from technical problems of installing software and compatibility problems of having it work with different hardware configurations typical of such courses, the students quickly grasped the blended learning format and the functionality of the online community. For the first seminar which was held on day two of the course, some 20 posts had been made to the online community with screen dumps of work in progress, in part along with code, remarks, and/or questions (Figure 3).

During workshops where supervisors were helping the students out with specific scripting problems, the students would request help using the online community. From their smart phones, the supervisors could see which students were next in line for help and could go to their cubicle. Between workshops, students would use the online community to ask their peers for help. To the extent that the supervisors were available between workshops, they would also give answers and engage in discussions about possible design solutions.

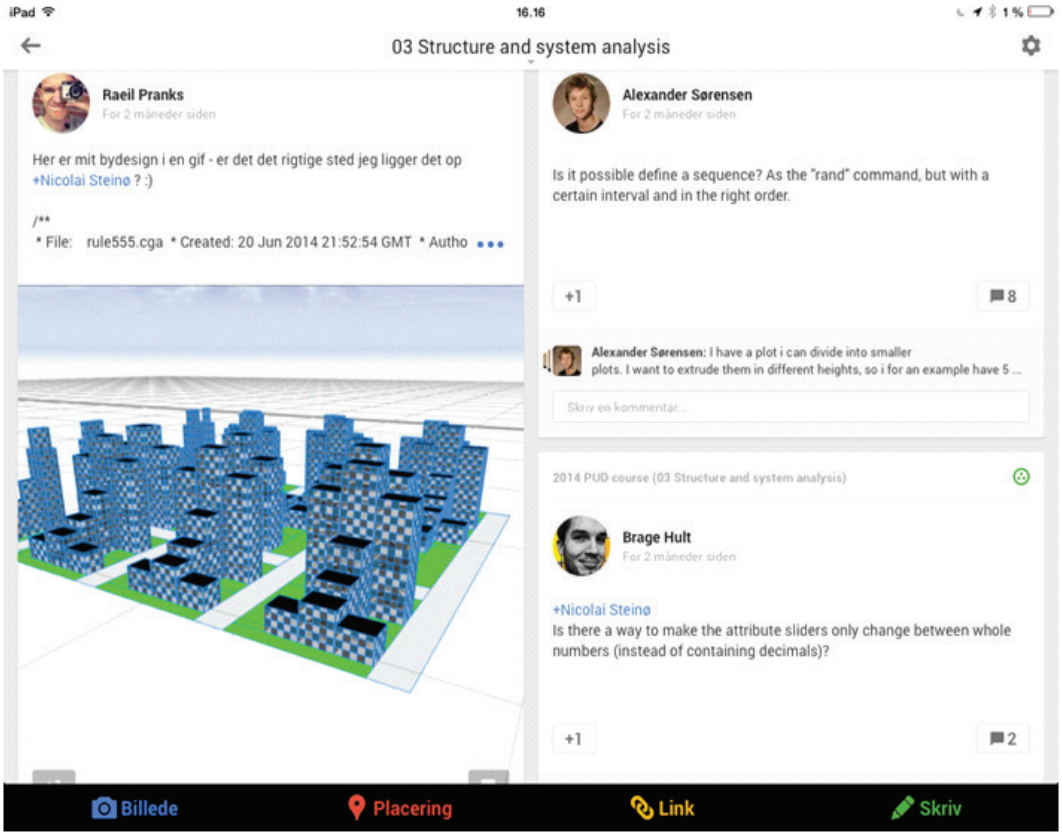


Figure 3. Posts with code (partially visible) and screen dump (left) and questions (right)

As some students would often know the answers to the questions of others, the online community enabled peer learning across time and space. Another advantage of these online Q&As and discussions was that they could be shared so that students could learn from other students' problems and their solutions.

Two elements of the course turned out to be poorly designed and were changed along the way. As the learning curve of the scripting language was rather steep, it turned out, that the students needed more workshop sessions than the five that were originally scheduled. However, as workshops, like seminars, do not require specific preparations on the part of the instructor, it was effortless to reschedule some of the seminars into workshops.

As unimportant as it may seem, the fact that sessions had been posted in the categories of the five course parts to which they belonged, rather than in a separate sessions category, also turned out to be a problem. Due to the blog nature of the online community, the posts made by the students during the course would force the sessions posts (which were posted first) to 'sink' to the bottom of the stream of posts, making them increasingly inaccessible and difficult to retrieve. This however, could also easily be remedied by reassigning them to a new sessions category.

A third element turned out to be sub-optimal but less easy to improve on-the-go. While most of the students posted material to online community at least once during the course, there was big variation as to how much and how often the students would post material. The seminars were based on discussing the work in progress which had been uploaded by the students. But as posting was not mandatory, some seminars suffered from having limited material from which to discuss from. This in part, limited the learning quality of the seminars.

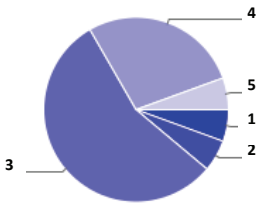
Evaluation

After the course was completed, the students were asked to fill out a course evaluation questionnaire. 46 student signed up for the course. Of those, 18 students filled the questionnaire, equal to a response rate of 39%. 5 students did not complete the course.

The questionnaire had 20 questions, most of which were multiple choice. The questions were divided into 2 sections. The first section concerned the content of the course. The second section concerned the format of the course. While the evaluation of the course content was generally positive, this section will focus on the evaluation of the course format.

Reading load

Most of the respondents either said that the reading load was well balanced, or that they read the material but could have read more (Figures 4, 5). In terms of the balance between different learning assets, most respondents said that there should have been more video lectures and teaching texts.



1	I did not read the course material	1	6 %
2	It was too much and I only read some of it	1	6 %
3	It was well balanced	10	56 %
4	I read it and could have read more	5	28 %
5	It was insufficient	1	6 %

Figure 4. How was the total reading load of the course?

1	There should have been less video lectures	3	17 %
2	There should have been less teaching texts	2	11 %
3	There should have been less research articles	3	17 %
4	There should have been more video lectures	10	56 %
5	There should have been more teaching texts	10	56 %
6	There should have been more research articles	3	17 %

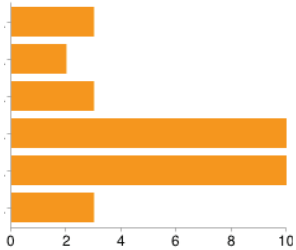
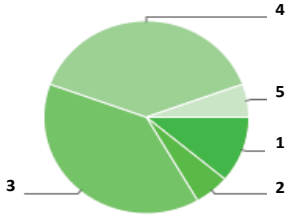


Figure 5. How was the balance between the different types of readings?

Flip classroom

The respondents were generally positive towards the flip classroom mode of learning, although some felt that the implementation could be better (Figure 6). 17% however, either did not learn much from online lectures and preferred live lectures in a lecture hall, or found them to be a poor substitute for the real thing.



1	I did not learn much from online lectures and prefer live lectures in a lecture hall	2	11 %
2	They are a poor substitute for the real thing	1	6 %
3	The idea is good but the implementation could have been better	7	39 %
4	I found it flexible and convenient to be able to view and review the lectures wherever and whenever I want	7	39 %
5	Online lectures is a major improvement and should be the standard for all courses	1	6 %

Figure 6. How useful were the online lectures?

A significant majority of the respondents spent less time at the university and more time at home than they would normally do, and almost half of the respondents spent more time on the course altogether because they could study at times when they would not normally be able to study (Figure 7).

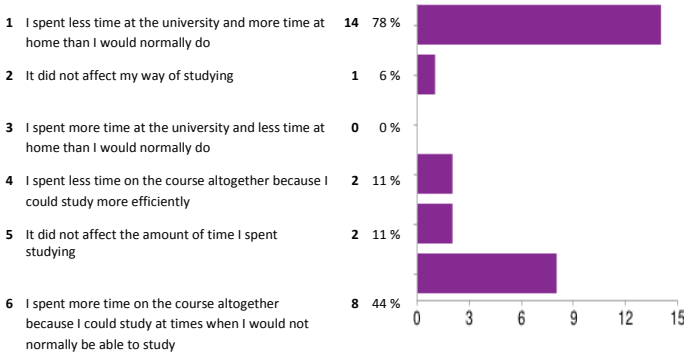


Figure 7. How did the online format affect your way of studying?

Course community

While most respondents said that the online course community worked fine as a communication platform (but preferred to speak to people in person) or that it was very useful, almost half of them said that it worked but found the user interface confusing and hard to navigate.

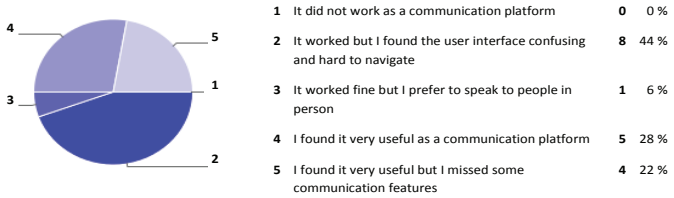


Figure 8. How well did the online course community work as a communication platform?

Computers were used significantly more than both smart phones and tablets for interacting with the online course community (Figure 9). This was true for reading (pdf and epub) and watching videos, as well as for writing and commenting posts. While phones were hardly used at all for reading, they were used more for writing and commenting posts than tablets. Only few students used tablets.

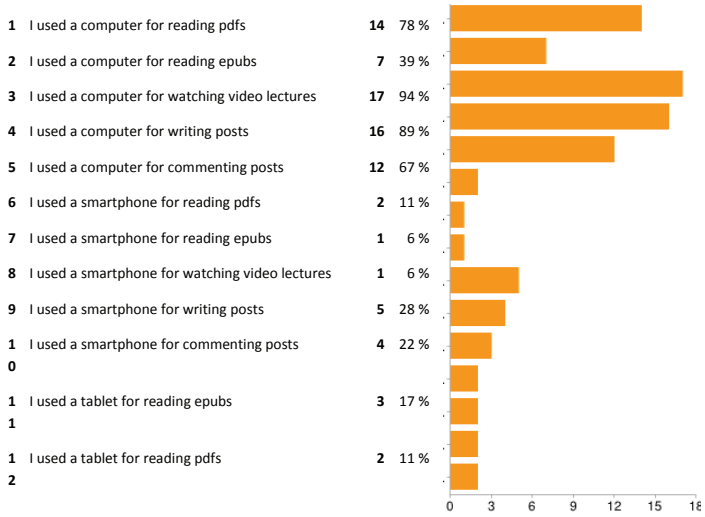


Figure 9. Which platforms and media types did you use?

Portfolio structure

61% of the respondents said that the course part structure was a good way to overview the content of the course, while 28% either said that the parts did not structure the course very well, or that the parts were fine but not important. 61% also said that partial submissions were a good way to structure the work and learn from others, while 34% either said that partial submissions were confusing and gave them an unnecessary workload compared to one final submission, or that they did not see the point in the beginning but ended up finding them useful.

Distance learning

78% of the respondents either found remote interaction with the instructors to be OK but preferred on site interaction, or saw it as a good supplement to campus learning.

67% of the respondents either found remote interaction with the other students to be OK but preferred on site interaction, or saw it as a good supplement to campus learning.

22% found that distance learning actually improves the interaction between students because it is shared and may happen also when they are not on campus.

Campus learning

When it comes to campus learning, the responses did not give a clear picture. Respondents generally disagreed as to how well they found themselves to spend their time on campus learning, and as to how campus learning affected what they learned from other students.

Discussion

While by and large evaluated positively by the students, the blended learning course in its first implementation has room for improvement on a number of accounts. The technical quality of the online lectures could have been better and the navigation of the online community could have been clearer (although it was improved during the course).

Also the portfolio structure of the course with partial (voluntary) submissions of work in progress was not well received by all. While some students may not have perceived the learning aspects of the portfolio structure, it is not clear whether their hesitance is due to being unfamiliar with this teaching format or whether it was poorly explained and/or implemented.

While the online learning assets had been designed for optimum use with handheld devices, the students largely preferred to access them from their computers. Nonetheless, mobile access played a role for writing and commenting posts in the online community. On the part of the instructor, this represented a major difference, as smart phone notifications made it possible to reply to questions and engage in discussions promptly (depending on availability). Having to actively check the online community for new posts from a computer would likely have resulted in fewer and less frequent interactions.

The content and purpose of the course was twofold. On one hand, the students should learn about the principles of parametric urban design (knowledge). And on the other, they should learn hands-on coding skills for making parametric design scripts (skills). In combination, the aim was that the students should learn to describe scenarios for the use of parametric design at the urban scale (competencies). As such, the aim was more than simply to teach the students how to code a script within the

particular software which was used. It should also provide them with a more general knowledge and understanding of what parametric design can be used for.

This however, was not how it was perceived by the students. They largely took the course to be a skills course, the purpose of which was to learn how to use a particular software program. As their difficulties in learning how to code (an abstract and alien concept to most of them), and as they had been exposed to software skills courses before, this seems to be an obvious consequence. Probably for that reason, they found the research articles in the course literature to be less relevant than the more hands-on video lectures and teaching texts from which they wanted more.

One particular interesting result of the survey is that the students largely said that they spent more time studying at home while at the same time spending more time on the course altogether. While past research seems to conclude that physical presence in some measure is important for students to emotionally engage in learning and thus to learn, having the liberty to study more from home through blended learning compare to conventional learning formats may actually increase the (perceived) total amount of time spent on studying.

Conclusion

Although not in any way conclusive, the experiences from the pilot blended learning course described in this paper gives some interesting indications. First, the guerrilla manner in which it was organized, without special funding, specialized software platforms and technical support, and with the use of low-tech solutions for content production and a free and generic online platform, indicates that individual educators do not depend on the inertia of institutional decisions and systems implementation to get started with blended learning.

Second, despite the fact that the technology which was used was simple, it was possible to establish an online environment which infused the students with a sufficient sense of social presence for them to bother to interact through the system, despite some criticism that the interface was confusing. This in fact, was crucial to the success of the course, as it depended highly on the collaboration of the students in sharing their scripts for its pedagogical progression.

Finally, the blended learning course as a whole constituted a learning environment which, even if it was in many ways radically different from the learning formats which the students were used to, they grasped and accepted. However, the dual purpose of the course of providing a theoretical understanding of its topic as well as hands-on skills was only partially successful. But this is probably more attributable to the discrepancy between the aim and ability of the instructors to convey the purpose of the course than to its blended learning format.

References

Apple. *iTunes U course manager help*. Retrieved from https://itunesu.itunes.apple.com/help/#

Aspden, L., & Helm, P. (2004). Making the connection in a blended learning environment. *Educational Media International, 41*(3), 245-252.

Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *The Internet and Higher Education*, 7(2), 95-105.

Gibson, J. J. (Ed.) (1979). *The ecological approach to visual perception*. Boston:

Houghton, Mifflin and Company.

Learning management system. (n. d.). In *Wikipedia*. Retrieved from http://en.wikipedia.org/wiki/Learning_management_system#Learning_management_industry

Lim, D.H., Morris, M.L. & Kupritz, V.W. (2007). Online vs. Blended Learning: Differences in Instructional Outcomes and Learner Satisfaction. *Journal of Asynchronous Learning Networks, 11*(2), 27-42.

Lynch, R., & Dembo, M. (2004). The relationship between self-regulation and online learning in a blended learning context. *International Review of Research in Open and Distance Learning, 5*(2).

Massive open online course. (n. d.). In *Wikipedia*. Retrieved from http://en.wikipedia.org/wiki/Massive_open_online_course

Mortera-Gutierrez, F. (2006). Faculty best practices using blended learning in E-learning and face-to-face instruction. *International Journal on E-Learning, 5*(3), 313-337.

Oliver, M., & Trigwell, K. (2005). Can 'Blended learning' be redeemed? *E–learning, 2*(1), 17-26.

Osguthorpe, R. T., & Graham, C. R. (2003). Blended learning environments: Definitions and directions. *Quarterly Review of Distance Education, 4*(3), 227-33.

Rovai, A. P., & Jordan, H. M. (2004). Blended learning and sense of community: A comparative analysis with traditional and fully online graduate courses. *International Review of Research in Open and Distance Learning, 5*(2).

So, H., & Brush, T. A. (2008). Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors. *Computers & Education, 51*(1).

Wu, J. H., Tennyson, R. D., & Hsia, T. L. (2010). A study of student satisfaction in a blended e-learning system environment. *Computers & Education, 55*(1), 155-164.

Resilient and sustainable housing: Examples of student projects

Elina Krasilnikova, Larisa Kuzina, Vladimir Rusanov

Institute of Architecture and Urban Development, Volgograd State University of Architecture and Civil Engineering, Volgograd, Russian Federation

landurbanizm@gmail.com, larisa_kuzina@outlook.com, burio2m@mail.ru

ABSTRACT

The paper discusses the current architectural and urban-planning academic training problems of modern models of flexible and sustainable housing structures. The authors define the concept of flexible residential formation as a sustainable urban planning and architectural design model for the development of the planning structure of the city in modern conditions reconstruction. The results of the introduction of new methods of urban planning in student projects on regeneration of post-industrial territories of Volgograd are reported. A logically constructed chain model was developed from the different main functional elements of the proposed structure planning area as part of the research of the final year projects.

KEYWORDS: *housing studies, residential structures, flexible and sustainable residential structures, student projects*

Introduction

Modern directions of urban development in the context of increasing urbanization in almost all cities of the world, brought about by globalization, are directly dependent on the formation of new models of urban housing (residential structures). At the moment, the current models of urban housing have no influence on the further development of the urban structure of the city, and because of its traditional static nature, the development of surrounding areas is not considered. However, the formation of modern housing (housing complex, a residential neighbourhood, multi-apartment houses, etc.) should influence the development of neighbourhoods, because any residential formation is not only a city-forming element in the development of the territory, but also an important element of social and urban planning structure, which requires the formation around its comfort-term urban infrastructure.

What is the model of modern housing which will contribute to a stable and comfortable urban housing environment and will be a vector for the development and transformation of neighbourhoods, in the present conditions of urban regeneration?

The answer to this question lies in the definition of new approaches to the formation of modern residential structures, based not only on the principles of sustainability, but on the application of the theoretical foundations of the landscape urbanism (Waldheim, 2006) and sustainable urbanism (Farr, 2008), and the co-evolution approach (Babich, Kremlev, & Kholodova, 2013).

Current trends in the formation of flexible and sustainable residential structures are:

- Urban planning flexibility.
- Typological variability.
- Landscape town-planning approach aimed at the active involvement of the nature of the structure flexible housing formation.
- Creating the identity of the architectural and spatial image flexible housing formation.
- Forming socially-oriented housing environments.
- Effective landscape and urban planning of flexible housing formation.

Studying the theoretical and practical methods and techniques for designing flexible and sustainable housing structures

The concept of scientific research

The role of flexible residential structures in the transformation of the space-planning structure of the city

Currently, the most effective modern direction of the space-planning structure of cities is urban planning transformation areas (Bosselmann, 2008), so through the development of new models of flexible housing structures and their implementation into existing built fabric, we can create a comfortable, environmentally friendly, socially-oriented and identical urban environment).

Why are flexible housing structures currently the most effective and promising means of urban development of modern cities?

Flexible housing formation (FHF) – a symbiosis of urban planning and flexible planning structure housing with a wide variability of typological solutions, using good engineering infrastructure and modern environmentally sustainable technologies in the landscape organization neighbourhoods on the basis of the preservation of their natural potential. Flexibility of the layout makes it possible to create an identical architectural space by forming the architectural environment of individual residential structures, characterized by originality and aesthetics of stylistic solutions.

One of the main factors in forming FHF is a socio-economic approach, which is based on the principle of the formation of residential areas with a stable density. In order to explain how it is possible to discuss sustainable density and flexibility FHF

– they do not contradict each other, it is necessary to remember that from the standpoint of stability of the principles of sustainable approach it is defined as a dynamic equilibrium, so the stable density areas also vary within certain limits and according to the specific features and factors of its development and exploration. Density is a measure of the ratio of the building and its environment. Therefore, the formation of development should not only be cost-effective (this is usually determined by a high density of built-up area), but comply with the environmental and social conditions of a particular area. In this case we can speak about the stability of the layout and, respectively, we can refer to sustainable development density as the main indicator of urban planning making efficient use of this site from a position of co-evolutionary approach and sustainable development.

Recently many new urban concepts have been developed in cities such as Moscow, Grand Paris, London, and others. Unfortunately, in these large, complex and interesting projects there is no clear concept of the development of residential areas from the point of formation of comfortable housing and socio-oriented urban housing environment. The formation and development of residential areas with a predominant function is not in the city-forming component of these concepts, but other "priorities" are addressed, such as the optimization and development of the transport infrastructure, increasing the number of green areas, etc. Therefore, for the formation of a "livable cities" (Miranda & Hordijk, 1998) an alternative approach is needed in which the issues of forming a modern and comfortable housing environment will be based on a comprehensive, integrated approach to urban transformation of their territories.

Creating flexible and sustainable housing structures is one of the main directions of the development of urban areas. This is clearly proved by the example of foreign urban planning practices, for example – the Swedish and Irish.

Influence of landscape urbanism to the formation of flexible and sustainable residential structures. Landscape and urban planning approach

In modern urban planning vision for the cityscape landscape plays one of the most important, and sometimes a major role in shaping the directions of development of the urban fabric of cities, and, accordingly, its components – housing areas (residential areas). The natural environment is the most stable component of the space-planning structure of the city, which should be preserved and taken into account in the development of new strategies for the development of territories. The new landscape of technology and techniques of landscape design and construction capable of converting degraded areas of the city, requiring a global recovery and creating eco-reconstruction and modern urban landscapes and objects providing eco-sustainability and improving the environment surrounding territories. Thus, a landscape and urban development approach focuses on the active inclusion of nature in the urban environment through the preservation of its natural biodiversity for the formation of identity and aesthetically attractive urban space. Florence Declaration on the landscape (European Landscape Convention, 2000), confirms the importance of the preservation and improvement of landscapes: the quality of everyday life and cultural identity, and to increase the benefit-states.

Landscape urbanism – a new urban planning approach to the development and transformation of cities in the context of globalization, which describes current problems in the functioning of the city through the 'prism' of the landscape approach, which in the 21st century has been used successfully in the modern urban planning practice.

Implementation of scientific research in the learning process – courses of urban design (3rd year bachelors)

Courses of urban design (in the period 2013-2016):

- 3rd year bachelors. Residential area of 25.000 residents (winter semester).
- 3rd year bachelors. Multi-storey residential building complex (spring semester).

- 4th year bachelors. City 50.000 – 100.000 residents (winter semester).
- 4th year bachelors. Reconstruction of the city (spring semester).
- 4th year bachelors. Reconstruction of the quarter (spring semester).
- 5th year specialists. City 50.000 – 100.000 residents (winter semester).
- 5th year specialists. Reconstruction of the city (spring semester).
- 5th year specialists. Reconstruction of the quarter (spring semester).

In the process of the urban design course of on 'Housing', the bachelors 3rd year (group ARCH-1-11) carried out in a project in the residential area in the actual territory of the city of Volgograd, which is based on the use of the modern principles of town planning flexibility and stability in the formation of a residential neighbourhood urban planning as a structural unit of the district (Figures 1, 2).

The task assigned to the students, was to create a residential area, based on the principles of sustainability and flexibility. The second task was to incorporate a residential block into nature, using the principles of landscape urbanism.

Students from this group will participate in the learning space 'Habitat Regeneration Strategies'. Experience acquired during the project will be used in learning tasks.

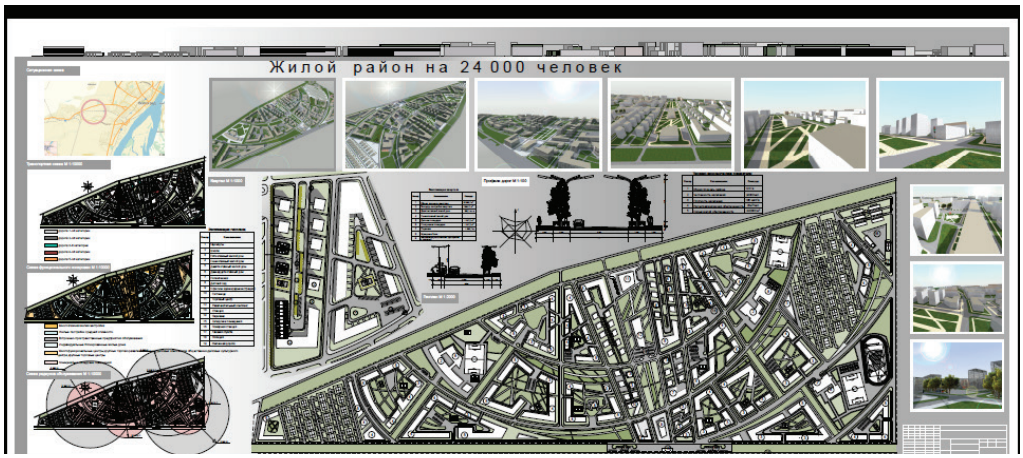


Figure 1. Course student project. 3rd year Bachelor. Residential area on 24.000 residents

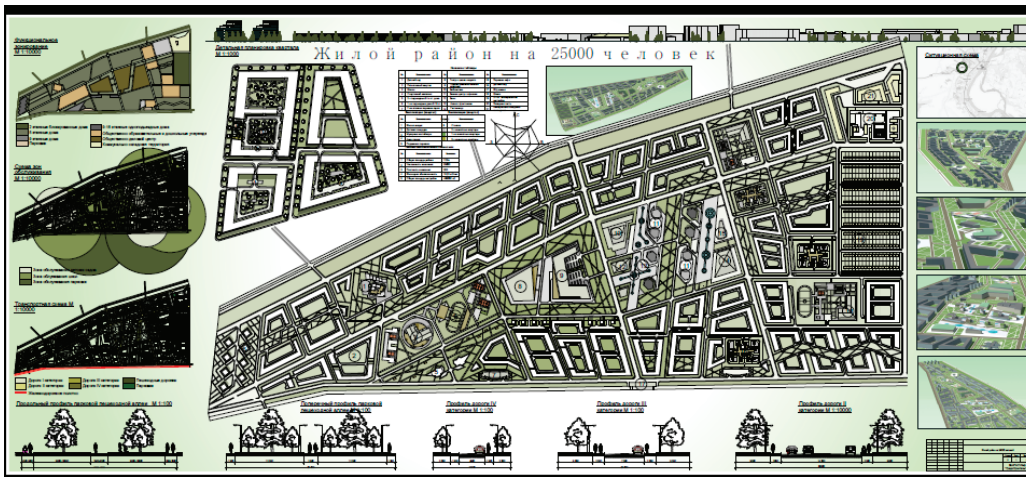


Figure 2. Course student project. 3rd year Bachelor. Residential area on 25.000 residents

Implementation of scientific research in the learning process – courses of urban design (6th year specialists – diploma project)

Two diploma projects were developed on the urban planning renovation of industrial area in Volgograd, in the task of conceptual design of sustainable urban planning and

architectural design model of urban planning the renovation of these areas of the city and introducing it flexible and sustainable residential structures. Models developed in these diploma projects are very important for solving the urban problems of Volgograd and other modern cities.

Due to the fact that the Volgograd's linear structure of the city does not allow to radically altering the geometry of its plan. The city has no free areas for the formation of new buildings. The only way is the urban regeneration of industrial and post-industrial areas. The objects of research selected were two typical districts along the Volga River (Figure 3) in which more than 30% of the territory is occupied by industrial objects: Krasnooktyabrsky (Figure 4) and Krasnoarmeisky (Figure 5). And many of them are no longer active. Therefore, at present, the concept of the development of these areas is very relevant and attracts the attention not only of the municipality, but also various large investors.

In the research part of the projects the use of the method of variation of urban planning was proposed for the models development of the planning structure elements of proposed clusters based on the principles of urban planning flexibility and stability.

While working on the thesis project extensive material relating to contemporary urban issues has been studied with the prevailing share from the industrial sector, followed by functional transformation (conversion, revitalization, renovation, etc.) Detailed material was collected on the issue of urban planning organization and coastal area Krasnooktyabrsky, Traktorozavodsky districts of Volgograd, studied the experience of the world of urban planning practice in solving similar problems of post-industrial adaptation of the industrial areas of major cities.

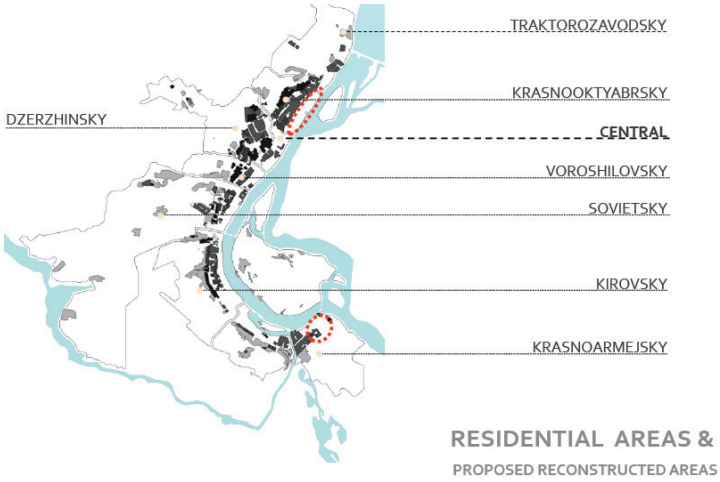


Figure 3. Scheme of Volgograd

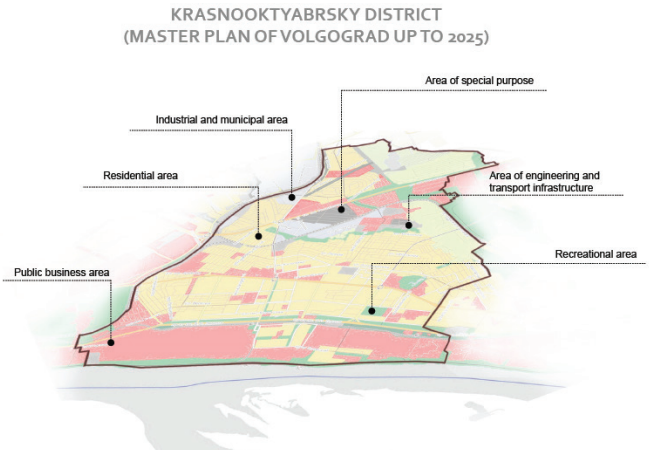


Figure 4. Scheme of Krashooktyabrsky district

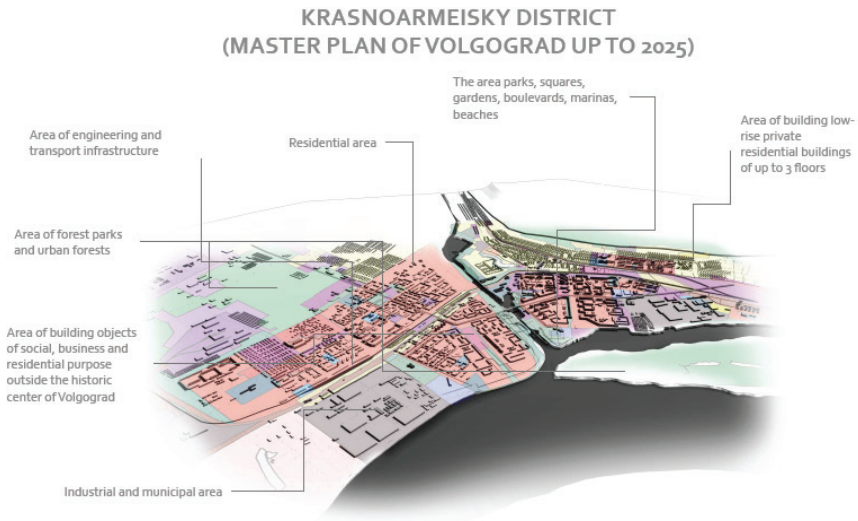


Figure 5. Scheme of Krashoarmeisky district

Residential areas of these districts are the most problematic areas of the city, which are characterized by the following problems: lack or insufficiency of public, semi-public and private differentiation; unorganized area of residential quarters; unorganized parking; lack safe residential areas for recreation; low variety of residential apartment typology; lack of access to the waterfront because of unorganized river embankment and industrial zone.

The projected cluster chain (IT, Agricultural, Automobile) is a geographically concentrated and has a planning framework that integrates a system of linear communication transport and pedestrian linkages, and a unified system of green areas. Creating the system of different functional purpose clusters, based on the fact that such functionalization, enables us to obtain a synergistic effect through the possibility of rapid and continuous exchange of information, cooperation in the use and formation of neighbourhoods and public recreational spaces. On the basis of the schemes of spatial modelling, such an organization in the main industrial area of the city can be considered as an element of urban forming post-industrial urban development.

The research part of the graduation projects consists of a logically constructed chain model with varying main functional elements of the proposed structure planning area such as transportation hubs, embankments, areas of social activity, and residential areas that are proposed on the basis of the principles of urban planning variation, hybridization, flexibility and sustainability (Figures 6, 7).

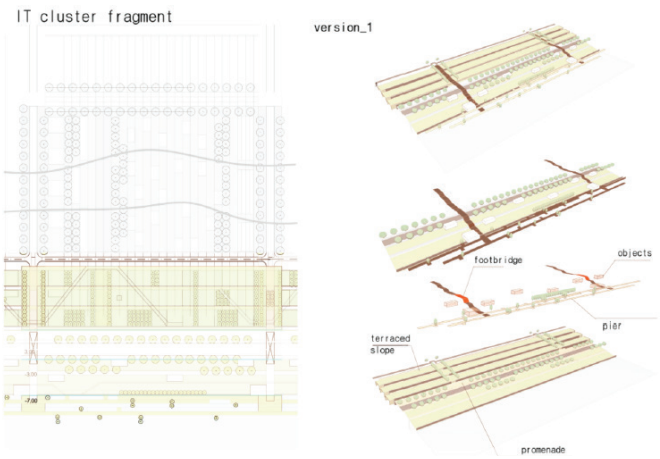


Figure 6. Forming of IT and agricultural clusters in a structure of projected embankment – as multifunctional public and recreational areas

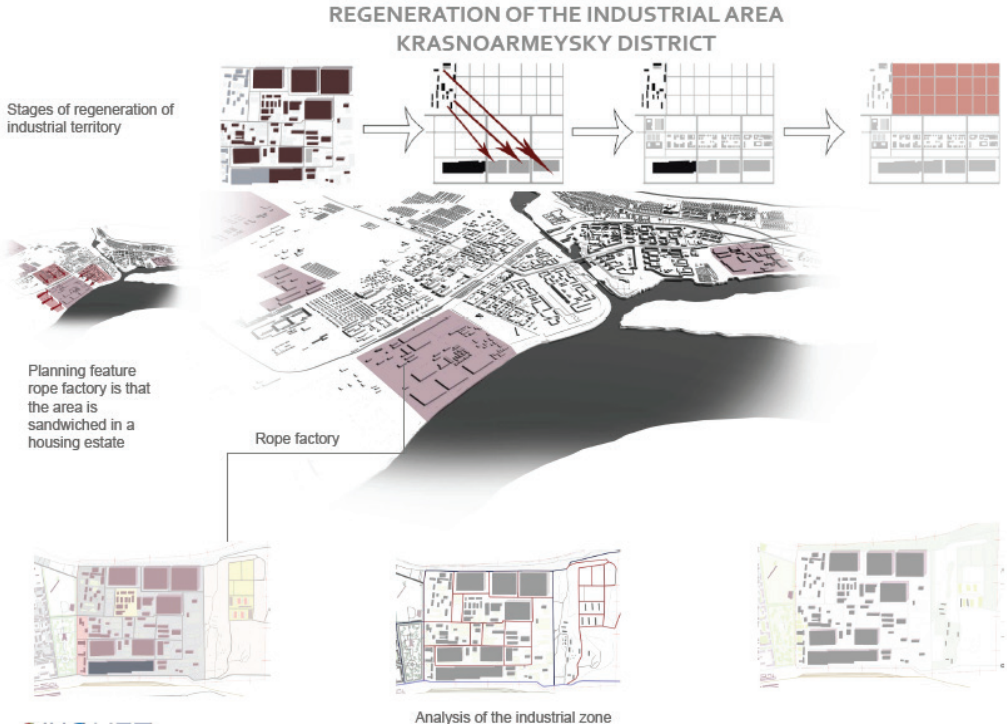


Figure 7. Regeneration of the industrial area of Krasnoarmeysky district

Conclusion

Thus, the study of modern trends in the formation of flexible and sustainable residential structures is an important aspect not only for the understanding of contemporary processes of urban planning and spatial planning structure of cities, but also for the implementation of its study in the scientific and pedagogical process in the specialty 'Architecture'.

Models obtained resulting from the use of the principles of stability and flexibility, as well as methods of variation can be used for the regeneration and the reorganization of post-industrial areas. This approach to the formation of modern residential structures is based not only on the principles of sustainability, but also on the application of the theoretical foundations of the landscape and sustainable urbanism, and the co-evolution approach.

We have tried to plan our work in the framework of OIKONET of 3 blocks. Developing the concept of scientific research, we started to implement it in the learning process, thereby extending the boundaries. In the Learning space 'Habitat Regeneration Strategies', as we are one of the partners, we will use the results of our research in Learning Activities (Urban Habitat Regeneration and Integrative Urban design in Sustainable Development and Local Case Analyses and Strategies of the Regeneration).

References

Babich V.N., Kremlev A.G., & Kholodova L.P. (2013). The sinergetic approach to architectural activity. *In Architecton: Proceedings of Higher Education*, 2 (42). Retrieved from http://archvuz.ru/2013_2/2

Bosselmann, P. (2008). *Urban Transformation: Understanding City Form and Design*. Washington: Island Press.

European Landscape Convention (2000). Retrieved from http://www.coe.int/t/dg4/cultureheritage/heritage/landscape/versionsorientation/Russe.pdf

Farr, D. (2008). *Sustainable Urbanism: Urban design with nature*. Hoboken, New Jersey: John Wiley & Sons, Inc.

Miranda, L., Hordijk., M. (1998). Let us build cities for life: the national campaign of Local Agenda 21s in Peru. *Environment and Urbanization, 10*(3). Retrieved from http://eau.sagepub.com/content/10/2/69.full.pdf

Waldheim, C. (Ed.). (2006). *The Landscape Urbanism Reader*. New York: Princeton Architectural Press.

Community Participation

Guidelines from community participation for the design of collective housing

Omayra Rivera Crespo

School of Architecture, Polytechnic University of Puerto Rico, San Juan, Puerto Rico

omayra.rivera.crespo@gmail.com

ABSTRACT

The Housing Design Studio of the School of Architecture (ArqPoli, founded in 1995) at the Polytechnic University of Puerto Rico, (founded in 1966 and located in the capital, San Juan) requires students to learn the concepts and fundamentals of design, and also to solve complex architectural problems. It emphasizes the fundamentals of design focused on the subject of housing. For this, the course consists of a series of lectures, site visits, exercises, projects, and class discussions. The dynamics of the design workshop provide a framework for interaction between students and the teacher as they work to find alternatives to the same problem. This revolves around the theme of 'habitat évolutif', i.e., housing that is a reflection of its inhabitants and therefore may be a changing entity, unfinished, adaptable and flexible to fit different lifestyles.

As part of the OIKODOMOS Network, the fourteen students of the Housing Design Studio, Winter 2013, worked with design guidelines prepared by the 'ENLACE Project of Caño Martín Peña Corporation'. The 'ENLACE Project' is an organization whose mission is to coordinate and implement public policy relating to the rehabilitation of the river course Caño Martín Peña, in San Juan Puerto Rico. It also works with urban, social and economic development of the surrounding communities with effective and active participation of residents and community-based organizations, through partnerships between the communities and the private and public sectors. These guidelines were created taking into account a participatory process carried out with the residents of the communitie for the design of collective housing. The dwellings need to be built for the relocation of residents whose homes will be affected by the dredging of the channel.

KEYWORDS: *housing design, community design, design guidelines, participatory process, participatory design*

Introduction

The first exercise of the Housing Design Studio (Winter 2013) of ArqPoli for OIKODOMOS Network was to design dwellings to relocate residents of the communities surrounding the river course Caño Martín Peña in San Juan, Puerto Rico.

There are plans to dredge the Caño Martín Peña, as it is highly polluted and its course has been affected by the excessive self-built housing construction near its limits, and the dumping of garbage and debris. Every time it rains, the adjoining neighbourhoods are flooded and polluted water reaches the houses. In order to leave their homes, go to work or study, people have to walk through this polluted water and this affects their health. Also, the presence of mosquitoes could bring dengue because of stagnant water. Many people living near the limits of this body of water are being relocated, within the same neighbourhoods, so the dredging of the channel can be performed. This task is handled by professionals such as planners, architects, lawyers and sociologists, among others, as part of the 'ENLACE Project' created with respect to the Act for the Integral Development of the District for Special Planning of Caño Martín Peña (ENLACE, 2013).

During May 2013, the 'ENLACE Project' conducted participatory design workshops for the people who will be directly affected by relocations related to the channel dredging. During the workshops, residents expressed what they would change about their current dwellings and neighbourhood, and what they would like to have in a new habitat. These expressions were organized and summarized in design and development guidelines for a multifamily project. The purpose of this document, titled 'Design Guidelines for Multifamily Housing Martín Peña', is to provide guidance and development elements that serve a design team, with the ultimate goal of obtaining a project that directly reflects the needs and interests of the communities near the Caño Martín Peña.

The students of the Housing Design Studio in ArqPoli used these guidelines, in addition to their own analysis of the site, for the design of their projects. For purposes of the course, a site for the relocation housing design was identified near the neighbourhood Las Monjas, southern Caño Martín Peña. Located at this site were two high rise buildings of public housing, called Las Gladiolas, which were later demolished in 2011. The students also had to think that the dwellings they were designing had to be adaptable to the changing needs of its inhabitants.

As part of the methodology of the course, students conducted guided tours to collective housing complexes in Puerto Rico, analyzed precedents of collective housing from the island and around the globe, and had a lecture with the community leader of the disappeared housing complex Las Gladiolas.

Previous studies for the design of collective housing

Precedents visits and analysis

Before they start designing, the students of the housing design studio made two guided visits to collective housing complexes in Puerto Rico: El Falansterio and El Monte Condominium.

The first guided visit took place in the first public housing complex that was built on the island, El Falansterio (Figure 1a), close to Old San Juan. It was built to accommodate people who lived in slums, near the centre of the city, as an example of minimum, sanitary and functional Art Deco style housing. Some of the most important areas of this complex are the balconies for communal use that are on the stairway landings. The idea of the architect who designed El Falansterio was that these balconies promoted a sense of community, bringing together the residents of the apartments that were in every landing. The visit was guided by one of its residents, an artist who created a community enterprise to restore antique chairs to furnish the balconies.

The other collective housing complex that was visited was El Monte Condominium (Figure 1b). These modern high rise buildings have studios and one-bedroom apartments, at one level, and two and three bedrooms, on two levels, promoting the diversity of the inhabitants of different ages and various family compositions. These apartments are connected by an exterior corridor, which acts as a space to gather, resembling the corridors or "streets in the air" (Smithson & Smithson, 1994) that connect the Robin Hood Gardens apartments in London designed by Alison and Peter Smithson. This visit was guided by an architect, a resident of the building called Monte Sur. He currently works in building restoration, specializing in structures belonging to the modern movement in Puerto Rico.

Figure 1. Collective Housing visited: El Falansterio (a) and El Monte Condominium (b) in San Juan Puerto Rico

After the visits, the students analyzed international collective housing precedents and conducted a discussion comparing these examples and the design methodology that they are based on (Figure 2). They were provided with a list from which to choose a precedent of the Modern Movement, such as alternatives one of Team 10, one designed using the method of "supports" (Habraken, 1972), the method of the "pattern language" (Alexander, 1977), or another example from Europe, United States or Latin America. The purpose of this exercise was to enable the students to understand the evolution of collective housing and the approach of its designers.

Figure 2. Collective housing precedents: Byker Housing, from Ralph Erskine, and Villaggio Matteotti, from Giancarlo de Carlo

Finally, each student analyzed a contemporary precedent of collective housing in Puerto Rico (Figure 3) that could be visited, photographed, and for which they could find original drawings, l if possible, interview the architects who designed it. In this exercise they learned the particularities of each case, which could be compared, with a critical eye, to the international precedents. In addition, they shared their analysis of precedents in the OIKODOMOS Case Repository.

Figure 3. Contemporary collective housing precedents in Puerto Rico

Site analysis and a conversation with a former resident

Las Gladiolas was a high rise public housing complex that was demolished on 2011 (Figure 4). This case was similar to that of Pruitt–Igoe, the large urban housing project in the U.S. city of Saint Louis, Missouri, whose destruction, due in part to the marginalization of its inhabitants, was described by critic Charles Jencks as "the day Modern Architecture died". This can be seen in detail in the documentary *Pruitt-Igoe Myth* (Freidrichs, 2011). The two buildings that made up Las Gladiolas (one with 17 floors and the other with 19) had a community centre, exterior corridors, basketball courts, and were home to hundreds of low-income families. However, the buildings suffered from a serious lack of maintenance by the administration and its inhabitants also lived marginalized.

The site where Las Gladiolas used to be was chosen for the project because of its history, which allowed students to reflect on the problems of public housing in high-rise buildings, but also because it is located near the financial district of San Juan and near the neighbourhoods that were built along the Caño Martín Peña. It is localized, specifically, south of the neighbourhood Las Monjas, which has areas that are constantly flooded with polluted water (Figure 5). Nonetheless, this specific site has no flooding problems so it meets the requirements to relocate residents of Las Monjas together with past residents of Las Gladiolas.

Figure 4. The demolition of Las Gladiolas and the empty site

As part of the study of the site, the community leader of the former Las Gladiolas, Mirta Colón, gave a lecture on the history of the complex, up until its demolition, and about her memories of there. She described what worked and what did not work at the complex, the way in which it had declined, the problems of maintenance and the conflicts that the residents had with the inhabitants of the neighbouring slum, among other issues. The students had an opportunity to ask her questions and she conveyed the message that despite all the architectural problems it had suffered, Las Gladiolas was their home and they had a great sense of community. As she narrated, the exterior corridors of the buildings were used as bleachers in which residents used to meet and chat, and from which they used to observe the common use spaces, the children playing, the basketball games and the people walking. They just lost control of how to manage the space, which, after all, they never had, due to rules and regulations.

The students also made a site analysis based on figure-ground, pedestrian and vehicular circulation, spaces for public and private use, views, movement of the sun and winds, noise, artificial lighting, building codes and the 'pattern language', following the principle of Christopher Alexander (1979) which states that "any town and any building gets its character from those events and patterns of events which keep on happening there the most, and that the patterns of events are linked, somehow, to space." (p.81). Furthermore, they examined the five elements described in the book *The image of the city*: paths, edges, districts, nodes and landmarks (Lynch, 1960) and how they were related. The analysis, compared with the lecture, helped them understand the relationship between the qualities of the place and the patterns of use and circulation of the earlier and nearby residents through the spaces. It also helped them to think about the possible behaviour patterns of future residents in the new spaces to be designed for the site.

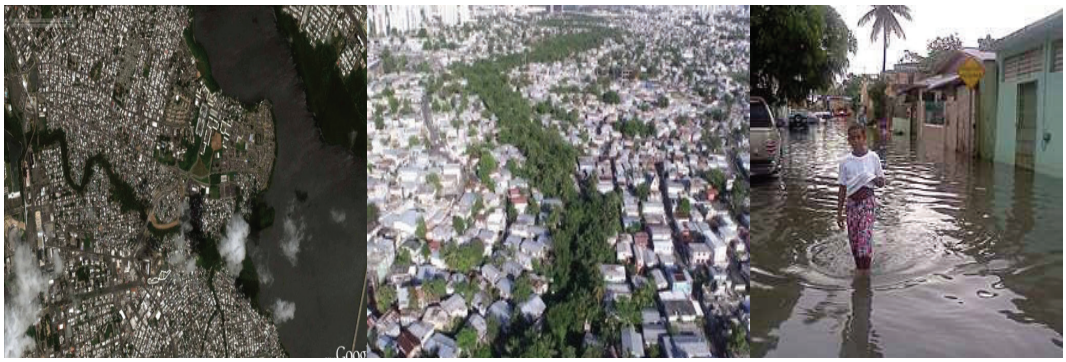


Figure 5. Caño Martín Peña and the flooding in the communities

From guidelines to collective housing design

Guidelines for community participation

On 2013 the 'ENLACE Project of Caño Martín Peña' conducted a participatory process for the residents of the communities near the Caño with various architectural models which were divided into parts including: a base with a drawing of the limits of a site for the construction of relocation housing, small volumes representing dwellings with 1, 2, 3 and 4 bedrooms, common use spaces and commercial premises, in addition to small cartons representing basketball courts, playgrounds, parking lots and gardens, among other things. The participants had the opportunity to accommodate these volumes and cartons, within the limits of the site drawing, expressing their individual and collective needs (Figure 6a). The exercise also helped them to think about the community they wanted to live in and to realize the difficulty of organizing a large number of dwellings and common use spaces in a reduced area without losing their individual and collective identity. According to Tom Porter "In converting two-dimensional messages into three-dimensional meanings, our brain seems to reconstruct space by taking into consideration distance and depth." (Porter, 1997, p.54). Consequently, the model made them reflect about the relationship between public and private space in a collective environment.

Based on the result of this exercise, 'ENLACE Project' created the 'Design Guidelines for Multifamily Housing' (Figure 6b). Some of the guidelines, which expressed the physical and emotional needs of most of the area's residents, stipulates: locating larger scale buildings near the main road, maintaining ties of community, providing spacious and comfortable dwellings as well as a balcony space and a patio for each unit, this leads to diversity of housing typologies, and finally, limiting the height of the residential buildings to 3 floors, also the height of the residential buildings with commercial premises to 4 floors, thus over 40 statements. All of them demanded green spaces, comfort, relationship with the outside space, security, but most importantly, a sense of belonging.

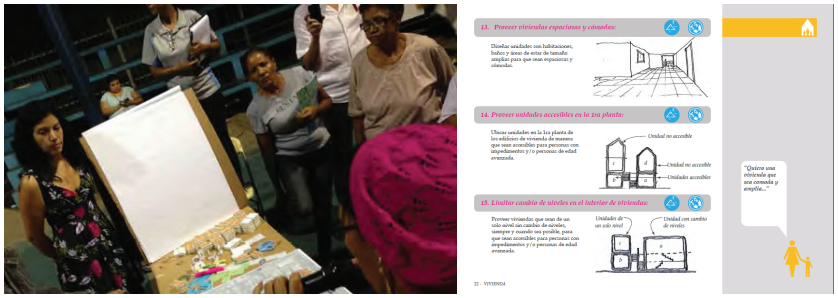


Figure 6. Participatory Process (a) and Design Guidelines (b)

The students were provided with this guide and, with the previously completed analysis, they could design dwellings that could be adapted to the diverse needs of local residents. They had the challenge of integrating the study of precedents, the site, the observed patterns, the building codes and the demands of the residents of the area, like a big puzzle where all the pieces must fit.

Collective Housing Projects

The students' projects based on the Design Guidelines were diverse. Many of them were based on the principles of 'low rise high density' and show that although all dwellings were part of a group, they were distinguished as different units, each with their own identity. According to Charles Correa, "What these principles predicate are patterns in which units are packed close enough to provide the advantages of high density, yet separate enough to allow for individual identity and growth." (Correa, 1989, p.55). The projects of Nicole Colón (Figure 7) and Evelyn Villalobos (Figure 8), for example, focused on the demand of individual patios and balconies and how they were related t the communal use spaces. These patios or courtyards could also become, in the future, enclosed spaces that were added to households.

Figure 7. Collective Housing Project from Nicole Colón

Nicole and Evelyn also incorporated the demands to have multiple entries in the complex in their designs, to locate larger scale buildings on the main road or to provide wide sidewalks and affordable units on the first floor for the elderly or disabled, among others.

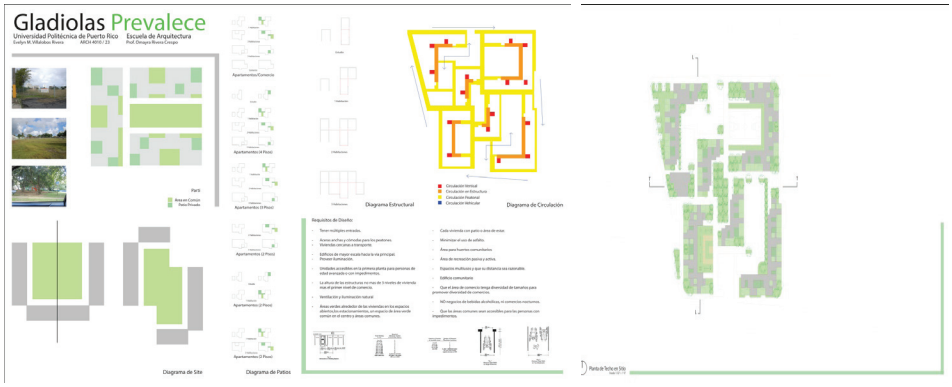


Figure 8. Collective Housing Project from Evelyn Villalobos

The projects of Suhalee Rivera (Figure 9a) and Carol Zapata (Figure 9b) focused on the connection between the new buildings and the houses in Las Monjas. Suhalee´s project also focused on the idea of offering each dwelling a particular view of the environment, while the common use spaces could be observed from exterior co-

rridors. Carol, however, wanted to keep Las Gladiolas building's footprint and design buildings related to it, while serving as gateways to Las Monjas.

Figure 9. Collective Housing Project form Suhalee Rivera (a) and Coral Zapata (b)

The projects of Miriam López (Figure 10a) and Luis Villanueva (Figure 10b) focused on the importance of the common use spaces as the centre of the complex. Miriam also incorporated, from the demands, visual control strategies with its centralized design. Villanueva's strategy was that the inhabitants could take over the common areas in the complex through art and self-management and he designed the residential buildings based on the Habraken's method of 'supports'. Thus the inhabitants could seize their dwellings, personalize them and adapt them to their lifestyles and therefore turn them into their homes.

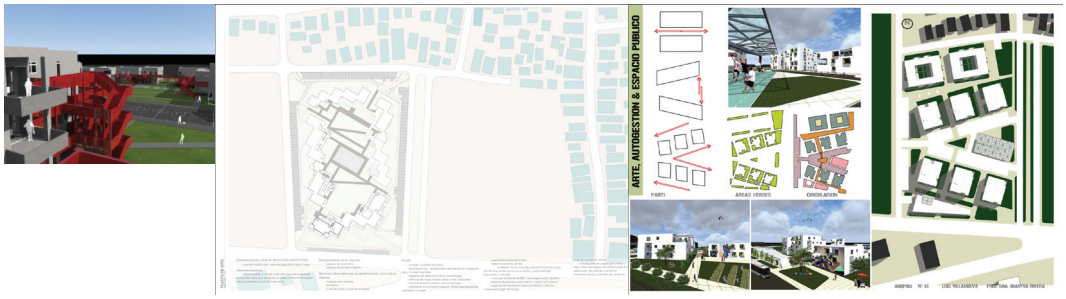


Figure 10. Collective Housing Project form Miriam López (a) and Luis Villanueva (b)

Besides using design guidelines, students also thought of the changing needs of future residents from the dwellings they designed. For this reason they thought of housing units which could be adapted over time to these needs, either because their spaces could accommodate different functions or because they were incremental. The purpose of the exercise was completed. Students designed collective housing considering the actual and future physical and psychological needs of its future residents. To conclude, they shared their work in the Oikodomos Workspace of Civic Housing.

Conclusion

The incorporation of community participation in the design of collective housing and public spaces should not be an extra component in a project. Housing, and the spaces that surround it, are associated with both the place and its culture. For this reason, to understand the culture of a place is not enough to be a distant observer. It is necessary to talk to its inhabitants, to understand how they live and their aspirations.

This should be an integral part in the education of an architect. Students should not only learn from their teacher but also from individuals for whom they are designing. They learn from their experience in space.

Establishing design guidelines based on a process of community participation is a great tool to incorporate in the design the voices of its future inhabitants or users

and to anticipate future changes. The guidelines help to make these voices tangible and to translate them into a design proposal.

The ultimate goal of the students should be to design houses that can be converted into homes, where residents have a sense of belonging and attachment to their dwelling but also for the entire community.

Acknowledgments

I want to thank my students of the Housing Design Studio 4010, winter 2013, for all their hard work and dedication. I know that it was a big challenge for them to implement in their projects design guidelines from community participation, but they did it with interest and enthusiasm. This paper is dedicated to them: Nicole Colón, Victoria Eckhardt, José A Figueroa, Yariel Gonzalez, Miriam López, Ricardo Orfila, Dianalexia Ortíz, Ricardo Peirats, Israel Rios, Mariana Rivera, Suhalee Rivera, Jean F. Santiago, Evelyn Villalobos, Luis Villanueva and Coral Zapata.

I also want to thank the architects Carlos Muñiz and Juan Calaft from 'ENLACE Project' for all their help and support.

References

Alexander, C. (1977). A pattern language: towns, buildings, construction. New York: Oxford University Press.

Alexander, C. (1979). The timeless way of building. New York: Oxford University Press.

Correa, C. (1989). The new landscape: urbanization in the third world. London: A Mimar Book / Butterworth Architecture.

ENLACE Project of Caño Martín Peña Corporation (2013). Design Guidelines for Multifamily Housing Martín Peña. San Juan, Puerto Rico.

Freidrichs, C. (Director) (2011). The Pruitt Igoe Myth (Motion picture). United States: Unicorn Stencil.

Habraken, N. J. (1972). Supports: an alternative to mass housing. London: Architectural Press.

Lynch, K. (1960). The Image of the City. Cambridge: The MIT Press.

Porter, T. (1997). The architect's eye: visualization and depiction of space in architecture. London: E & FN Spon.

Smithson, A., & Smithson, P. (1994). Changing the art of inhabitation. London: Artemis.

Co-operation in urban renewal projects: Students' participation in transformation process of large-scale housing areas

Sandra Treija, Edgar Bondars, Uģis Bratuškins

Faculty of Architecture and Urban Planning, Riga Technical University, Riga, Latvia

Sandra.Treija@rtu.lv Edgars.Bondars@rtu.lv Ugis.Bratuskins@rtu.lv

ABSTRACT

The spatial environment of Riga is undergoing active development whose direct impact is also being exerted on the large-scale housing estates – by quantity the most significant part of the residential environment of Riga. Since about 60% of city inhabitants live in large-scale residential districts, which constitute approximately 40% of the housing stock of Riga, the future prospects for these areas is an urgent issue for urban development. Participatory planning is an approach to facilitate a more open process for their development. Public involvement, residents' participation and a qualitative appraisal of their needs and interests are believed to help urban communities to articulate shared values which can serve as reference criteria for local planners when developing sustainable city strategies. Students' participation in real-life processes allows them to gain new insights in development planning. This paper focuses on the goal of developing the objectives of participatory planning by examination of local initiatives.

KEYWORDS: *large scale housing, participatory planning, students' involvement*

Introduction

In many European cities large-scale housing estates, usually in public ownership, are perceived as degraded territories whose residents are mainly from deprived social groups. Such districts face a range of problems such as poverty, high crime rates, etc. To avoid complete the degradation of such extensive areas, the responsible authorities have to invest resources in the renovation of buildings and the revitalization of the whole area.

By contrast, in Eastern Europe, large-scale housing which looks superficially similar, is privately owned and occupies the majority of the housing market, thus comprising a more diverse population. Socially, Eastern European Soviet-era system-built, large scale housing developments tend to have a different profile from those in the West (MacArthur, 2001). In Western countries centrally planned housing estates often began as welfare projects for low income families, while in Eastern Europe socialist countries large-scale housing was more egalitarian. A specific feature of the Eastern Europe model is that they are often composed of middle class, well educated people. However, as the fabric of the estates physically declines, and a new better-off middle class emerges, who prefer to live in detached houses with gardens, for example, families start to move away, leaving the less well-off behind, beginning the cycle of decline.

In Riga large-scale housing is the living environment for the majority of the population and especially for inhabitants belonging to the traditional middle class of educated workers and professionals mainly employed in the public sector, as well as elderly people who have been living there since the estates were built. Residents' level of income prevents them from improving their housing conditions for years to come. Large-scale residential areas are commonly located within easy reach of the city centre; there are service shops, schools and recreation facilities located within them. For these reasons they are active urban neighbourhoods, the public image of which appeals to a large number of their inhabitants. However, it is obvious that the current quality of housing estates and apartment buildings does not meet contemporary housing standards; green spaces are not properly managed and car parking is a problem but people lack the information, motivation and often the ability to improve the neighbourhood themselves.

As a result large-scale housing estates are at risk of losing their active status. Residents are looking for better and bigger housing; surveys show that the single-family private house is the most preferable housing type. The growing demand for this kind of new housing is determined not only by the shortage of living space (flats are often too small for modern facilities) but also by the perceived moral and physical deterioration of the Soviet-era apartment block areas. The easy availability of mortgage loans led to even more inhabitants wanting to move from their old flats to new houses. An essential factor has been the desire of a particular group of the population (aged 25-40 with the level of income appropriate for Latvia's middle class) to live in more socially homogenous buildings or housing areas with a modern architectural design. This is a serious challenge for all the involved actors to keep this status; it is being promoted by number of activities. There are some national and local initiatives aimed at improving the quality of the residential environment of large-scale housing areas in Riga. Departments of planning, architecture and landscape architecture in the universities and their students are taking an active role in these processes.

The paper presents a general overview of development processes in large-scale housing estates in Riga focusing on actual questions about residents' needs. Following this, using data from different sources including a Riga Municipality survey about residents satisfaction in large-scale housing estates (2013) and a questionnaire of residents organized by Riga Technical University (2008) the most relevant areas were defined. By analysing a number of initiatives with students' participation the additional objective of participatory planning is identified.

Large scale housing estates: the platform for transformation

Challenges of large-scale housing in Riga

Large-scale medium or high-rise housing represents a large part of the housing stock in Central and Eastern European countries, very large proportions of the population (in some countries up to 40 or 50%) living in them. In 2011, 41% of the EU-27 population lived in flats, the share of this being highest in Latvia (65%) (Eurostat, 2013). Being the major paradigm for residential development after the Second World war throughout period of Soviet domination over a half-century, the shape of large-scale housing estates underwent a certain transformation from decade to decade (Turkington, Van Kempen & Wassenberg, 2004). Although the main goal remained unchanged, i.e. to provide people with a high-quality (in Soviet terms) living environment in a quick and cheap manner, the housing estates differed considerably in size, number and density of population as well as in their layout and built density (Dekker & Van Kempen, 2005).

Large-scale housing estates represent one of the quantitatively largest types of built-up areas in the city of Riga. Developed within the Soviet housing expansion plans that were mainly based on industrial systems, 13 large-scale housing estates were constructed in Riga along with numerous groups of separate apartment blocks in various locations throughout the city totalling some 200,000 dwellings. These estates encircle the historic centre of the city forming a wide belt of residential areas different in size and density. Mass construction of apartment blocks in Riga began in the late 1950s and continued up to the early 1990s. During this period, about 40% of the existing housing stock of Riga was built, the largest part of which consists of precast concrete large-panel apartment blocks (Tsenkova & Marana, 2002).

The design of the new residential areas and separate apartment buildings in Riga during the Soviet period complied with a strict frame for housing development, the essence of which was:

- Strong, almost totally centralised Moscow-based dominance and supervision of development and implementation of this frame throughout whole of the USSR.
- Acceptance of only standardised apartment building designs that resulted in the development of so-called "series buildings" for construction all over the USSR (i.e., each standardized design was assigned special number or code).
- Statements and demands on the contents of series buildings (number of apartments, their floor area, number of rooms, etc.) strictly regulated by the Centre, followed by exclusive approval of the series building designs by the Centre.
- The dominance of the large-panel pre-fabricated structures (where the building is formed by mutually joined reinforced concrete load-bearing slab and wall panels and pre-cast floor and roof elements).

As a result of the denationalisation of property and the privatisation of the public and municipal housing stock following the collapse of the Soviet Union and re-establishment of the Republic of Latvia, the ownership structure considerably changed. The rate of private ownership in Latvia is now among the highest in Europe: 75% of the population lived in owner-occupied dwellings in 2011 (Eurostat, 2013). In Riga this figure is about 87%. This huge process of privatization of apartments and denationalisation of land has created the preconditions for the further development of residential areas. Privatisation of flats through the use of vouchers resulted in the emergence of a middle class in Latvia, which acquired a kind of capital in the form of real estate. It led to the increase of the financial capacity of a large proportion of the population and formation of a market segment demanding standard apartments. However, the lack of knowledge and resources prevents the owners of privatised houses from restoring the housing stock on a systematic basis.

The spatial quality of large-scale estates: the evaluation of residents

One of the most commonly used ways of studying people's living conditions is by measuring residential satisfaction. Recent results from an ongoing research project

on the socio-spatial differentiation of different neighbourhoods in CEE-urban regions reveal a high level of residential satisfaction with the dwelling and the neighbourhood. This could qualify as an important indicator explaining residential mobility and housing choice. However the different meanings of residential satisfaction for the current and future socio-spatial developments in CEE large housing estates have not yet been studied (Herfert, Neugebauer, & Smigiel, 2013). It has been pointed out that the rating of personal residential satisfaction also reflects the external conditions, socio-structural and psycho-social characteristics of the residents such as their individual feelings and convictions as much as the qualities of the physical environment. On the one hand, residential satisfaction may mean real satisfaction in terms of 'well-being' when the existing housing situation meets residential needs and the aspiration level of the resident (Hur, Nasar, & Chun, 2010). On the other hand, adjusted satisfaction means a 'self-constructed residential satisfaction' – although the housing situation is bad or worsening, the residential satisfaction is or remains high.

Riga City council regularly surveys satisfaction rates in several aspects. The latest is the survey of residents in two large-scale housing areas: Zolitūde[1] (completed in the late 1980s) and Imanta[2] (completed in the early 1970s) made in December 2012 – January 2013. According to the results of the survey, residents are generally satisfied with the living conditions in the estates: 93% of respondents in Zolitūde and 94% of residents in Imanta expressed themselves as 'satisfied' or 'very satisfied'. 87% of respondents in Imanta and 90% of respondents in Zolitūde also stated that the main area where improvements are needed is the open space between buildings. Residents suggested that children playgrounds and sports areas, for instance, playing fields should be provided in these areas.

In the autumn of 2008, as part of the project *Usage Intensity of Inner Courtyards* in Purvciems in Riga, a survey of public opinion about the importance and role of public open spaces in the assessment of the quality of life in large-scale housing estates was undertaken. A quantitative direct (face-to-face) method of interviewing was used in the survey, focusing on several objectives:

1. General assessment of the spatial quality of large-scale housing estates.
2. Determination of the level of satisfaction of the residents towards different aspects of the living environment.
3. Ascertaining the role of public open space in establishing and maintaining social contacts among inhabitants.

The results of the study showed that people assessed spatial quality in the large-scale housing estates to be relatively high. According to the survey, 72% of the population like living in the district. However, 67% of respondents were not satisfied with the quality of open space in the district, mentioning neglected courtyards and greenery, destroyed landscape elements, a lack of benches and playgrounds as the main factors. 34% of respondents only used the courtyard for car parking, 26% admitted that they did not use the courtyard at all. 78% of inhabitants mentioned that they did not know their neighbours – the inhabitants of the adjacent buildings. The inhabitants were also dissatisfied with the amount of car parking near their homes (Treija, Bratuškins, & Bondars, 2012).

[1.] Zolitūdes iedzīvotāju vērtējums dzīvei apkaimē (2013) (Evaluation of Living Conditions in Zolitūde. Results of residents' survey. Market and public opinion centre SKDS, available in Latvian. Retrieved from http://www.rdpad.lv/wp-content/uploads/2014/12/Atskaite_Zolitude_12_2012.pdf

[2.] Imantas iedzīvotāju vērtējums dzīvei apkaimē (2013) (Evaluation of Living Conditions in Imanta. Results of residents' survey. Market and public opinion centre SKDS, available in Latvian. Retrieved from http://www.rdpad.lv/wp-content/uploads/2014/12/Atskaite_Imanta_12_2012.pdf

Green open space: rethinking balance between interests

Function of the Green Space

The renewal of urban areas by developing green spaces can increase the overall quality of life and help to reduce social exclusion. Urban green space can help to form a framework where urban society and culture can develop and to increase identity and a sense of community. It can be used to provide a place for education and to raise awareness of the way ecosystems function and how urban functions can be integrated into the natural system (Kaplan & Talbot, 1983). Despite the recognised socio-economic benefits resulting from green space, considerations of sustainable land use planning often occupy a secondary role when designing city neighbourhoods. There are many pressures – essentially market-related and driven by short-term thinking – which hinder unsustainable development.

A readily accessible public open space can be a centre for public activities which may affect the everyday life of people and the development of the entire neighbourhood. Public space is beyond the control of individuals, is an element linking the private living spaces of inhabitants and it is used for different functional and symbolic purposes (Madanipour, 2003). Public open spaces in the living environment can be an essential component of a home, an extension of the personal living space outside it (Rapoport, 1985). It is an environment where everyone can expand their understanding of a home, through transferring daily activities from their flats to public spaces. When residents actively use these spaces, they are appropriating them and this feeling of intimacy helps people to identify this place as their own, giving them a sense of identity (Belanger, 2007). Gradually people may try to seize control over it – whether through legal actions or active usage or by controlling access for 'strangers', attempting to transform public open spaces into public/private spaces (Kearns & Parkinson, 2001). There is a close relationship between the character of the built-up area and human lifestyle, since the surrounding environment largely determines the processes of human life.

Problems with the current use of Green Space

The large-scale housing estates were planned as residential areas with an appropriate network of consumer services, educational and recreational institutions. Green areas in these districts cover as much as 40-45% of the territory. In the original plans a place was provided for the most important household functions, i.e. drying washing, cleaning carpets, rubbish bins and parking for a small number of cars near the entrances to the buildings. The rest of the spaces were usually occupied by grass, trees and shrubs where standard children's playgrounds and small recreation sites with benches were located. Sports grounds were laid out in the larger spaces, respecting the layout of each housing estate. At present, green spaces have turned into neglected areas of overgrown trees and shrubs which overshadow ground floor apartment windows and the recreation areas. Street furniture and footpaths have deteriorated. The courtyard as a place for recreation has deteriorated. Currently, car parking, which takes place wherever possible, and rubbish container locations are the two main functions of the courtyards and the environmental quality of large-scale housing estates fails to meet contemporary standards or to provide for the social and recreational needs of the residents.

Figure 1. Current usage of green open space: playground, parking, infill development illustrates the different interests of involved actors

Since the large-scale housing estates were planned under the socialist regime, when all land belonged to the state, the layout of buildings was not consistent with the former property boundaries. With denationalisation the united spatial composition of the districts disintegrated and a legal basis for potential new construction in the non-built areas (i.e., public open spaces) in the large-scale housing estates was created. In connection with the privatisation of residential buildings regulations on the plots of land acquired for the needs of the privatised buildings were established. As a result, the original planning scheme of residential districts has completely disappeared and residential blocks have been divided into small plots of land which often fail to provide their owners – the inhabitants of the buildings – with even the basic functions of the living environment.

The economic growth between 2001 and 2007 increased the demand for housing in Riga. It is estimated that over a five year period about 50 residential buildings comprising more than 1000 apartments in total were built in the public open spaces of large-scale housing estates. This reduced the areas of free spaces and resulted in protests by the inhabitants of the surrounding buildings. Respecting this, Riga City Council imposed a moratorium on new construction in inner courtyards in 2006. The moratorium covered approximately 1700 plots in courtyards, which is almost 5% of the total area of the whole city. In December of 2009, due to changes in Riga Building Regulations, the moratorium was cancelled.

During recent years there have been some initiatives to improve the green space situation. Riga Municipality plans to start a revitalization programme for inner courtyards in large-scale housing estates. In 2011 the repairing of streets and pavements in these estates was started and the plan is to finish this by 2017. In addition, the new programme of inner courtyards revitalization has been initiated. This programme will include four main elements – children's playgrounds, recreation areas – benches and planting, sports areas – gymnastics bars and simple fitness equipment, as well as dog walking areas.

Complicated property rights, unclear responsibilities, conflicting needs and interests of residents and landowners mean that the green open spaces continue to make any development challenging.

Participatory planning: experiences & challenges for development

Participation objectives

In complex situations, more flexible and iterative planning approach should be developed within the framework of the design process so as to overcome the limitations of traditional master planning methods (Kunze & Schmitt, 2010). Interactive relations can significantly increase the efficiency of planning proposals and create new perspectives that are normally not considered in a formal planning process. Stakeholders have an important role in decision-making. If sustainable development is to be used as a maxim this should include participatory approaches to urban planning to organize and manage the continued demand for effective solutions (Laws et al., 2004).

Participation has been presented in many ways over the years as a vital element in facilitating the sustainable 'bottom-up' implementation of development programmes. Participation can be addressed effectively if the task of participation is thought of in terms of what is to be accomplished when there is an acknowledged need to involve community members. The purpose of participatory planning should be more to create a platform for learning rather than plunging directly into problem solving. The process is expected to enhance the identification of the needs felt but not expressed the people, to bring forth consensus, to empower local disadvantaged

groups, to integrate local knowledge systems into project design, to achieve a two-way learning process between the project and local people and finally to ensure political commitment and support. The planning that accompanies the development of any participation event should first include a determination of objectives, such as to generate ideas, to identify attitudes, to disseminate information, or to review a proposal. The list of possible participation objectives will differ from time to time and from issue to issue. Once the objectives of community participation are stated, it becomes clear that participation is perceived according to the type of issue and people involved (Sanoff, 2005).

Case study: Courtyard movement in Latvia – Participatory implementation

Participatory development is conventionally represented as emerging out of the recognition of the shortcomings of top-down development approaches. Top-down approaches to project implementation typically focus mainly on tangible technical objectives, whereas participatory bottom-up approaches would accord due importance to social benefits while not compromising on technical objectives (Guijt, Arevalo, & Salsdores, 1998). In the new democracies participatory planning is regulated as a mandatory part of the planning according to the legislation but relatively little experience of it turns it into a major challenge.

The 'Courtyard Movement' is a project implemented by the 'Big Cleanup with an aim to enhance people's involvement in the improvement of their living space. The 'Courtyard Movement' was created to help people find shared opinions and co-operation possibilities for cleaning up and improving their courtyards. The Big Clean-up is a nationwide initiative in Latvia started by several NGOs and supported by a wide range of governmental, municipal and private institutions. Starting in 2010, each year the 'Courtyard Refurbishment' project competition is held. People living in apartment buildings all over Latvia were asked to have a close look at their courtyards and, together with their neighbours, to consider what problems they have seen and what should be done to turn their courtyard into a pleasant place for leisure and recreation. The 'Big Clean-up Day' organizers received a large number of applications with photos of existing problems and descriptions of required improvements. The jurors reviewed all of these entries and selected 5 courtyards (one for each region of Latvia and one from Riga) to be improved and refurbished during the 'Big Clean-up Day. The preference was given to applications envisaging greater involvement of local people and their active participation in the 'Big Clean-up Day' activities and the improvement of their own courtyards. Those applications not selected were referred to the relevant local municipalities with a request to review the problems people have identified and to see if anything can be done for their solution, therefore encouraging the raising of better environmental awareness throughout Latvia.

Figure 2. Participatory implementation in process in large-scale housing estates

The second step was to organize the concept competition for students in order to get the best ideas for the refurbishment of the five previously selected courtyards. The task was to create a design proposal, respecting the needs of inhabitants and the fact that all construction works at the end should be done by the inhabitants themselves, without any help from professional builders. The competition was organized by the Young Architect Movement and the Latvian Landscape Architects' Association. Students from the fields of civil engineering, architectural design, environmental design, landscape architecture and the arts participated in the competition. During this phase students had the opportunity to meet the inhabitants and conduct interviews and surveys. Competition proposals were evaluated by a professional jury and the local inhabitants. Design professionals were involved as mentors in the third step: the detailed design of the winning proposals. The final stage was the implementation of the detailed design. It started with the allocation of responsibilities between all involved parties, since all work had to be done by inhabitants and students. Then it continued with the purchase of materials, sponsored by some private companies and local authorities, and finished with the construction work. During the entire process students had the opportunity to communicate with inhabitants of the residential buildings, local authorities, work side by side with design professionals, and to participate in the construction works. During this full cycle of design and construction process, students received this real-life experience outside of their study rooms, making a real contribution to the improvement of the quality of a courtyard in a residential environment.

Such initiatives should foster leadership skills and positive relationships between all the actors involved. Involving students in community affairs can forge new bonds between students, teachers, professionals and citizens, while helping to solve community problems. Students can be an important part of community efforts to respond to longstanding problems and emerging needs. Experience shows that projects like this have resulted in active and positive attitude and real outcomes. The involved partners have noted that the stage of participatory implementation of design projects is the main factor of the success.

Figure 3. The integration of Participatory Implementation in the sequence of Participatory Planning

Conclusion

The large-scale housing estates still form an active part of the property market and compact apartments have become popular and in demand again. This fact raises the topicality of the need to renovate buildings and their external space in accordance with modern requirements while at the same time imposing a special responsibility for the maintenance of structures of modernist period residential areas and buildings over time.

Currently, the quality of large-scale residential districts does not meet contemporary requirements or the social and recreational needs of residents. While the quality of individual flats is gradually increasing, the public open space continues to degrade because it is still seen as being of secondary importance. In order to determine appropriate development directions for large-scale residential districts, it is necessary to develop complex criteria for the evaluation of the quality of the living environment.

The principal task for further development is the creation of a multifunctional and intensively used urban environment along with the preservation of the identity of the place, its improvement and the harmonisation of the environmental scale. As seen from a wider perspective of the urban environment, priorities should be the renovation and modernisation of the already existing densely populated areas, ensuring accessibility to high-quality goods, services and public transport. Such undertakings would help to motivate the population to stay where they are and would reduce the pressure for the expansion of cities.

Participatory planning is an important method to facilitate the transformation process of large scale housing estates, because of the complexity of interests and the large number of involved parties (permanent residents, tenants, land owners, planners etc.). Case studies of courtyard refurbishment in Riga revealed a need to supplement participatory planning with a participatory implementation. These two methods used together increase the interest and involvement of society, since this kind of approach is orientated to tangible results, not only plans. Involvement of students in the participatory planning, design and implementation phases gives additional benefits for the inhabitants, as well as for the students themselves. Inhabitants have the opportunity to increase the quality and attractiveness of their living environment in a financially viable manner, while the students obtain a valuable experience in communicating with local authorities and 'clients' in real circumstances, solving real problems, and introducing their ideas in a real urban environment.

References

Belanger, H. (2007). Public Spaces in Gentrifying Neighbourhoods: Conflicting Meanings? *European Network for Housing Research*. Conference Sustainable Urban Areas. Rotterdam 25-28 June 2007. Rotterdam, The Netherlands: Delft Centre for Sustainable Urban Areas. Retrieved from http://www.vrm.ca/documents/W08_Belanger.pdf

Dekker, K., & Van Kempen, R. (2005). Large Housing Estates in Europe: a Contemporary Overview. In R. Van Kempen, K. Dekker, S. Hall & I. Tosics (Eds.), *Restructuring Large Housing Estates in European Cities*. Bristol: Policy Press.

Eurostat (2013). European social statistics. Retrieved from http://ec.europa.eu/eurostat/documents/3930297/5968986/KS-FP-13-001-EN.PDF/

Guijt, I., Arevalo, M., Salsdores, K. (1998). Tracking change together. In M. Arevalo, I. Guijt, & K. Saladores (Eds.), *PLA notes 31: Participatory Learning and Action* (pp-1-9). London, United Kingdom.

Herfert, G., Neugebauer, C. S., & Smigiel, C. (2013). Living in residential satisfaction? Insights from large-scale housing estates in Central and Eastern Europe. *Tijdschrift voor economische en sociale geografie, 104*(1), 57-74.

Hur, M., Nasar, J. L., & Chun, B. (2010). Neighborhood satisfaction, physical and perceived naturalness and openness. *Journal of Environmental Psychology, 30*(1), 52-59.

Kaplan, S., & Talbot, J. F. (1983). Psychological benefits of a wilderness experience. In Behavior and the natural environment (pp. 163-203). Springer.

Kearns, A., & Parkinson, M. (2001). The significance of neighbourhood. *Urban studies, 38*(12), 2103-2110.

Kunze, A., & Schmitt, G. (2010). A conceptual framework for the formulation of stakeholder requirements. In *28th eCAADe Conference Proceedings of Future Cities, ETH Zurich, Switzerland* (pp. 697-705).

Laws, D., Scholz, R. W., Shiroyama, H., Susskind, L., Suzuki, T., & Weber, O. (2004). Expert views on sustainability and technology implementation. *The International Journal of Sustainable Development & World Ecology, 11*(3), 247-261.

MacArthur, I. (2001). Ensuring shelter in Eastern Europe. Epidemiol Community Health, 55.

Madanipour, A. (2003). *Public and private spaces of the city*. London, New York: Routledge.

Rapoport, A. (1985). Thinking about Home Environments. In I. Altman I. & C.M. Werner (Eds.), *Home Environments*. New York: Plenum Press.

Sanoff, H. (2005). Community Participation in Riverfront Development. *CoDesign, 1*.

Tsenkova, S., & Marana, I. (Eds.) (2002). *Challenges and Opportunities in Housing: New Concepts, Policies and Initiatives*. Rotterdam: International Council for Building Research and Innovation (CIB).

Treija, S., Bratuškins, U., & Bondars, E. (2012). Green open space in large scale housing estates: a place for challenge. *Journal of Architecture and Urbanism, 36*(4) 264-271.

Turkington, R., Van Kempen, R., & Wassenberg, F. (2004). *High–rise Housing in Europe*. *Current Trends and Future Prospects*. Delft: Delft University Press.

Catalogue of citizen initiatives in Skopje: Mapping the civic society

Ognen Marina

Faculty of Architecture, University SS. Cyril and Methodius in Skopje, Macedonia
ognen.marina@arh.ukim.edu.mk

ABSTRACT

In this paper we will elaborate upon the challenges of urban communities and urban development and the role of citizens in the process of change. We argue that the cities and societies are challenged by the crisis that goes beyond the financial and material effects resulting from the growing disappointment and mistrust in the policies and practices by the cities' governments. The financial meltdown caused a crisis in legitimating the policies by the cities' governments and re-opened the issue of the role of citizens. Further, we argue that the challenge of urban management as a strategic process for solving socio-political problems in our society is partly based on unrealistic theories and misinterpretations of the practices and potential participation of citizens. We observe that this condition influences the way we organize our cities and the way that local communities and citizens can be involved in a productive and meaningful way in the process of shaping the urban future.

'Urban Cooks Platform: Bottom-up urban planning' is an EU funded project that involves partners from three different cities, Madrid, Skopje and Belgrade in search of existing and bottom-up citizens practices and initiatives that provide a new and alternative approach in engaging the citizens in projects and interventions that are shaping the communal and public space in these cities.

The Catalogue of citizens' initiatives in Skopje has been developed and presented as the first step towards mapping a civic and more inclusive society. It is part of the elaborated process of mediation and advocacy between the citizens' needs and actions and all the other stakeholders, including the decision makers, experts and administration, in the process of making our cities better. The main objective of the project is to develop a platform of knowledge based on the experience gained in the three cities that could serve as models for enhancing the citizens' participation and their role in a more inclusive society

KEYWORDS: *inclusive society, citizens' participation, initiatives, catalogue, Skopje*

Introduction

Global trends show a profound growth in urban environment through the transformation of cities while the involvement of citizens in the process of constructing of our cities remains seriously undermined. These processes have surpassed the economic aspect and have emerged as a social, environmental and spatial crisis with tremendous effect on the local relationships and communities. People in complex urban settings embrace patterns of coexistence and social inclusion and they tend toward cooperation or conflict. So, the real challenge for the future of our communities is: how can people live together and better by actively participating and contributing to the future of their cities? This condition requires the creation of innovative partnerships and tools for interaction and cooperation between policy makers, researchers and citizens to meet tomorrow's challenges including sustainability, equity and quality of life and a better inclusivity of our society.

In his seminal work Lefebvre (1974) introduces a notion of space in the urban environment that extends beyond the physical space of cities. For Lefebvre, space does not exist in itself, but is created by human actions and other spatial practices. The spatial practices of everyday life are not based on the rational structure, but according to De Certeau (1984), the city is a complex and barely visible conglomeration of the patterns of its users and their social praxis. According to Bourdieu (1990) the social praxis refers to the relationship between the human and the world that comprises all the acts that we perform in relation to the external physical, but most of all social, reality. In that sense, this relationship between space and social practices could not be tackled without a strong focus on the spatiality of the process and the spatial manifestation of citizens' acts in the cities. While some authors characterized the public realm as places where social interaction takes place, today the situation is different. The tension between the cities acting as a spatial context of civic life is additionally poignant with the relation between the public and the private that cannot anymore be clearly defined. Instead, the contemporary public realm exists with many grades of social activities and praxis of the citizens with overlapping between the public, collective and private notions of space in the cities.

Citizens' initiatives in public spaces such as urban gardens, cultural spaces, etc. are arising in the contemporary cities. Some municipalities in Europe support these initiatives with specific programs, providing financial support, construction materials or legal support. These programs and their framework are different in each city. Other cities suffer lack of such tools. Solutions adopted by the local administrations in relation to this phenomenon are particular, special and concrete. The conceptual background and real life practice of citizens involvement in the process of shaping of our cities is in the focus of this paper. The methodology, the process, the forms of social practices and the results of citizens' initiatives as well as the various forms of participation in Skopje have been initiated and mapped in a catalogue of citizens' initiatives in Skopje. The investigation has been performed within the framework of the 'Urban Cooks Platform: Bottom-up urban planning' project funded by EACEA Culture Program 2007-2013.

The challenges of civic society

The right to the city

The financial crisis that has rammed the western world since 2008 has not been limited only to its financial and fiscal emergences but has brought to the daylight the questions of the legitimacy of the political and social systems in the societies based on market economies and the roles of all stakeholders in the systems that have collapsed. In essence, it has questioned the capacity of the existing political and social system in the distribution of power and responsibilities within society for the management of our communities. The strategies visioning the urban life require becoming effective, a strong liability coming from the political power and economic feasibility: how can we consider the management

by the community when this liability is missing? The crisis, especially in Europe, has underlined some weaknesses of the existing civic systems that rely heavily on the distribution of power in society among state institutions, local authorities and economic stability, which have represented a good instrument from the aspect of economic and physical growth. Once the main economic and fiscal stability had been jeopardized, the other two pillars have become uncertain, showing massive distrust among the public in regard to the reliability and security of the traditional forms of political and social life to protect the citizens and their interest in time of crisis. Therefore it is essential to re-evaluate the role of the citizens and the potential of their active participation for a socially sustainable and inclusive society.

The growing crisis of the legitimacy marks the contemporary relationship between the citizens and the institutions affecting the way local communities are organized and developed. The mounting disillusionment with the main pillars of power is due to the growing corruption, lack of responsibility and responsiveness of the elected representatives and the growing distance between the city administration and the needs of the citizens. In the past, according to Gaventa (2002), there was tendency to respond to the gap that existed between the citizens and the institutions by enhancing the process of citizens' participation in the decision-making process that affected the life of the majority of the local community and strengthening the responsiveness and accountability of the existing institutions and policies through changes in the institutional design and enforcement of tools for good governance. Both perspectives have been questioned and criticized for the lack of attentiveness to each other, but it is essential to acknowledge the importance of both aspects of the same process of transformation of society in times of crisis. These conditions stem from the facts that participatory action inevitably enters the realm of governance at a certain point and on another the democratic capacity of the institutions to integrate and involve citizens in the process of decision-making.

For citizens' participation to become meaningful and to be able to affect the decision-making process it must be established on the basis of ruling and practice of rights that are closely connected with the democratic capacity of the society and political system. According to Cornwall (2000) the status of the citizens in a system that claims to be with high level of inclusivity and distribution of responsibilities among all stakeholders in the process of development moves from that of the beneficiary of development to the rightful and legitimate claimants. In that sense the possibility of citizens to claim and exercise their right to the city will become possible only when citizens are engaged in the decisions and processes that are affecting their lives. The UNDP Human Development Report (2000) clearly determines that exercising human rights requires democracy that is inclusive. Representativeness of the elected decision makers is not enough and must be amended by new tools and practices that will secure economic, social and cultural rights for the most deprived members of the community and participation in decision-making. The concept of rights, especially of those linked to the responsibilities of the institutions, and also the right to exercise citizenship in full capacity, are essential for a better comprehension of the future of our cities.

The quest for community

The concept of citizenship remains controversial and the subject of many discussions in the contemporary world. In Western thought, citizenship has traditionally been cast in liberal terms, as individual legal equality accompanied by set of rights and responsibilities bestowed by a state on its citizens (Gaventa, 2002). In the scope of the debate about the visions of a socially inclusive society and more focused on the issues of cooperation and common interest in creating contemporary urban societies, Richard Sennet (2012) recognizes the distinctions and similarities between two main conceptual stances of the social Right and social Left. The first one is more closely associated with the theoretical stance of the social Right conservative philosophy and is based on the idea of the quest for community as a tool for the people to form face-to-face relationships when state

bureaucracies get in the way. This concept is based on the idea that the welfare of all the members of the local community should be reached through the means that are embedded in the very community and not imposed by the state. It is envisioned that the neighbours should help each other on a voluntary basis and that the local community can be self-supporting, while the capitalist context will provide for local life and not the state. On the other side, the social Left doubts that local communities can sustain themselves economically and that a substation support of the state or the government is needed.

What is more important for us is that both concepts are envisioning alternative kinds of spatial emergence of local communities. The social Right's model is the village or a small town that should become self-sufficient. These local virtues could be achieved, in Nisbet's (2010) writing, by increasing the density of cities and by more compacted urban form. The social Left emergence is in the big cities where the straggle is with the big corporate businesses and not in the scope of the local, small town and family owned businesses. Hence, there is a need for support of the local community in exercising its citizenship and social rights by the state or some other bigger institution.

Recent and more pluralistic views re-consider the practice of the citizenship to be less state-dependent and more actor-oriented. It is argued that citizenship can be attained though the agency of citizens based on the set of diverse identities that they gain on daily basis while practicing their social behaviour in urban context. This approach extends social rights of civil and political spheres, to encompass economic, social and cultural rights including the right to participation. However, while declarations on rights and debates on citizenships are abundant, the gap between the concepts, policies and reality remains to be large.

Practical issues for practicing citizenship

When we attempt to construct a sufficiently consensual and shared representation and an image of the spaces in our cities, the appearance of dissonant stances and multiplicity of positions and images cannot be avoided. In the words of Boeri (1999) to describe the urban environment in a convincing way, we must allow space for the voices of multiple subjects and interpretation angles without trying to condense them into a single narrative or a meta-discourse.

This process is not pre-given and we cannot consider that all the manifestations of the citizens are unconditionally and uncritically good and in favour of the local community values and members. Aureli and Tattara's (2009) critique of the contemporary rhetoric of bottom-up strategies for the informal city refers to a provoking text by the Italian philosopher Paolo Virno (2005) describing contemporary fascism as the 'twin brother' of the most radical instances of social newness that emerged within the crisis of modern forms of labour. Fascism today takes the form of informal social behaviours that escape intelligible forms of political life. In his words, Europe's economic power extends its possibilities of management and reproduction within the most progressive forms of 'bottom-up' creativity, participation and informality.

In this sense, it is more than important that people believe that the system, which provides space for different representations, is addressing their considerations and needs in a coherent manner and is acting in the best interest of improving the welfare and quality of life for the local community. Hence, there are certain necessary elements for constructive and effective citizen participation.

Citizen participation is a community based a process where citizens organize themselves and their goals at the grassroots level and work together through non-governmental organizations and groups in order to influence the decision-making process. It is essential for the members of the local community to want to participate in order to make a change. Very often initiatives are spurred by the vagueness of the goals or the issues that are addressed by the citizens' activity. Therefore, the issues that the citizens address should either affect them directly or somehow to be beneficial for them. The citizen participation methods must be clear for all stakeholders in the process, how they work and what they

can and cannot be done in certain areas. First and foremost it is important for the members of the local community to be aware of their rights and responsibilities in relation to the government and the decision-making process. The two way relationships require good command of negotiation and mediation skills with high level of flexibility as a key component of constructive citizen participation.

Practicing citizenship

Civic engagement in Skopje

In a pursuit of a more effective and efficient government on the local level many societies involve civic engagement as a concept that is a fundamental component of a healthy democratic society. Actively involved and engaged citizens in the social practices that provide improvement to their communities is essential for a vibrant civil society and is the main indicator of healthy communities and satisfied citizens.

In the scope of the goals and project activities of "Urban Cooks Platform" we have closely relied on the findings of the survey and study performed by the web platform CivicEngagment.mk[1] developed by Reactor, a Skopje based policy-oriented research organization. The results of the study have been presented as visualizations of the state of civic participation in the country, as well as volunteerism, a sense of belonging and trust. The study was conducted with computer assisted telephone interviews and the sample was representative of the Republic of Macedonia with 1209 respondents aged 16 to 66.

The main working thesis of the survey is that more people are satisfied with their communities when their sense of belonging is stronger. One of the main positions is that civic engagement is related to the sense of personal responsibility. In Macedonia, and in particular in Skopje, 57% of citizens believe that it is their personal responsibility to act to improve their community. Three out of four citizens think that it is important to be able to influence the decision-making in their local community and more than every other citizen would like to be more involved in the decisions that shape the community.

Despite the great desire for engagement and the sense of responsibility to the community, there is nevertheless pessimism when it comes to the possibility of influencing decision-making in the local community. A staggering 53% believe that they do not have influence when asked to what extent citizens believe they can change something. Another 47% believe that they have little or somewhat influence. It is worth noting that young people are the least interested in influencing decision-making at local level. The reason behind their position not to participate spans from the lack of initiatives (10%) through lack of information (11%) to lack of time to get involved in meaningful ways (40% – Figure 1).

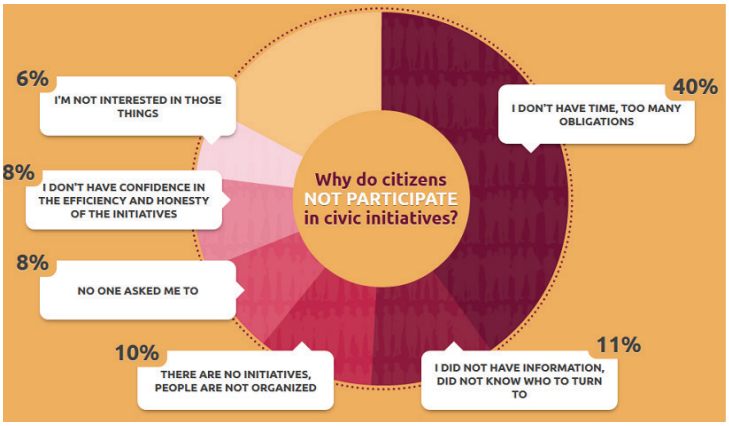


Figure 1. Survey results to the question: Why do citizens do not participate in civic initiatives?

1. See more at: http://civicengagement.mk/

Another important issue that stems from the survey is that the more people think the mechanisms of the system are effective, the more they believe they can influence decision-making. Young people and adults do not differ in the opinion on the effectiveness of cooperative measures but compared to adults, young people believe that adversarial mechanisms are more effective. Citizens who believe that these mechanisms are effective are more likely to place higher importance on influencing decision-making and believe that it is their responsibility to improve their communities. Nevertheless, the huge lack of confidence in the functioning of the system may be the reason that only five citizens (22%) have participated in a civic initiative. The higher the income and education level, the higher the involvement of the person in civic initiatives and participation activities.

The main conclusion of the survey and of the civic engagement study in Skopje is that confidence in the system; the sense of individual power to influence; and the sense of belonging to the community contribute to the sense of being content with the place of residence and the well-being of citizens in general.

Urban Cooks project methodology

'Urban Cooks Platforms' involves partners from three different cities, Madrid, Skopje and Belgrade in search of existing and bottom-up citizen-based practices and initiatives that provide a new and alternative approach for the citizens to be engaged in projects and interventions that shape the communal and public space in these cities.

The objectives of the project is to understand the framework around citizens' initiatives in Madrid, Belgrade and Skopje (both common and particular issues, problems, necessities), to learn how the existing programs in other cities work, to look at them in a critical way, and to define a program, bearing in mind the particular frameworks of each cities. The contents and objectives of this program are important, but also the knowledge of 'how things work'. Making a pilot project, working with a citizens' initiative in a concrete space in each city; putting the social practice in line with the program; and harvesting conclusions from the acquired experience. The final goal is to design a protocol, a methodology or a platform for supporting citizens' initiatives, not only in Madrid, Belgrade and Skopje, but rather an exportable model for Europe and other countries.

For the purpose of organizing the project in a coherent and timely manner that will reflect the particularities of the given urban and social context we have developed a project methodology that not only includes the list of activities, but also contains guidelines for interaction and interviews with representatives of the institutions, local communities, civic activist, experts and other stake-holders (Figure 2).

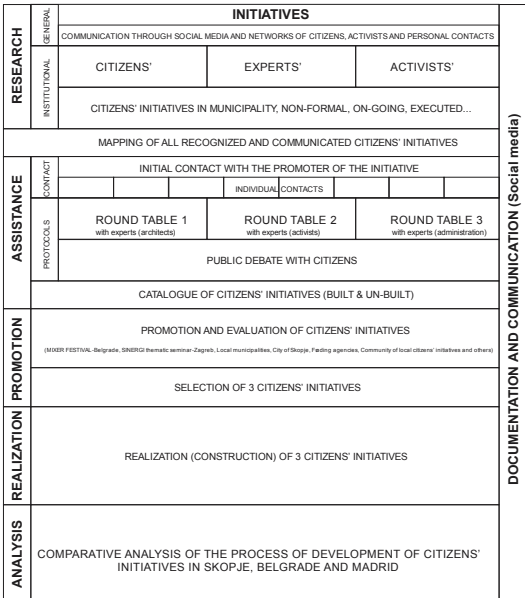


Figure 2. Urban Cooks in Skopje. Project methodology

The project has been developed in five consecutive phases. The initial phase is focused on researching and documenting the latest civic engagement in Skopje, communicating, documenting and mapping former and on-going citizens' initiatives that are related to spatial issues of local communities regardless whether they are official, formal or non-formal initiatives led by NGO's, civic organizations, activists or a non-formal group of citizens. The catalogue of citizens' initiatives in Skopje is the first result of the project and it is in the focus of this paper.

The second phase is the Assistance that should enable and reinforce the debate and process of negotiating between different stakeholders in pursuit of joint goals. This phase will be executed through a series of individual contacts, round tables and debates with the simultaneous presence of local administration, experts, citizens and activists. The third phase is the joint evaluation of the citizens' initiatives and promotion of the best practices that will showcase the development in the public space that is reasonable, feasible and in the best interest of all the involved parties. At least two initiatives that will receive the highest appreciation according to the criteria established by all participants in the process will be assisted financially and with know-how in the process of their construction. Finally, based on the gained experience within the process of development of all the phases of the project, a comparative analysis of the processes in all three cities, Madrid, Skopje and Belgrade, will be developed in order to design a protocol, a methodology or a platform to support citizens' initiatives not only in these three cities but rather an exportable model for Europe and other cities around the world.

Catalogue of citizens' initiatives in Skopje

The catalogue of citizens' initiatives has been foreseen as the tool for initiating and assisting the process of negotiation and debate between the local administration and the representatives of the local community, activists and experts. It should enable all stakeholders to visually comprehend the possibilities and consequences of their initiatives and decisions while reinforcing the capacity of both parties for building high level of tolerance in a dialogue about the common values and interests. It should also provide the expert assistance into further development of the ideas into feasible projects that might improve the well-being and welfare of the local community.

The map of citizens' initiatives in Skopje has been composed based on their spatial distribution within the city of Skopje's territory and urban municipalities (Figure 3).

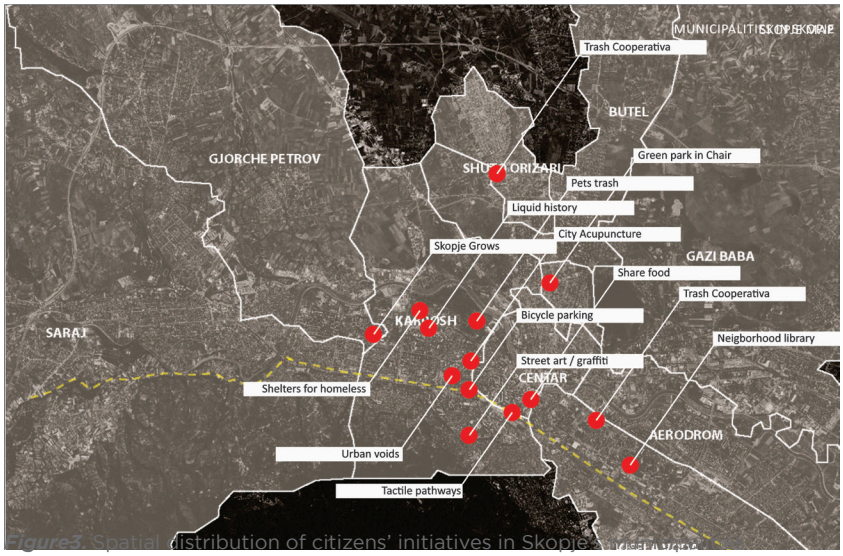


Figure 3. Spatial distribution of citizens' initiatives in Skopje

The catalogue contains citizen initiatives for more than twenty interventions in the public space in Skopje organized in twelve projects. Within the scope of this paper and for the purpose of providing a detailed description and introduction of the goals and methods of this project activity we have selected two citizen initiatives that have been highly valued and recognized as the most suitable and feasible for construction by the local community, experts and local administration.

'Skopje Grows' is an initiative for reanimation of public spaces, children's playgrounds and green spaces in Skopje based on the internet platform for mapping and visualizing the city's growth in two authentic urban neighbourhoods, where there are clear signs that urban planning favours significantly the private over public interest, as local authorities tend to their own needs and those of the investors and fail to address the concerns raised by the citizens. The target groups of the initiative are the citizens and sites in two Skopje's neighbourhoods of Bunjakovec and Debar Maalo. The idea for such an initiative comes from the acknowledgment that majority of the public green areas in the city of Skopje is an easy target for the densification wave of the urban mass, especially in the centre (Figure 4). The www.skopjeraste.mk platform, that is part of the initiative, explains in a simple and transparent visual language the process of invasion of the free areas by means of chronological and programmatic dissection.

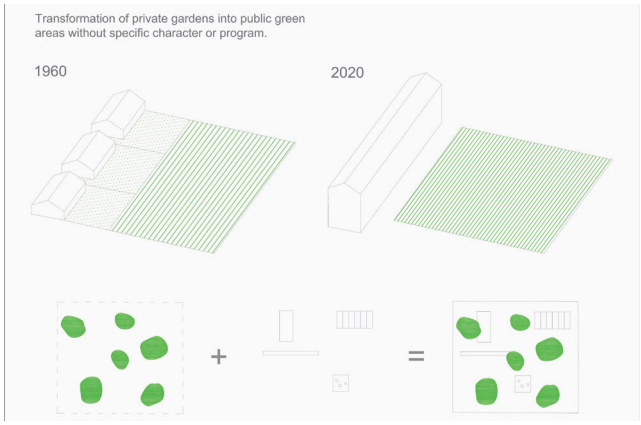


Figure 4. Transformation of private gardens into a public green space

The lack of areas of this type in Skopje is a contemporary problem, which we think, should be dealt with by means of a broad civil initiative in an informal way. This approach is common and is widely used with the positive impact of transforming the public spaces in the past 20 years outside the reach of the mechanisms of the urban planning system. The initiative should offer a frame within which this model of cooperation and realization can be replicated in other similar situations and will be beneficial in the communication between the authorities and the citizens who use the public space (Figure 5).

Figure 5. New playgrounds and public gardens

'Tactile Pathways' is an initiative to adapt the streets and sidewalks in the centre of the city of Skopje with urban elements to assist the visually impaired citizens. The initiative has been created and developed in close cooperation with the representatives of the National Council of Organizations of People with Disabilities in Macedonia which are the future target users (Figure 6).

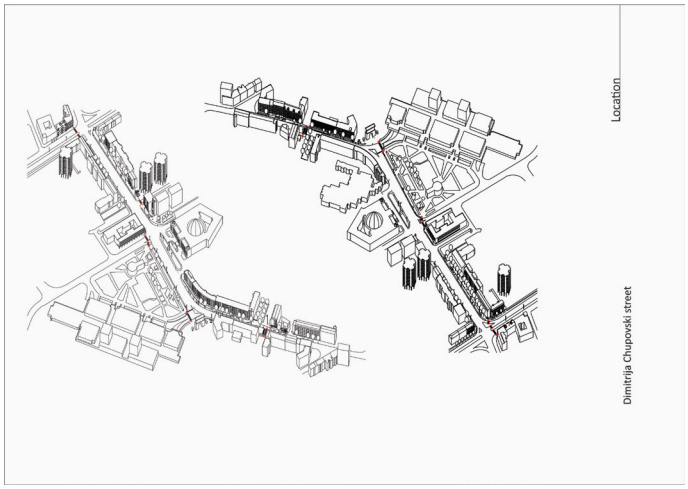


Figure 6. Tactile Pathways in Skopje

The sensitivity and solidarity of the local community and local administration with the people with disabilities that substantially restrain their ability to exercises their right for mobility, work and participation in the everyday life of the urban community thus reflects the level of development of the community in the sense of its inclusiveness and equality and quality of life. Hence, a development of a series of tactile pathways for the visually impaired citizens surpasses the importance of this initiative on the local level and reflects the broader democratic and socially inclusive approach in the society and urban community in Skopje.

Two pathways have been designed and a detailed project design will be prepared in order to facilitate the processes of obtaining the necessary permits and of fund-raising for the construction of the pathways. The success of this initiative remains mainly in the hands of the local authorities without which support the project would not be feasible, but it is also important to acknowledge the participation of all citizens of Skopje in providing a safe environment for all the members of our community.

Conclusion: Mapping the citizen society

The main objective of the 'Urban Cooks Platform' and of the catalogue of citizens' initiatives in Skopje is to create a network of stakeholders that will embrace a platform of cooperation on the topic of socially inclusive urban growth among different fields of formal and non-formal social practices, urban planning and city management. The project should promote the development of a sense of identity and mutual understanding between the European citizens and local administrations by bringing out the problems and issues of urban life that are shared among them as well as sharing common values, history and culture in an open dialogue. This project aims to create an open hub through the active mapping of civic society where experts and citizens can actively participate and interact with decision makers for better understanding of inclusive patterns of behaviour, where different stakeholders can work together on constructing new models of social inclusion in the process of urban development and where individual citizens can contribute to a new European and more inclusive society.

The focus of this project activity that resulted in a Catalogue of Civic Initiatives encompasses three specific areas that we find highly relevant for the development of inclusive society:

- Interaction is the key for the broader inclusion of citizens in the issues which are important for the community and the society. In this case interaction provides inclusion which is the key for active participation and for influencing the process of decision-making. Policies for the development of urban public space represent an area in which the project could identify, analyze and reflect upon the issues of integrated urban management with a high level of social inclusion in a transformed troubled cities, new approaches and tools for urban planning with enhanced citizen participation and sustainability. It will provide a substantial space for open debates on the issues and policies that affect citizens' daily lives.
- Educational activities involving citizens, researchers and students from different fields in an attempt to address the issue of urban development of cities in transition and after transition, discussing new models of urban practices, tools for visualization and evaluation of urban changes. The network of academic and research partners will act as an essential part of the project providing tools for inclusive urban development through exchange of views between decision makers and citizens thus bringing knowledge based and joint European dimension to the local issues.
- Citizen participation providing the meaningful involvement of citizens in the development, planning and implementation of urban growth policies. Public participation in the process of imagining, planning and executing initiatives will be utilized through use of sophisticated but comprehensive tools for building different scenarios of development in different parts of the city, where different solutions can provide new knowledge about urban complexity in a more holistic perspective. Networks of researchers, experts and citizens from different communities and cities will explore the dynamics of the city and together with policy makers will enhance the social diversity while contributing to the awareness of the participants about their possibilities and responsibilities empowering them to play a full role in the democratic life of EU.

Acknowledgments

'Urban Cooks Platform: Bottom-up urban planning' is a project funded by Education, Audiovisual and Culture Executive Agency (EACEA) under the Culture Programme 2007-2013, Strand 1.2.1. – 2013 Cooperation Measures.

References

Aureli, P. V., & Tattara, M. (2009). *Stop City: per una architettura non-figurativa della città (dopo la città post-fordista)*. Retrieved from http://www.gizmoweb.org/wp-content/uploads/2014/12/Stop-City.pdf

Bourdieu, P. (1990). *The Logic of Practice*. (R. Nice, Trans.). Stanford, CA: Stanford University Press.

Boeri, S. (1999). Eclectic Atlases: Four possible ways of seeing the city. *Daidalos, 69-70*, 102-113.

Cornwall, A. (2000). *Beneficiary, Consumer, Citizen: Perspectives on Participation for*

Poverty Reduction. Sida Studies 2. Retrieved from http://www.participatorymethods.org/sites/participatorymethods.org/files/beneficiary%20consumer%20citizens_cornwall.pdf

De Certeau, M. (1984). *The Practice of Everyday Life*. Berkeley: University of California Press.

Gaventa, J. (2002). Introduction: Exploring Citizenship, Participation and Accountability. *IDS Bulletin, 33*(2), 1-11.

Lefebvre, H. (1991). *The Production of Space*. Oxford, Cambridge: Blackwell Publishers. (Original work published 1974).

Nisbet, R. (2010). The Quest for Community. A Study in the Ethics of Order and Freedom. Wilmington, Delaware: ISI Books.

Sennet, R. (2012). *Together: Rituals, Pleasures and Politics of Cooperation*. Oxford, Cambridge : Yale University Press.

UNDP - United Nations Development Programme (2000). *Human Development Report 2000*. New York: Oxford University Press. Retrieved from http://hdr.undp.org/sites/default/files/reports/261/hdr_2000_en.pdf

Virno, P. (2005). Theses on the New European Fascism. *Grey Room 21*, 21-25.

Community participation on public space: The case of the municipalities of Santiago, Providencia and Recoleta from the metropolitan area of Santiago

Viviana Fernández Prajoux

School of Architecture, Faculty of Architecture and Urbanism, Department of Urbanism, University of Chile, Santiago, Chile

vfernand@uchilefau.cl

ABSTRACT

Although community participation is not a new issue for the Chilean local government, it has become more important in the new agenda of many municipalities since the last municipal election that took place in October 2012. For the first time most of the candidates for Mayor (regardless of their age, gender or political party) showed, on one way or another, a clear intention of implementing a new management, which was more participative and accountable into their programmes.

After the election in the Metropolitan Area of Santiago, thirteen municipalities formed the Network Pro-participation. In this paper we wanted to share some reflections around the participative process that three of those thirteen municipalities have gone through in the first year, with a special focus on the community participation in public space because this constitutes the main place where people can express themselves, the space of democratization, the space of identity and the space where they develop their sense of belonging.

KEYWORDS: *community participation, public space, local government*

Introduction

The issue of citizen participation in the Government Agenda in Chile started in 2000 with a presidential instructive to include participation in public policies and management. In the local government, before the municipal elections of October 2012, a few municipalities tried to include community participation in different aspects of their management. The national Programme of Neighbourhood Regeneration, 'Quiero mi barrio' (I love my neighbourhood) implemented its pilot version in 2006 and promoted the need to involve the community of the neighbourhoods during all the processes of intervention in the 200 neighbourhoods that where going to be regenerated as one of the key issues of the programme. In some municipalities this programme did not have an impact in terms of effective participation; in others, the impact was very little or was not relevant enough to empower the community.

In this paper we describe and analyse the participative process that three municipalities of the Metropolitan Area of Santiago have developed in a year since they started to work with new local authorities. The three municipalities belong to the Network pro Participation created after the municipal election in 2012. In their initial statement, all the mayors declared their intention to develop a new participative and accountable management[1]. The paper is structured in four sections: the first one presents the process of institutionalizing the issue of participation in Chile, the second one describes the aim of the pro Participation Network and characterize the municipalities that integrated the network in general terms, the third one will show the participative process in three municipalities (Santiago, Providencia and Recoleta) with emphasis on the actions developed in public space, finally the fourth one will provide some conclusions and final reflections.

Citizens participation in Chile

Nowadays, it is undoubtedly possible to state that there is a global consensus related to the need and the benefits of involving the community in public management. Most governments, cooperation agencies, international organisation, municipalities association, academic institutions, among others, have developed different ways of involving, studying or assessing citizen participation in different dimension of public management. In the Latin American context, the inclusion of citizen participation has become an issue since the XII Ibero-American meeting in República Dominicana, 2002. In their final statement they agreed on "the need to promote actions that should be developed upon citizen participation, as well as the importance of institutions that represent civil society, which will ensure an active citizen participation in all issues of public life"[2].

In the case of Chile, we can state the year 2000 as the starting point of the process of institutionalizing citizen participation when the former President Ricardo Lagos signed the first Instructive to all government sectors for citizen participation in public management.[3] Eleven years later, the second landmark of this process occurred with the approval of the 20.500 Law related with Community Association and Citizen Participation in public management, after a long period of parliamentary debate which had started during President Bachelet's government, from 2006 to 2010 . This law recognises the right of community organisations and states in Art. 69 that the "the State recognises people's right to participate in the policies, programmes and actions"[4]. Another important aspect of this law is that it establishes that all government institutions must define the way in which they will include citizen participation and offer

[1] See http://www.reddealcaldias.cl/
[2] Declaración de la XII Cumbre Iberoamericana, Bávaro, República Dominicana, Artículo 3, Noviembre 2002. Retrieved from http://www.cumbresiberoamericanas.com/historico/principal.php?p=74
[3] Instructivo Presidencial sobre Participación ciudadana, retrieved from http://www.guiadigital.gob.cl/recursos/documentos/InstructivoPresidencialParticipacion.pdf
[4] Law 20.500, 2011, retrieved from http://www.leychile.cl/Navegar?idNorma=1023143

citizens the relevant information they might need in order to participate. At the same time, the law indicates how institutions should give accountable information of all (what) they have done and which could be matter of interest for citizens, from whom their opinion will be required.

It is also worth noting the approval of the National Urban Development Policy, (NUDP) at the beginning of this year which was the first time it had explicitly mentioned the issue of citizen participation. The NUDP is based on twelve main principles; one of them is participation and establishes that "the decisions must be taken with the participation of all citizenship under the basis of clear and well organized participative process in all the different scales"[5]. The policy structures itself in four thematic lines and a fifth one that crosses all the others on institutionalization and governance. It is in this last one in which the issue of participation is developed in detail. Participation is defined as a fundamental dimension of sustainable urban development, where participation must constitute a continuing, organised, accountable and responsible process (Ministerio de Vivienda y Urbanismo, 2014).

One of the objectives of the institutionalization and governance line states that the policy should promote an effective citizen participation and defines nine objectives from which we would like to highlight the following: a) participation should be considered as a right of all citizens, for them to get involved in the construction of the place where they live or would like to live, b) participation should be promoted in a proactive way, c) participative systems needs to be generated for each territory scale, d) it must establish compulsory requisites to include participation in order to make sure that citizens are taken into account in decision making and e) a definition of the mechanisms of dissemination of the information related to all planning tools is also needed.

Finally, but not less important, the policy establishes that participation must be institutionalized, funded, and implemented from earlier stages.

Network of pro-participation municipalities

After the municipal election that took place in October 2012, the Network of Pro-Participation Municipalities was created. It is integrated by mayors (men and women) that had been elected for the first time in October 2012 and who represented more than 12% of the whole Chilean population: Santiago, Providencia, Recoleta, Maipú, La Granja, Peñalolen, La Reina, Cerrillos, Huechuraba, Lo Espejo, San Ramón, Independencia and Quinta Normal. These thirteen municipalities are different in terms of size, population,

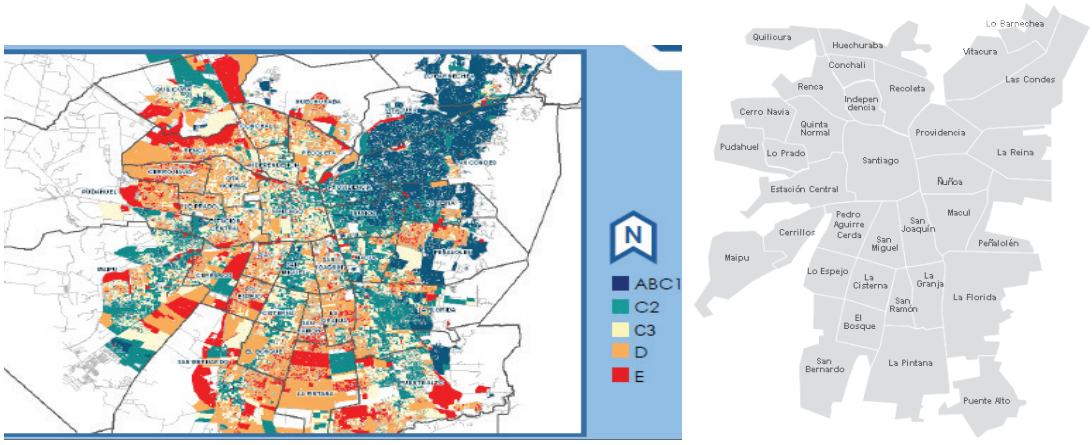


Figure 1. Socioeconomic level of the Metropolitan Area. ABC1 are the wealthy areas and E the poorest one. (Source: ADIMARK, base in 2002 National Census)

[5]. See the complete version of the Policy in the following link www.minvu.cl http://politicaurbana.minvu.cl/wp-content/uploads/2012/11/L4-Politica-Urbana-ingles_baja.pdf

location and socioeconomic level, as we can see in Figure 1.

In their initial statement the mayors declared that "the recent municipal elections have given us several messages related to the urgent need to respond with concrete actions to more active and organized citizens."[6]

In this context, the Network proposed different goals from which it is worth mentioning: "to make clear our political will to develop a more accountable and participative municipal management, involving the community in all our actions and promoting a co-responsible process of implementation of tools and methodologies in order to develop the new management we want to put forward."[7]

Among the municipalities that integrate the Network we can highlight the following, in consideration of the participative process they have developed during 2013: Santiago, Providencia, Peñalolén, Huechuraba, La Reina and Recoleta, basically in their process of updating the Municipal Development Plan (PLADECO)[8] or their Urban Development Plan. They are trying to change the paradigm of how to manage local planning with different levels of participation, but with their mayors' explicit political support.[9]

Most of them have created Participation Units and in the process of updating the PLADECO they have developed activities such as territorial and thematic councils, participatory diagnosis, public consultations, neighbourhood working groups, projects prioritization, conducted participatory design, etc. Some of the municipalities have come to the point of reaching certain levels of commitment with the community to monitor the decisions taken in the use and maintenance of the designed works.

The case of the municipalities of Santiago, Providencia and Recoleta

As we can see in Figure 2, the three municipalities are in the centre of the Metropolitan Area of Santiago, and the Metropolitan Area of Santiago within the Metropolitan Region, at the centre of Chile. In Figure 3 we can find some general information about the three municipalities.

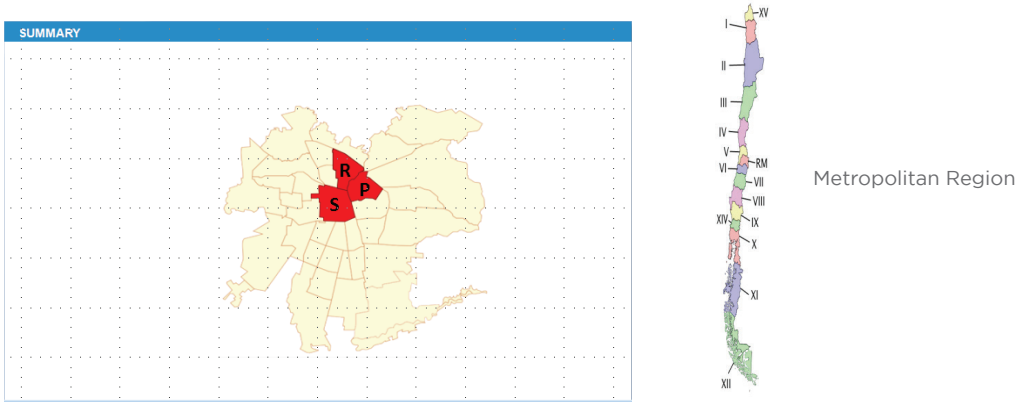


Figure 2. The three municipalities in the Metropolitan Area of Santiago

[6] Declaration of the Mayors, in www.reddealcaldias.cl
[7] Declaration of the Mayors, in www.reddealcaldias.cl
[8] The Community Development Plan, PLADECO, is the guiding instrument for the development of the community. It contemplates actions to meet the needs of the local community and to promote their social, economic and cultural advancement. In the development and implementation of PLADECO, both the mayor and the council should consider citizen participation and necessary coordination with other public services that operate at the community level or with jurisdiction in this area, Art. 7 of Law 18,695 , Organic Law of Municipalities, Chile
[9] www.piensaprovidencia.cl, http://www.munistgo.info/cabildos/

Municipality	Population Census 2002	Density Inh./km2	Income	Poverty % over the country	Professional level of human resources % over the country
Providencia	120.874	8.512	$93.544.560	0,2 %	37.1 %
Recoleta	152.985	9.273	$18.531.566	10.9 %	22 %
Santiago	200.792	8.654	$113.952.068	7,8 %	16.8 %

Figure 3. General Information of the Municipalities (Source: own elaboration based on SINIM[10] information and National Census 2002)

Municipality of Santiago

The municipality of Santiago presented itself as a 'meeting place' of both residents and visitors (Figure 4). In order to reach that objective, the municipality defined three main management axes: equality, participation and inclusion and public spaces for meeting. To implement these axes eight areas of work were developed from which the following topics could be highlighted: participatory and modern municipality and sustainable, integrated and inclusive public space.

Figure 4. Santiago a place for meeting (Source: Municipality of Santiago)

One of the proposed actions to contribute to greater equality in the commune territory constitutes the Neighbourhood Improvement, in those with less urban Infrastructure. As we can see in Figure 5, the community identifies three types of areas: zones with metropolitan standards 'A', transition zones 'B' and vulnerable zones 'C' with need of facilities and urban services and therefore where interventions must be prioritized.

The main actions to be undertaken in agreement with the neighbours are street improvements (installation of pedestrian lights, repairing streets and sidewalks, implementing universal accessibility corners, provision of gardens in sidewalks, enabling space between streets with playground and exercise machines). Also, some neighbourhoods have applied for the program 'Quiero Mi Barrio' and initiated a process of participatory budgeting in three areas: Balmaceda, San Eugenio and Santa Elena.

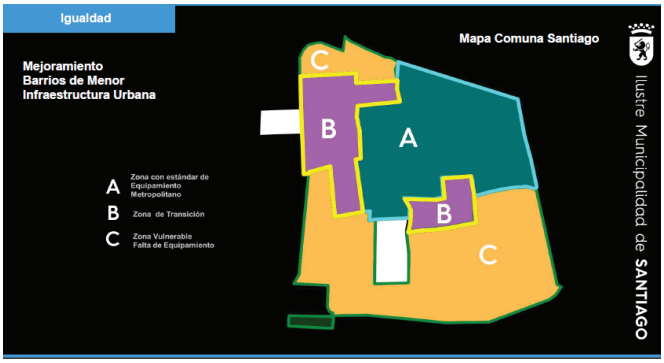


Figure 5. Urban infrastructure (Source: Municipality of Santiago)

10. SINIM: National System of Municipal Information

In those neighbourhoods the residents, through a community walk together with teams from the Municipality identified the projects they wanted to select. From the process of community participation three alternatives of investment projects were proposed for each neighbourhood, then through a public consultation in December 2013, in person and via Internet the residents chose the projects they wanted the municipality to put forward. Everybody who uses the neighbourhood on a daily basis was allowed to vote: residents, students and workers in the sector.

This process will serve as a pilot process for the development of an ongoing process of participatory budgeting. This process has been developed by neighbourhood managers and monitors that have provided information and have invited the community to the neighbourhood working groups in order to identify and prioritize the major works to be executed in their neighbourhoods. The amount of money designated for each project is $160 million CLP in each neighbourhood, approximately USD 280,000. Among the priority projects in the three neighbourhoods there are mainly gardens on sidewalks, pedestrian crossing and street lights, and the reparation of streets, bike paths, exercise machines and playground.

Although the main action of the axe of Participation and Inclusion held during 2013 was the process of updating the Community Development Plan, PLADECO, it is also important to consider other actions listed:

- The creation of the Citizen Participation Unit, as part of the Department of Community Development, which orientates its actions to the development and design of participatory strategies for the commune of Santiago, with the aim of promoting the empowering the community and encouraging greater citizen participation in public management in their neighbourhoods.
- Enabling a venue for the Council of Civil Society, COSOC[11].
- 26 neighbourhood working groups were developed to help improve the quality of life in their neighbourhoods.
- 27 educational communities, working in workshops with environmental issues.
- The creation of the Journal Barrio Santiago[12].

Municipality of Providencia

'Piensa Providencia' (Think Providencia) was created to implement the participatory process of the updating process of the new PLADECO for the period 2013-2021. This initiative was promoted by the municipality in the context of what it was established in their initial programme: "Make neighbours protagonists of the construction of their own commune."[13]

Piensa Providencia developed different action during 2013: several mobility meetings, online consultation but basically three territorial meetings (Cabildos Territoriales) in each of the eight sectors in which the commune was divided for implementing this participatory process, as a result of this process that took place during the first semester of ;ach sector developed their Territorial Plan. The first meeting was to make the diagnosis of the sector together identifying the main problems, the second meeting was to prepare together alternatives of proposals to solve the problems and the last one was to approve the Territorial Plan and to sign a commitment of the citizens and the municipality to work together in order to implement the Plan and to ensure a good use of the different projects.

---

11. COSOC is the Council of Social Society, created by the new law of Participation, Law 20.500.

12. *Revista Barrio Santiago* published by the Municipality of Santiago. In the first number of the journal, from April 2013, Mayor Carolina Tohá wrote "we wanted to develop a new local management with knowledge, efficiency and citizen participation to reach a better use of our public spaces..." She also stated "we would like to improve the maintenance of public spaces in order that they become nice places that include all their users, both residents and visitors" Municipalidad de Santiago (2013). Revista Barrio Santiago. Retrieved from http://www.munistgo.info/barriostgo/

13. Programa Municipal, Providencia somos todos, 2012 (Municipal Programme, 'Providencia we are all').

Territorial plans

Each Plan included the proposal made by the neighbours with the projects to be developed in the next four years (2013-2016). The different working groups developed more than 400 proposals for the eight sectors (Figure 6). Mainly, those proposals were related to upgrading public spaces (lightning, green areas, sidewalks, among others), new parking areas, creating new community centres, more places for controlling community safety, training workshops and proposals to improve the Local Urban Plan (Master Plan).

One of the proposals that came up in many of the sectors was the programme of participative upgrading of urban facilities. The aim of this initiative was to improve the design of the urban facilities using some models that have been applied in other experiences in an effort to make the spaces more useful, more comfortable and easier to maintain.

Figure 6. Neighbourhoods proposals (Source: Municipality of Providencia)

Another example was the Pilot Plan for Las Flores Sustainable Neighbourhood

The objective was the cleaning, elimination of pollution and the promotion of recycling in the neighbourhood and the surrounding area by installing new recycling points, using the water rights from the San Carlos channel, treatment of garbage for making it organic so it can be used in the creation of urban green areas, etc.). For this purpose, the implementation of a separated recollection of garbage by distributing in the residential buildings and/or condominium a set of containers for them to recycle glasses, plastic, paper and other types of material was proposed. This recollection will be done in different days from the normal municipality recollection.

In order for this proposal to be implemented, a survey has to be done among all the residential buildings to identify those which do not have a recycling system today. In relation with houses, a possibility of install a recycling point nearby will be studied. All the new recycling points in squares, parks and public spaces will complement the existing ones. It is considered that these new points will be set up during this year and at the same time an environmental educational programme will be developed for the people living within the neighbourhood.

Municipality of Recoleta

Although this municipality was also involved in the process of upgrading their PLADECO last year, they have also implemented several participatory activities in many different areas of municipal management. Among them we can highlight one that it is about to start, the 'Process of neighbourhood re-foundation'[14]. Nowadays the municipality is calling on the community to participate in a public consultation in order to know more about their communal territory, with the purpose of identifying the different activities that take place within it, and the needs in the different areas of the commune; also, looking for new leaders that could contribute with the articulation between municipality and community. At the same time, with this process the municipality hopes to improve inter neighbourhood relationships by identifying their potential problems and reinforcing the relationship among neighbours with the aim of reaching common goals.

[14] Municipalidad de Recoleta (2014), Re-funding the neighbourhoods. Retrieved from http://www.recoleta.cl/?p=25957

Finally, a third objective of this process is to empower the community so they will be able to change the actual culture of dependency from the municipality, situation inherited from previous local administration. This process of re-funding their neighbourhood aims to give neighbourhoods a new recognition, give them a new name and make them the axis of communal development with strong citizen participation and a significant role in the decision making so they could act and decide in relation to their neighbourhood (Figure 7). Nowadays the communal territory is divided into units that do not necessarily recognize its history, identity or functionality.

Figure 7. Re-funding the neighbourhoods (Source: Municipality of Recoleta)

The municipality is organizing 72 meetings, two in each of the current 36 units, one for boys and girls and other to younger and adult people. In each meeting, they will work with maps that represent each area, which should need to be validated by the people who attend the meeting. Then, they will decide a name for the neighbourhood that represents themselves and contributes to their identity. It is also possible to create new neighbourhoods if there are some homogenous areas.

From this process it could also be possible to identify problems and ways of solving them and making proposals that the municipality will try to asses and come back to each neighbourhood for the approval of the different initiatives.

Community participation in public space

Different authors agree that public participation is fundamental to modulate the relationships between society and the state. Citizens organized within society need to enforce their rights by searching for finding ways to influence public policies, as well as the performance of the local governments. A mutually acceptable legal framework is necessary to regulate the rights and duties of both sides, namely the citizens and the public authorities (Córdova, Caldera, & Landaverde, 1996).

In the same line, we can state that the aim of public participation should be to include citizens' aims and interests in decision making processes which affect public space. In order to achieve this, the public institutions have to provide spaces to enable citizens to participate. All the actors involved should be aware of the rules of the participatory process. This would ensure that the participatory processes adhere to the democratic principles of public deliberation, social interaction and respect for pluralism (Ziccardi, 2004).

Local government is considered the most appropriate level at which to exercise citizen participation. Córdova, Caldera and Landaverde (1996) argue that participation is most important at a local level because a municipality is the institution which is closest to the citizen, while Enríquez Villarcota (2005) has contended that a municipality provides the ideal space for responsible citizens to participate in the governing of the community. Finally, Peterek (2009) has claimed that neighbourhoods must provide public spaces to facilitate community meetings.

Generally speaking, we can consider that public space has three main roles, which must be promoted and reinforced:

a) Public space as a space of identity for the city, enhancing the morphology of the

neighbourhoods; integrating and by highlighting those elements that have come to constitute citizens references, milestones – geographic or constructed – recognizable for its inhabitants.

b) Public space as social space to 'go and be' representing an essential component of life and environment of citizens, provided an irreplaceable place of interest that facilitate the meeting and interaction of people.

c) Public space as a functional space as the skeleton of cities, enabling connectivity within and outside the community; and provides access and services to the population, including the streets, the basic urban services networks, communications and energy.

Streets are much more than a place through which we can move from one point to another. They are above all, the element that allows the dynamics (makes the animation) of the city, that it is why most community's proposals are related with improvement in this public space.

Conclusion

The main issue that related the three municipalities is that the three mayors had expressed a political will to change and promote a different way of managing the municipality, in all cases the previous administration had developed a policy mainly based on dependency looking at the community more as their clients than as their partners. Most municipalities did not want to promote community participation for two main reasons. One of them is that they believe that it will make things more complicated and that everything will take longer. The second reason is that they think that people do not know about communal problems or that they are matter of technicians. Definitively, the three municipalities do not share those assumptions. Rather, they believe that people and community have a lot to say and have the right to participate; that they have to create ways in which the community can work together. Moreover, they are convinced that the community needs support and training in order to really be able to become municipal partners, in some cases it will take time, but in the end, everybody will be benefit from this. This is why they are all developing simultaneously different types of activities. The promotion of cultural and recreational activities may not have a specific intention to make the community participate in the decision making or to solve an specific problem, but they are building confidence, they are bringing people together and allowing people to get to know each other, and this will be useful to share information, to collect demands and to explore ways of involving the community in municipal actions.

In these municipalities, the upgrading of their PLADECO in a participative way shows that people respond, that the community is interested in their neighbourhoods and that they are able and willing to participate and to follow up their proposals. In the three cases, that was a process that had not been done in many years. We could even say that it was the first time that community participation was performed on such a big scale. The communal territory was divided in many sectors in order to allow munity participation in a better way, people need to work in small groups, but at the same time you can bring them all together in an assembly where they could hear other groups.

In the case of Providencia and Santiago the updating of the Plan for Municipal Development could come to an end in a few months according to the original planning, it should not really take that much time. After the participatory process done for updating the Plan, it has been much easier to continue working with the community. They have realized that a new way of relationship between the municipality and community is possible, but there is still a long way to go.

References

Córdova, R., Caldera, H., & Landaverde, G. A. (1996). *Centroamérica: Gobierno local y participación ciudadana*. El Salvador: Programa Flacso.

Enriquez Villacorta, A. (2005). Alcaldía municipal de San Salvador. Síntesis del programa municipal, 1997/2000. Working report. In *La práctica del desarrollo local. Experiencias y reflexiones desde Centro América*. San Salvador.

Ministerio de Vivienda y Urbanismo (2014). National Urban Development Policy. Retrieved from http://politicaurbana.minvu.cl/wp-content/uploads/2012/11/L4-Politica-Urbana-ingles_baja.pdf

Peterek, M. (2009). Five Planning Principles for Successful Urban District Development. Recent Examples from Germany. In *Programa Recuperación de Barrios. II Foro Internacional de Recuperación de Barrios* (112-129). Santiago de Chile: Gobierno de Chile, Ministerio de Vivienda y Urbanismo.

Ziccardi, A. (2004). Participación Ciudadana y Políticas Sociales del ámbito local. Instituto Nacional de Desarrollo Social, Consejo Mexicano de Ciencias Sociales. Universidad Nacional Autónoma de México, Instituto de Investigaciones Sociales. Retrieved from http://ru.iis.sociales.unam.mx/jspui/bitstream/IIS/4420/1/Participacion%20ciudadana%20y%20politicas%20sociales%20en%20el%20ambito%20local.pdf