

Article

Faithful to the Process. Representation Strategies for the Participatory Design

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Abstract

Public participation in architecture implies a change to the whole traditional range of subjects and objects and opens to a new process whose results are not foreseen from the designer. Architectural drawing is asked to change as well; the paper questions representation languages and techniques, investigating which ones can be inclusive so that the final user can actively participate from the beginning to the end of the participatory process. The aim is to reflect on strategies, more than locked solutions, for this actual challenge in architecture making.

Some experiences and international experimentations between the first and the third worlds are identified as best practices into design representation useful for the participatory process, considering both how ever-new digital technologies renew the traditional ones.

Keywords: participatory design; maps; 3D models, interactiveness, photorealism.

1 - Introduction

Architecture is a medium, it represents a state of things; architectural drawing, when used as a strategy for the communication of the concept, is a sort of meta-architecture: a representation of the representation. In order to play their roles, the architectural depiction must reflect to the aim of its subject. The kaleidoscopic display of methods and technique of architectural representation is implemented day by day, thanks to the invention and intertwining of ever new media, but each one has its own capability to evoke the design spirit. Historians of architecture, as well as historians of drawing, renew and teach us many examples of this kind of coherence between architecture and its representation; for instance, it is well-known how the isometric view is the most significant image to describe the 'house-as-machine', because it is represented exactly like machines are.

The aim of participation is to re-establish the project so that contemporary architecture should be 'less and less the representation of its designers and more and more the representation of its users'. (De Carlo, 1972) (Fig.01). The design of participative architecture is a new methodology of architecture making and its representation needs a new methodology: the authorial architect's drawing is asked to give way to new 'images', more representative of the participatory process¹. What kind of representation techniques can reveal this new approach?

1 - The term 'participatory' is used in place of the more generic 'participated' because it has a greater inclusive value and characterizes the actions that involve the community on the basis of operational choices, not only in the approval phase. See the distinction between participated and participatory budgets, as described in G. Allegretti and C. Herzberg (2004), Participatory budgets in Europe: Between efficiency and growing local democracy, downloadable at: <http://hdl.handle.net/10316/41002>



Fig. 01 Giancarlo De Carlo, Villaggio Mattei (maquette), Terni, Italy, 1969-74.

Participation is reach in contents and actors. First of all, many roles are involved in the dialogue with citizens: public administrators, facilitators, planners and designers; citizens themselves are composed of people from different social/cultural/professional areas. Numerous communication tools are also used, constantly evolving due to the range of cases of and rapid technological progress. According to literature in the communication field, communication tools are grouped in: direct, mediated and interactive. Scrolling through the pages of any guide to the participatory approaches, there are many tools established to pursue good communication². What is asked to happen is a

2 - Just for instance, see the guidelines disseminated by the Participatory Methods website, managed by the Participation, Inclusion and Social Change Cluster at the Institute of Development Studies: https://www.participatorymethods.org/sites/participatorymethods.org/files/VSO_Facilitator_Guide_to_Participatory_Approaches_Principles.pdf

cultural transition towards communication “in which each participant co-informs and coincides” (Dolci, 1988). But the design, in its visible - or tangible- representation, which position does it hold in this communication practice? Which is sufficiently supported by the most diverse sources, online guides, and updating of good practices?

The following pages question the main registers of design representation, precisely the ones traditionally held by the architect, obviously considering new technologies and international applied researches.

2 - From the observer's vision to the participant's interactivity

Traditionally, two main areas of architectural representation have been recognized: expressive

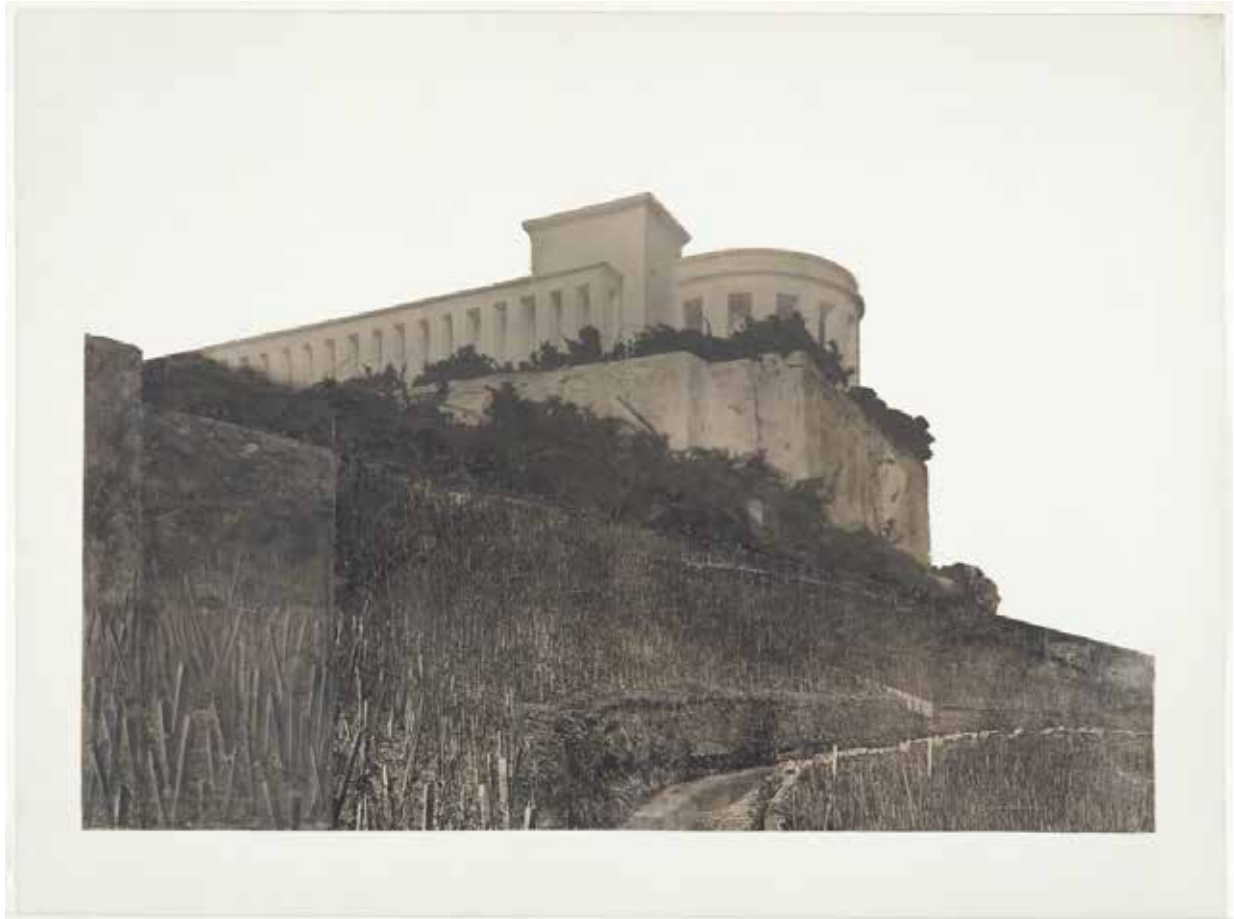


Fig. 02 Mies Van Der Rohe, Bismarck Monument Project (photomontage), Bingen, Germany, 1910.

drawing and technical design; the same coincide with the iconic or symbolic registers, as described by the philosopher Charles Peirce: the first one is used to make the representation resembling to the subject, the other one not (Peirce, 1906). The use of a kind of representation basically depends on the speaker/recipient of communication, whether it is directed at an expert (who knows the code) or the final user of the design (who does not necessarily share the technical language). Every representation technique can find expressive forms, even in the most technical fields (orthogonal projection, for example). Both the choices to foresee the result of the design can also be traced back to two cognitive protocols: mimesis or abstraction.

It is obvious that such opposite definitions are only the extremes of a trend where no representation

is completely symbolic or iconic, realistic or abstract. Scrolling practices, effective representations often consciously combine these modes with different proportions (Fig. 03).

Since the beginning of the twentieth century, the abstract code, especially when based on geometrical shapes, has experienced a seamless bond with graphical design; the popularity of contemporary infographics attests to the effectiveness of the symbolic/visual language even when communicating dense statistical data. But the abstract register is not always intuitive and to correctly interpret the meaning of a graphic or a map, the user needs a good graphical knowledge and decoding capability, which is acquired rather than innate.

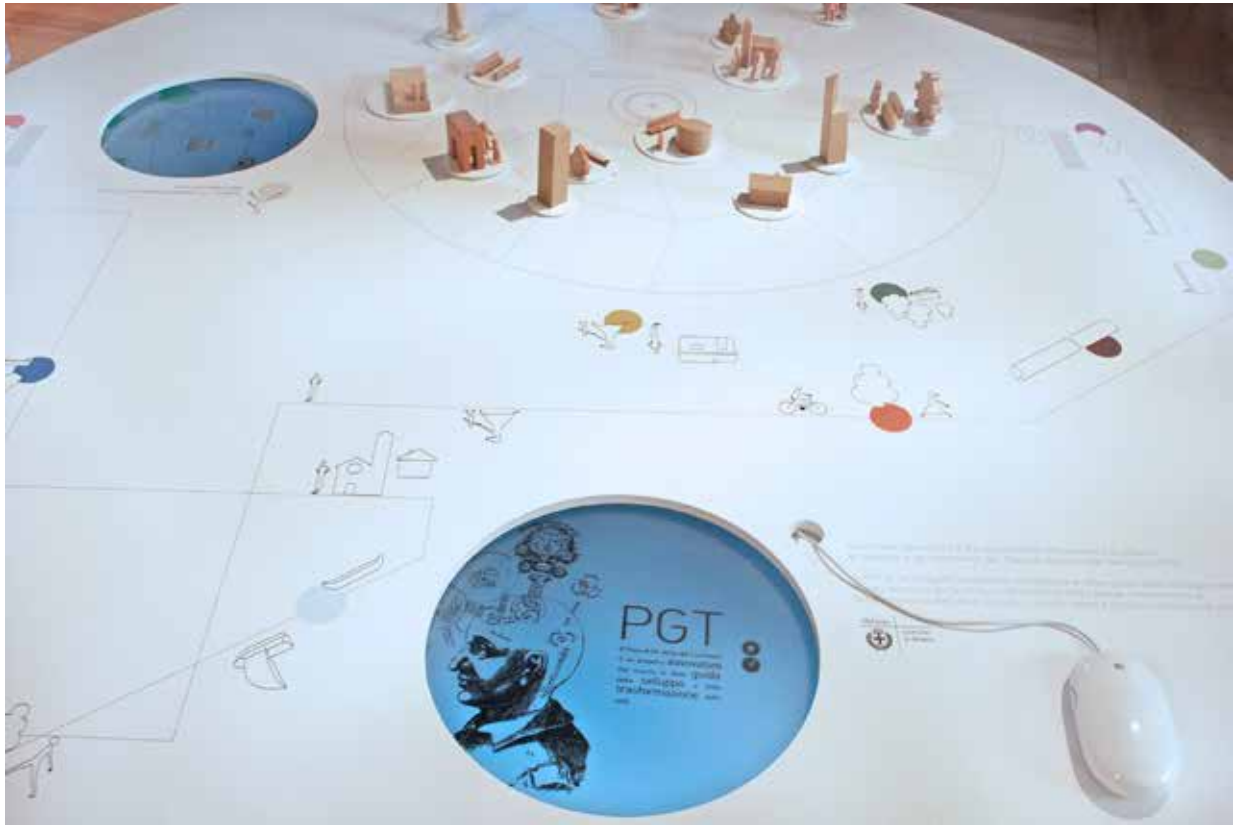


Fig. 03 Interactive communication table by PGT in Milan, shown at the Triennale and the Urban Center of Milan (Italy) in 2010 and realized by the studio Interaction Design Lab. Image courtesy Aurora Rapalino, © IdLab.

On the contrary, in architectural design, it is the mimetic register that enjoys the widest use, especially now. Mimetic representation deals with linear perspective drawn in black and white as much as digital rendering; it is mostly associated with the photorealistic cognitive strategies: static visions as well as immersive and/or interactive dynamic visions, stereoscopy, animation, 3D cinema, virtual reality, etc. It was the advent of photography together with the first competitions for public buildings that opened the doors to photorealism in the field of architectural mimetic representation. The first applications consisted of photo-montages, that is cropping a perspective drawing or a photograph of the model to be inserted in the photographed environment (Fanelli, 2009). Languages (drawing and photograph) recreates sufficiently complete information that may either produce precise photorealism (Fig.02) or require dynamic observation to reveal continuity and contrasts.

Over time, however, photorealism has lost its original stimulus of intellectual observation. The immediate appeal of cinematographic visualizations is unquestionably convenient for market strategies and has much more to do with making things spectacular than with real communication. The hyperrealism of rendering aesthetics responds objectively to the need to see in order to understand: the observer remains passive. Moving from the static vision to the dynamic sequence (video), the amount of information increases but the spectator remains in the position of receiving a determined message.

But if one intends to involve the final user in understanding the process, that user should be able to participate and interact.

Traditional design consists of a single 'scene'; the author conveys information and emphasizes this or that aspect of the project in a specific 'frame'.

To allow the observer to remove the 'filters' of the representation, each part should be dealt with in the most objective way possible. In this sense, computer graphics allows for interaction with 3D models that can be navigated autonomously.

For example, the so-called real-time rendering technique (used in videogames) allows a photorealistic effect to be obtained very quickly in progressive and partial visualizations of a 3D model as soon as the user decides to move into a specific position. The observer explores, examines, sees, and verifies each aspect of the design, pausing on the details and aspects that are not directed a priori.

Immersive virtual reality even tries to go beyond this, proposing constructed environments around a user equipped with peripherals that allow multi-sensorial rendering of the representation. This frontier of experimenting with prefigured space could already be better used to communicate a project; without exhausting the search for hyperrealism, it aims to reproduce something irreproducible: reality.

3 - Real time maps: back to the human factor

A founding principle of communication lies in the fact that reality is irreproducible and above all, to use an aphorism by the father of general semantics, Alfred Korzybski, "the map is not the territory" (Korzybski, 1933). Maps are representations based on the premise that space is Euclidean, homogeneous, and isotropic, on which phenomena crystallize at one unique time. First among all is the traditional urban-planning chart, which denotes the distribution of functions (residential, productive, commercial) based on indices and quantitative attributes (standards) with objective deterministic expectations.

The aspects that 'animate' a territory are omitted in traditional maps. In reality, not even the borders between two countries -as determined at a table and based on a map- is a static entity in time. In 2009, Italian legislation introduced the concept of 'mobile border' as suggested by the Italian Military Geographic Institute, which had raised the question of the Italian-

Austrian border: after the glacial watershed in the Alps, it had contracted badly and continues to change. At the 14th International Exposition of Architecture at the Venice Biennale in 2014, the Italian Limes installation visualized and represented these variations in real time with the aid of an automatic pantograph connected to a GPS (Fig. 04), revealing the transitoriness and indeterminacy of each abstraction relative to the physical geometry. Italian Limes produced an infinite number of maps concerning the same subject - the border- emphasizing the concept that any territory is the potential matrix for an infinite number of themed maps that can be stratified in time (Folder, 2014).

It is now clear that traditional representation tools as seen from above lack information about the real life of a place, and so constitute mystifications that are as abstract and incomprehensible to the non-expert as they are usable by those in power. "Maps always lie in that they exalt; they highlight some aspects of the territory and the city aimed at a project, a social idea, a secondary world that is selective and artificial" (Magnaghi 2001, p. 3).

Before the Renaissance, so-called protomaps were places where geography met the myth, fantasy, and art of its time, in which pictograms and fine-coloured miniatures mixed with more subtle images, a prelude to the conventional alphabets of later charts.

Today, different areas of research seem to be returning in some way to those symbolic values of medieval maps; the contemporary ecological approach promotes refounding the map as a story of the territory, stratifying information on different levels so that it also interprets and represents the affective and effective value that places have for their inhabitants.

In the participatory process, therefore, new tools of self-representation are being advanced by the inhabitants of specific places: community maps (1) and the interactive technologies of Internet mapping (2).



Fig. 04 Folder, Italian Limes (2014) as exposed at the 14th International Exposition of Architecture, Venice Biennale curated by rem Koolhaas (photos by the author).

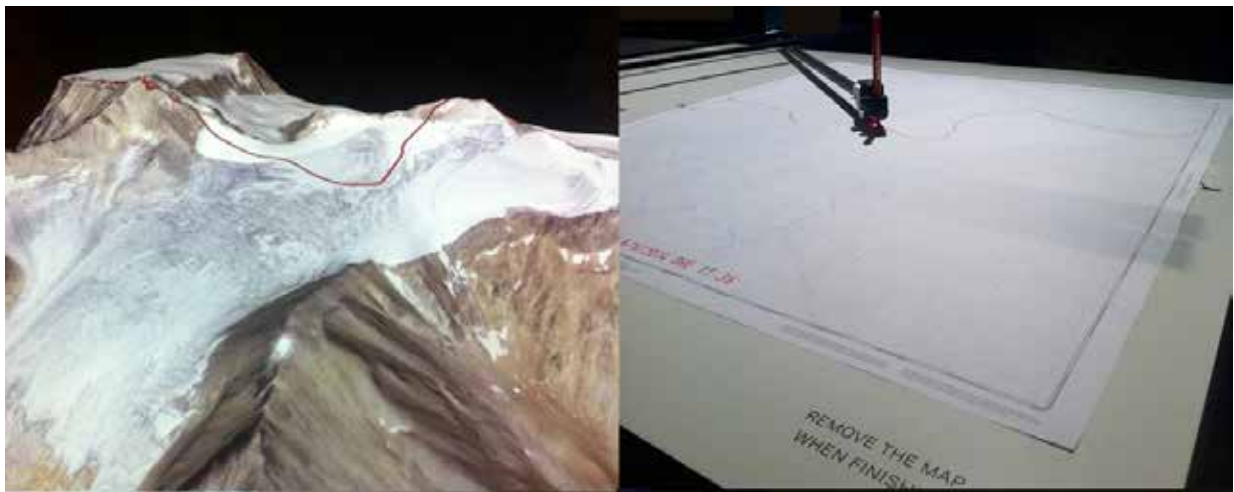


Fig. 05 Mapping human interactions (physical movements and social media connections) in the city of Martinsicuro (Teramo), Italy. Image courtesy Francesco Paolo Russo.

1. The community map is a cultural process inspired by the experiences in Great Britain (Parish maps) in the 1980s, in which a community designates and designs the contours of its own heritage, that is, the physical and cultural landscape and knowledge to be passed on. Laboratories for drafting community maps are being promoted ever more intensely in urban and territorial planning in the spirit of the European Landscape Convention (ELC). Functional, objective cartography finds its counterpart in community maps.

2. Moving from analog, Internet-based mapping is acquiring an ever more important role thanks to open access to data, also through the spread of GIS, the continuous drop in the cost of hardware, GPS, and tele-surveying softwares. Different methods have been developed to translate the knowledge of people or their emotions into high-quality georeferenced information.

A modern map made through participation is dense and stratified, open, and in continuous implementation according to the number of communities that are called to create it (Fig.05).

4 - The persistence of a need: the physical experience of maquette, from analog to digital and between the first and third worlds

Scale models hold a special place in the history of urban representation thanks to their essentially strategic function. While the first known architectural models date back to the civilizations of ancient Mesopotamia, Syria and Palestine and are referable to the fourth millennium a.C. (Sardo, 2004), the first urban scale maquettes were realized in China at the beginning of the first millennium; Italian engineers refined the technique in the fifteenth century, but the golden age occurred with the reign of Louis XIV (1661-1715), who ordered the production of 140 1:600-scale models depicting the cities that had been incorporated into the Kingdom of France.

Urban-scale models were made for defensive or celebratory purposes until the end of the twentieth century (they also played an important role during the First and Second World Wars), while today, public administrations use them for urban or rural planning. In a relatively recent era, public administrations have begun to systematically use physical models as a tool to share information between designers and government institutions and between these and the final users, the citizens. The most meaningful examples include the large model of New York – Panorama – commissioned by the New York City public official Robert Moses for the New York World's Fair in 1964. At a scale of one inch to 100 feet, it was meant to display the public works of the city and, according to its creator, it should be kept continuously up to date with the enclosure of new buildings and infrastructures (Miller, 1987)³. After 600 years during which designers and artisans created models behind closed doors, the value of Moses'

3 - In reality, the latest changes were made in 1975 with the addition of the two World Trade Center towers. Today it forms the centrepiece of the collection at Queens Museum, where it is conserved as a piece of the city's history.

work is positioned in the epoch in which co-information between administrators and citizens was approaching. In the contemporary age, the traditional maquette was turned into a potential Internet-based platform, that is, a system that acquires information from a collaborative network of users and which can therefore be implemented "horizontally". This participative aspect means that contemporary physical models can be counted among the "revolutionary" communication tools of our time (Rifkin, 2011).

The production of physical models has increased significantly in the last two decades and new technologies applied to maquettes – interactive digital and augmented reality – are still increasing demand, as confirmed by the communicational effectiveness of this tool in transmitting not only geographical knowledge in schools, museums, and large public exhibits. For example, at the entrance to the info-point in Rotterdam, an interactive information system was installed in 2017 on the model of the centre of Rotterdam, designed and developed by the Dutch communication studio Rnul Interactive. Beyond learning historical news about the buildings and quarters and consulting the calendar of events, visitors to Rotterdam can personalize their experience, creating and prefiguring their own itinerary on this large maquette (Fig.06).

Dropping back down to the architectural scale, large museums are updating their way of informing visitors, with new entrance halls dedicated to acquiring the greatest amount of news, and information about the museum, the collections, and temporary or permanent installations. This is how the Louvre inaugurated its Clock Pavilion in July 2016, with a hall completely dedicated to a detailed, interactive physical model of the royal palace and the Tuileries Garden, surrounded by digital displays on which archive documents, films, and works of art could be consulted.

Finally, in the last two decades, another approach to the model is being seen, which derives from a new means of territorial governance: the participatory governance. In an attempt to place common people or disadvantaged classes on a primary plane, the participatory strategy promotes a bottom-up approach divested of planning practices imposed from above: change in paradigm is possible in terms of participation, as shown by the now numerous actions carried out by international



Fig. 06 The Interactive scale model for the Rotterdam Information center developed by the Dutch Rnul interactive studio. (Courtesy of Rnul interactive)

cooperative entities to develop the Third World4, where participatory techniques are developing quickly and have become almost mandatory in initiatives for development, territorial redistribution, and biodiversity conservation.

In particular, participatory three-dimensional modelling (P3DM) is a process designed to introduce rural communities in the developing world – which live in isolation and depend exclusively on the natural resources in their territory – to technologies that provide geographical information. To create the models,

4 - This includes actions carried out by the CTA (Technical Centre for Agricultural and Rural Cooperation), which was established in 1983 between the 79 countries making up the ACP (African, Caribbean, and Pacific countries) and member states of the European Union. The CTA promotes the development and autonomous supply of products and services to improve access to information on agricultural and rural development, reinforcing the capacity of ACP countries to acquire, produce, and disseminate information in those areas.

a collective learning process is begun that allows participants to visualize their economic and cultural heritage in the form of three-dimensional maquettes georeferenced in scale, which can be used later for discussions and design proposals. The parts of the model are positioned with the integrated use of traditional maps and georeferenced data obtained from GPS and GIS tools used by the community itself (after appropriate training). Participatory mapping should obtain the greatest possible precision of the final result, the model, so it is possible to produce later maps (in digital format) aimed at the project (Fig.07).

From the results of actions performed with P3DM in countries in Africa, the Caribbean, and the Pacific, both in terms of conflict resolution and interaction with their governments when subdividing the territory, one understands how the capacity of a community to be involved in planning projects can derive from the knowledge and awareness of the physical model (Rambaldi, 2010) (Fig. 08)



Fig. 07 “One page of a map is worth more than ten with text”. Still from the CTA educational video on participatory 3D modelling: Localización, Participación y Comunicación: una Introducción a las Buenas Prácticas SIGP, 2011



Fig. 08 Participatory 3D Mapping for Cameroon's Forest Monitoring and Conservation Management (Photo and courtesy of Arend De Haas, 2016)

5 - Conclusion

The efficacy of communication depends on the awareness of the strategy it uses; for this reason, already in the initial stages of planning a participatory process, the choice of the representation techniques, whose code will be shared between the actors, is fundamental.

The modern context changes in quickly in step with technological evolution, consequently, the research should be updated and tested daily with people and with an eye on an ever more hybrid mixing between different languages.

In developed societies, information data are provided by the market, the role of inhabitants/users is controversial: much more than in the past, people are managed by the market (Zuboff, 2019), but involved in the creation, production, distribution, and consumption of goods and services (Lang et al, 2020). In the light of this, the role of aware planners, architects, and artists is fundamental, also in the participatory design: they can decode metaphors and messages hidden in the technology of the Market, to wisely focus the design and manage the interaction between citizens and political decision-makers. If their authorial design is asked to be overcome by a

methodology based on the citizens' contribution, their mediation, as well as their representation language can't miss.

In the third world, while handling with tribal communities, the situation is much different: even in several difficult conditions, it is in the third world where the inhabitants' participation is genuine in creating a new, shared, graphical language. Like many experiences demonstrate, it does not mean that the interaction should be activated in lack of technology. Only if inhabitants participate can we hope that all that pertains to a place (landscape, heritage, imagination, origins, perceptions, memories, and knowledge) can pertain to the project and common good for and of the community.

Among the traditional tools, the primary role of maquette and tridimensional depiction is confirmed in both understanding and designing the urban and architectural space, also for participatory design all around the world. Models, which have always had the privilege of dynamic learning around them, have always been used to test the design while it is being defined. As non-virtual objects, they are open to innovation: they can be realized digitally or proposed as containers of applied technologies, conserving their effectiveness. Whether they present tailored scenographic effects or simple post-it notes pasted above, digitally recovered information or basic shapes molded with a touch of realism, physical models are preserved as a code that can be easily shared among different subjects, not depending on their grade of knowledge.

References

- De Carlo, G. 1972. *An architecture of participation: the Melbourne architectural papers*. Royal Australian Institute of Architects, South Melbourne, Australia.
- Dolci Danilo, 1988. *Dal trasmettere al comunicare*, Sonda, Torino (Italy).
- Fanelli, G. 2009. *Storia della fotografia d'architettura*, Laterza, Roma-Bari (Italy).
- Folder (Ferrari M., and Pasqual E.), 2014. *Italian Limes, in: la Biennale di Venezia* (ed). Fundamentals. 14. Mostra Internazionale di Architettura. Marsilio, Venice (IT), 440-441.
- Korzybski, A. 1933. *Science and Sanity. An Introduction to Non-Aristotelian Systems and General Semantics*, The International Non-Aristotelian Library Pub. Co, Lancaster, Pennsylvania - New York.
- Magnaghi Alberto (ed.), 2001. *Rappresentare i luoghi, metodi e tecniche*, Alinea, Florence (Italy).
- Lang, Bodo; Dolan, Rebecca; Kemper, Joya; Northey, Gavin (2020). *Prosumers in times of crisis: definition, archetypes and implications*, Journal of Service Management. <https://www.emerald.com/insight/content/doi/10.1108/JOSM-05-2020-0155/full/pdf?title=prosumers-in-times-of-crisis-definition-archetypes-and-implications>
- Maldonado, T. 1994. *Reale e Virtuale*, Feltrinelli, Milan (IT).
- Miller, M. 1987. *Il modello di Robert Moses*, Rassegna 32, 74-75.
- Peirce, C.S. 1906. *Prolegomena to an Apology for Pragmatism*, The Monist 16, pp. 492-546.
- Rambaldi, G. 2010. *Participatory Three-dimensional Modelling: Guiding Principles and Applications*- 2010 edition, Technical Centre for Agricultural and Rural Cooperation (CTA), Wageningen (Netherlands).
- Rifkin, J. 2011. *The Third Industrial Revolution: How Lateral Power Is Transforming Energy, the Economy, and the World*. St. Martin's Press, New York.
- Sardo, N. 2004. *La figurazione plastica in architettura*. Modelli e rappresentazioni, Kappa, Rome.
- Zuboff, S. 2019. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*, Public Affair, New York.