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DESIGN PROCESSES IN MORPHOLOGY THEORY. THE USE OF ANALOGICAL AND DIGITAL TOOLS MAPPING URBAN REALITIES.

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ABSTRACT

The problem of urban growth and planning is related not only with a technical issue but, moreover, with questions of theories. There is not only a method to design cities. Assuming the vast area of urban morphology theory as a collection of multiple perspectives on the field, is it possible to determine a generative issue?

The main question will take into consideration the analysis of urban space as a method of understanding and comparison. For instance, it is necessary to comprehend how the different ways of reading the city lead to a different perception of it. In the era of data, moreover, the dichotomy between analogical and digital analysis of the cities can give to the architect or planner a different perspective flawed by each specific point of view. Therefore, this distinct reading influence in itself the design processes. The primary issue now is to understand how the digital organization of the data and maps are shaping the cities. There are differences between an analogical analysis and a digital one? Are they giving different results? Is it just a matter of tools rather than processes of information? What is the method behind digital analysis and mapping? Can be computer-based analysis neutral? Out of it, there is another issue coming out from the process of simplification: the question of diagrams. Especially inside the mapping process, there can be some space for the diagram as a way of representation of data and urban forces inside the transformation process of the cities?

INTRODUCTION

Complexity is a concept brought by science and philosophy that can also be applied to the urban development of the city. With it, two different issues are brought to the attention of the audience: space and time. Although the question of space is quite understandable by the Cartesian approach, the temporality was not so easy to describe but, at the same time, has crept into the infinitely small of the world. The time, from a fixed item, became a parameter that gives structure to the reality (Morin, 2011). In this way, the complexity of the system is the main discriminant. In itself, it cannot be easily simplified, but it can be unbundled to solve it. The decomposition of the system in different aspects brings to the attention the needs for a method that links the separate (Morin, 2011). At the same time, it is possible to apply the complexity thought to the urban morphology theory.

Maps in different scale are the synthesis of reasoning on urban agglomeration. With the use of them, it is possible to define models, perceptions, flows, time and data. (Pinzon Cortes, 2009) With the evolution of technology, also the concept of maps changes with it. The representation became more like an elaborate scheme that can underline data that cannot usually be understood by analytical sample. The movement from analogical to the digital world leads to some consequence also inside the act of mapping: if it is possible to manage more data, with the use of technology, like space Syntax and GIS, but at the same time, the data become an intangible element. The question of neutrality in technology and the use of a different analysis method to understand the city have a direct relation with design.

The theory of systems brought to the attention with the urban morphology school of Muratori can be put in relation, having in the background the mapping as a method, with the complexity theory. The association of elements highlight a new question. The diagram starts to acquire new meaning inside the entire process of mapping.

BACKGROUND

The starting point that leads this research can be found, not only inside the concept of complexity but moreover, inside the analysis of urban morphology school and its principles. Starting from its theoretical basis is possible to identify three principles of morphological analysis. Form, resolution and time are the primary agents that shaped the theory and the process of mapping and understanding of the city. In brief, the role of urban morphology gives a general overview of the complexity of the process of transformation of the town (Moudon, 1999).

Muratori, at the beginning of the Italian school of urban morphology, gives the accent to the central issue of the organicist of the city (De Carli and Scatà, 1991). The generative issue of his method can be traced back to the evolutionary theory. Emergency, crisis and anti-reductionist principle are the bases of the idea of evolution (Morin, 2011). Time as much as for the morphology school is the variable that can influence the comprehension of the event. Transition enter inside the process as a measurement of the changing path of the city. Morphological analysis has brought attention to a multiscale and articulated methodology compared to the diachronic formation process of the city (Tafuri, 1973). With the emerging of the field inside morphology school, maps became a discriminant inside the approach. All the school of urban morphology, starting from the Italian to the British one, used maps as a method of understanding, on a different level of detail, the structure of the city. (Pinzon Cortes, 2009) The separation of the element in different layers or sequences allows us to understand the complexity of the systems.

Nowadays, the environment in which this kind of study takes place is changed. The use of big data and the digitalization of the maps allows us to have a better overview of the phenomena that are changing the city. Moudon, in 2000 talks about the problem of scale, asking how GIS tools can contribute to overcoming this problem since they allow zooming in and out (Moudon and Hubner, 2000). That means that digitalization can help to have a different understanding of the city. At the same time, maps are changing. With the use of Space Syntax as well, the map has been transformed and turned into an abstraction to observe human relationships on built space (Hillier, 2007). That introduced a new paradigm inside the scheme. Can maps be defined as a diagram of the space? This kind of approach can also influence the way the city is thought and is designed.

A stabbing dowel of the representation with maps is the systematization of the information. Especially the transitional element that morphological theory is trying to understand inside the city introduce an aspect of dynamicity that is not every time taken into consideration. The process of mapping of the time is avoiding the matter of space. (Pinzon Cortes, 2009) The relation does not seem clear. Space and time are the two variable to take into consideration inside the process of development and digitalization of urban models. Diagrams, on the other hands, is not just a simplification of the process. They are a decomposition of it in different stage and variables. In this argument, the theory developed by Alexander in the 1960s can give a way of interpretation of the phenomena. The pattern theory of Christopher Alexander is taking into consideration this kind of reasoning of decomposition and systematization of the influence of the city. What is shaping the city and the behaviour around it?

The research is based on different issues that are converging to understand the transitional dynamics of the city. Space and time are studied together to give a complex view of the transformation process. In it, the diagram can have a role in the analysis and consequently in the design of it.

METHODOLOGY

Bringing to the attention how the role of the maps is changed, it is possible to identify several issues that are driving the comprehension of the digital charts. With the introduction of complexity inside the analysis of the urban model, it is possible to verify the attendance of the maps in understanding the principals of urban transformation. Transition as a dynamic field underlines how the digital turn is shaping the understanding of the dynamic process of the city. The methodological question of the diagram is analyzed as a field, taking into consideration the background built on the topic. For now, the problem is explored as the reconstruction of the theory to understand the potential of the diagram. The diagram has been studied as a tool to clarify the dynamic inside the transitional movement of the city.

FINDINGS

The analysis brought to the attention of the field of action different issue that needs to be analyzed. Each map is studying the transformation of space, but they are not investigating the transition between one element to another. The question of time is treated as a static element. Taking as an example, the use of layering of the conzenian school it is not possible to determine a linear relation between the element, the process of comprehension of the dynamic seams free of interpretation. The use of the diagram in itself gives the audience a way of reading the process of transformation. Action and reaction are having a role inside the city. Patterns, as defined by Alexander, are interdependent with each other (Alexander, 1973); a genome structure follows one another, complex, in which it is necessary to identify the optimal ways of understanding the process. The translation from pattern to diagrams can give a reconstruction of the complexity. At the same time, it is necessary to understand how this reading is influencing the process of design.

According to Cohen, everywhere in nature, considering things at a certain level, it is possible to see the trend of some pattern: we would be surrounded by configurations, by what has different elements, regulating their relationships and allowing the emergence of the complexity. Architecture can, therefore, consider schemes as a representative element of tangible reality. The architecture itself alludes to systems, organization, and the configuration of elements that put together form a structure on their own. (Pezzano, 2019) Questioning hidden patterns, therefore, leads us to identify a specific scheme in everyday actions. (Alexander, 1973) The set of these actions affects not only the architectural element but the whole city system. The transition is no longer understood as beginning and end. However, it is represented through a complex process that can provide a complete narrative of the city.

The diagrammatic element is, therefore introduced as a representation of the dynamics of the urban system. It is not a simplification but the development of a relationship of dependency. The city is then read in its entirety. Interpretability, therefore, does not make use of a single line of interpretation. The process is described in its entirety, thus providing a narrative from which a key to interpretation can be abstracted. Once the characteristic elements of the map and diagram have been ascertained, a study becomes necessary to identify how they are related to each other in order to complete a method discussion. The direct relation between the city reality and the

construction of the diagram will allow redefining its meaning. Not just as a representation method, the diagram became an operative tool that can help to recognize rules or repetitions inside the process of transformation of the city. That will lead to a better understanding of the present situation to look forward to future development. The research, therefore, does not aim to define principles but relationships that will then develop a targeted methodological treatment.

CONCLUSIONS

The research on the field is still trying to develop a critical thought on the role of maps in comparison with diagrams inside the urban morphology school. New questions are brought to the attention of the critics. The emerging field of diagram joins with the use of data collection can give to urban morphology a different way of approaching the transformation inside the urban context. As we have seen the difference between maps and diagram is relatively small, it is necessary first to define it. While the use of maps can give a general overview, the diagram allows us to have a specific perspective on the field. The question of complexity addressed the generative issue of the diagram. It can be seen not merely as a way to simplify the question of urban transformation but a dynamic tool of decomposition the general complexity. In this case, the diagram and its use can lead to open new issues on the field on city transformation.

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