

CITY PLANNING, PLANNING OF VILLAGE SETTLEMENTS

DOI 10.36622/VSTU.2021.51.3.010

UDC 72.021:304.2

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PROBLEMS OF ANALYSIS OF DESIGN AND RESEARCH METHODS OF INTERACTION WITH THE URBAN ENVIRONMENT

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Statement of the problem. The urban environment paradigm emerged in the 1960s as a protest against the modernist methods of urbanism and other types of design. It was no coincidence that the environmental movement was back then called "anti-professional" as it was directed against the established and ineffective methods of working with the city, i.e., from research to management. Over the past decades, within the framework of the environmental movement and its ideological heirs, a lot of methods and have been developed. However, they have not yet been analyzed as an integral set of tools in the historical dynamics which is an alternative to traditional urban planning.

Results. The features and problems of the analysis of the methodological "arsenal" of environmental movement and urban studies are considered. The methods of working with the urban environment are first structured according to the types of knowledge. The proximity of research and design approaches in the case when the urban environment is dealt with is shown.

Conclusions. In the nearest future, we can expect new synthetic knowledge and particular methodologies related to both the exacerbation of environmental problems to emerge as well as the expansion of the circle of environmental actors and the process of professionalization of urbanistics.

Keywords: urban environment, urbanism, urbanistics, urban studies methods, design methods for the city, phenomenology of the environment, psychology of the living environment.

Introduction. A rapid growth of urban research in the late 20th — early 21st centuries is associated with the crisis of the modernist design approach to cities and with attempts to develop alternative design methods that kicked off in the 1960s in the West when the so-called «Environmental Approach» (environmental movement) characterized by a fundamental emphasis

on the interdisciplinary research and new types of project action. Since the 2000s, urbanism (or "new urbanism") has been formed, opposing odious urbanism and relying on the ideas of the environmental movement of the 1960s and 1980s. But if the types of knowledge and methods of urbanism (called urban planning in the USSR) are relatively well known, the epistemological and methodological diversity formed within the environmental paradigm and urban knowledge, ideas, methods, techniques, methods of action still remain understudied in the attempts at holistic analysis and systematization.

The relevance of the topic is due to the need to study and revisit the methods of interaction with the urban environment, because without being implemented and thus excluded from the reproduction in the activity methods, they lose their role and are eventually abolished (as was the case with the idea of environment in architecture, urban planning and design). Meanwhile, in the "toolkit" of methods of the environmental paradigm there are a lot of those that could potentially be effectively used in practice, and organizational potential for the formation of new forms of organization of research, management and design activities. On top of that, the need to investigate environmental methods is due to the fact that in this day and age it is necessary to know and understand a full range of means of interaction with the urban environment: which of them work and which do not. The ongoing study presents only a part of materials on a subject, but all their set is considered in the proposed scheme of systematization of methods of design and research actions with the city environment.

The material of the study is an extensive body of work on environmental issues since the 1960s so far. The topic under discussion has been covered from various scientific angles: research of processes of visual perception of the city [7, 17, 20, 42], psychological aspects of living environment [4, 18, 19, 27, 30, 33, 35—40], phenomenology of environment [15, 16, 31, 32, 34, 41], modeling of the city, including mathematical [1, 25, 29], game imitations of the city [5, 6, 21—23], symbolism and problems of meanings of urban forms and spaces [24, 28, 43], special methodological developments [2, 3, 8—10, 12—14, 26], etc.

The objective of the study is to analyze and systematize environmental methods; research goals are the detection of internal patterns in the set of environmental methods, the definition of effective and relevant to the environmental values of research and design methods.

1. The evolution of cities, ideas and knowledge about them. Cities have been known to mankind since ancient times, but the design, as well as research and attitude to them did not form until the 20th century. Then, for the first time, the city became the object of purposeful design (although initially in a limited paradigm of the so-called "urban art") and the subject of research in various sciences, particularly natural sciences.

In Europe, there is an idea of the city which is different from the principles of "urban art", i.e., the city as a rational and functional structure, subject to the principle of zoning and transport scheme, a stark contrast between the movement of cars and pedestrians. These are primarily the ideas of Le Corbusier and the Athens Charter designed by his efforts, i.e., an international organization of urban planners. The paradigm of urban planning (Urban Planning) is being formed relying on most rigid and dogmatic methods of project work which have developed in the activities of large state-owned institutions around the world. Urban planning (urbanism) is becoming an occupation, specialized training, trade unions, systems of norms, etc. are being developed.

The "Athens Charter" proclaimed care for the inhabitants, comfort, the "three joys of urbanism", i.e., the sun, space and greenery. But the implementation of these ideas was constantly leading to the failure of the concept of the city, provided a devaluation of the position of the designer who is concerned about the public good. By the second half of the 1960s, in the wake of nascent socio-environmental movements, it became clear that cities were not reduced to functional convenience or the location of productive forces, which made them alive "redundancy" [25], i.e., a rich and dense reality that does not coincide with a subject either with building, or with accomplishment, or even with public spaces. This reality came to be known as the Urban Environment.

At the same time, particularly in the second half of the 20th century, there are specialized research programs for the study of cities (Urban Studies): urban sociology, urban ecology, environmental psychology, cognitive geography, cultural, ethnographic and anthropological studies of the city and its communities, economic models, managerial and organizational-activity schemes of cities, etc.

Over time, the specific historical configuration of the "environmental approach", which had certain stylistic features (interest in retro, postmodern irony, playing with kitsch and camp, etc.) has lost its relevance, but the accomplishments of the environmental movement — both design and research — two dozen years ago, urbanism started to develop, which is a broad and multidisciplinary branch which is capable of operating with different types of knowledge and methods, but to date has not reached the ultimate organizational form.

The significant historical fact that the idea of the urban environment was created in opposition to urban approaches [2, 12, 13] is currently challenging to keep in mind both by professionals and general public. Also, the fundamental irreducibility of the concept of "urban environment" to the concept of the city is commonly not implemented. But all concepts and categories do not exist naturally, not in the form of material bodies, but in certain paradigms and

concepts, in the means and methods of thinking and activity. Hence our analysis calls for an active consideration of the facts in their complex and contradictory dynamics.

2. Urban environment as a multicomponent reality of the city. Currently the issue of improving the comfort of cities at the municipal level has gained a lot of attention. Urban environment is one of the major aspects of Russia's strategic development according to the list of the Federal Project Office (Passport of the priority project "Formation of a Comfortable Urban Environment", approved by the Presidium of the Council under the President of the Russian Federation for Strategic Development and Priority Projects) . In 2016, the Ministry of Construction of Russia started to implement the project "Formation of a Comfortable Urban Environment."

Large-scale urban transformation programs and projects are essential. However, professionals turned out to be methodologically and instrumentally unprepared for them. Tools such as residential construction and mass standard improvement are all that the design and construction complex is capable of offering for this public and state request. But, as we have seen time and time again over the past half century, neither construction nor improvement are tools which are adequate to the environment and its value understanding as a meaningful, full of content and spiritual significance of the space of human residence. Large-scale programs and projects strayed away from the tradition of understanding and cultivating effective tools for working with the urban environment, in the conceptually backward paradigm of normative urban planning. But, unfortunately, there has not been any purposeful work on the study, analysis and methodological design of the information accumulated so far on alternatives to the functional-regulatory approach. There are a lot of professional, scientific, public initiatives, developing environmental ideas in their own way and forming their own experience and methods, but no attention has been paid to systematization, methodological design and transfer of experience to institutional areas of action with the city (municipal administration, project organizations, large-scale research programs) built on new principles. Thus there is a huge gap in the existing "sets" of methods and means of action with cities. The design and management sphere and the applied research and research serving it remained at the level of enthusiastic modernist thinking of the middle of the 20th century. with its universal norms and "standard projects", impersonal indicators of security and comfort. The methods of environmental movement and urban planning initially stem from the understanding of the problem of such technocratic "enthusiasm", focus on building a dialogue with all stakeholders, maintaining the socio-cultural qualities of settlements, particular studies of specific cities and environments. These are very

different "sets", which cannot be combined in one action [3, 13]. Hence the requirement for administrations to ensure the participation of citizens in the design and decision-making of their environment has been limited to public hearings and similar events which could not withstand criticism from the considerable and differentiated experience of genuine participation and social design [3, 6, 14].

3. The problem of synthesis of scientific knowledge about the city. The questions of how much and how measurable the urban environment is, how it differs from the city, construction and improvement are still yet to be addressed. That requires a transition from quantitative scales to qualitative assessments, including subjective assessments of residents of the environment. This transition is associated with a major difference in the research methods of urbanism and urban planning. The problems of quality, measurement, formalization today are still difficult to relate to the paradigm of the urban environment, which entails the rejection of automatic objectification [2, 8, 10, 33, 42]. This in a way explains the inability of large and flow-oriented design and research institutes to employ environmental developments as their actual tools.

In order comprehensively consider the patterns and processes operating in the urban environment, it is essential to assume that the urban environment relies on the constant interaction of two aspects: the artificial and natural one. These two components are actually inseparable and changeable: this is how the environment manifests its duality. The modern environment of cities is a product of the evolution of the anthropogenic landscape, but the fortified nature also occupies a significant place in it. On the other hand, there is a powerful process of the implementation of the artificial — "ingrowth" of artifacts into the flesh of the city, their emotional and existential development, getting used to them. The urban environment is a classic "centaur-object", as it is called complex objects, in which there are both artificial and natural, as well as a lot of transitional states. "Centaur objects" are not easy to manage, their management is still an issue [21]. The modernist voluntarist approach preferred to view the city as a purely artificial body, completely subordinated to its knowledge and will. It is currently clear that things are a lot more complicated, which is why the methods of interaction with cities have become more elaborate, as the combination of several aspects, subject idealizations or paradigms inevitably causes a qualitative transition to a new level.

It should be noted that the awareness of the requirement of multidisciplinary nature in the study of various aspects of urban life and making sure the results of such studies of project practice has been achieved in the framework of traditional models of urban planning. Attempts to combine different knowledge and professions to solve the problems of cities were

first made in the 1970s, they were undertaken in compliance with the concept of the so-called "Comprehensive research". The concept of complexity presupposes the organic unity of the results of various scientific disciplines due to the natural unity of the object they are devoted to. This is a major methodological error, as the problem of knowledge synthesis far exceeds the technical difficulties of coordinating a great deal of data into one complex. The problem of correlation of scientific subject knowledge with each other, as well as that of co-organization of knowledge and project skills is yet to be addressed and cannot be solved merely by complex organizational and activity methods, particularly by game co-organization of different positions in project sessions [5, 6, 23].

Game methods vary from mathematical models to game imitations of city communities (business games, organizational and activity games, strategic game sessions, etc.). E. D. Bogorad in his work on urban planning games that emerged in the United States in the 1970s, notes: "While a single object or phenomenon was previously considered an object of forecasting, at the current stage it is commonly a whole system of more or less less interconnected processes" [1]. Game methods make it possible to make use of mathematical game theory to investigate and predict a variety of processes. Leningrad architects M. P. Berezin and E. I. Izvarin (business games) were the pioneers of game management models of the city in the USSR. Organizational-activity games relying on the methodological theory of activity on the problems of development of cities and regions (G. P. Shchedrovitsky, P. G. Shchedrovitsky, A. P. Zinchenko, V. A. Nikitin, V. L. Avksentyev, A. P. Buryak, etc.) stem from a much broader ontology of the city — system-thinking activity [5, 6, 22, 23]. It has to be said though that the problem of the environment itself in large-scale game models often goes away as the tools of the game to work with environmental phenomena must be developed specifically.

At the same time, in the framework of environmental developments and urban initiatives (urban projects), there is a completely opposite phenomenon, which has not yet been completely accounted for: research activities carried out in the environment and in interaction with specific users commonly yield the results that can be achieved by social design, and the actual project initiatives acquire the features of research programs "in the field", during the implementation of which such knowledge about the city and urban communities can be obtained that cannot be reached by means of traditional subject research [2, 3, 27]. The synthesis of knowledge, ideas and skills is thereby achieved much easier than in institutionalized strategies. Probably, there are two reasons for this: first, the lability of the forms of organization of knowledge and ideas in the above actions, their rigid compliance with the subject-disciplinary

system of organization of scientific knowledge; secondly, the effect of presence, known in PR developments and other forms of interaction with social communities. It should be recalled that one of the important methodological settings of the "environmental approach" which is currently relevant in the development of phenomenological methods in architecture and urban environment, is the removal of the subject-object dichotomy [8, 9, 22, 34]. The presence of only these trends justifies a close investigation of environmental methods.

4. Studies of perception of the city environment. The central question of the study of the urban environment has been and is the question of its perception. Perhaps nothing breeds the types of cognitive and creative attitudes like the distinction between perception and creation, including design. However, here there is also a paradoxical convergence of "poles": perception in the tradition of "open work" [24], actively developed today in the ideology of complexity (participatory design), is treated as co-creation, and project creativity in such a framework ceases to be "office" in a situation of dialogue with users, assumes empathy, ie perception from positions of users. If in traditional urban planning the method of "considering" the peculiarities of perception in the design process were model simulations (a modeloscope representing a picture of traffic in the city at the level of a pedestrian's eyes), and then virtual simulations, in environmental methods this problem is solved more effectively and practically without modeling methods, which there are many conceptual claims to these days [11]. Thus the major directions of the study of perception of the environment are mainly humanitarian in methodology: psychological, phenomenological, anthropological, semiotic, hermeneutic and symbolological research (and appropriate methods), but no longer scientific and non-compositional analysis limited to the morphology of bodies and things. Environmental studies of perception are currently going far beyond visual analysis as they extend to tactility, movement experiences, sound and smell [38] but most importantly — to assess the subjective state of man in the environment as well as their capacity to remember, restore associative connections and allusions. interpret the meanings of forms and spaces [31].

In the aspects of psychology, environmental issues were studied by R. Arnheim, D. D. Miller, K. Lynch, G. Osmond, J. Calhoun, T. Neath, M. Heidmets, G. Z. Kaganov, N. N. Nechaev, A. V. Stepanov, G. I. Ivanova, V. I. Iovlev, M. Chernoushek and many other scholars [7, 9, 18, 19, 33,].

Peter Smith (English architect, author of "Dynamics of Urbanism") notes that people perceive 90 % of the city environment beyond the limit of their consciousness, as the human body is bombarded with impulses. Back in the early 20th century the sociologist G. Simmel defined

"personal space", "oversaturated environment" and noted that the city environment interfered with "the normal attitude of people to new impulses, because people's energy is sprayed to solve small, private problems of the environment" [19]. There is an ignorance of impulses, removal from the "overloading" and obsessive information, unimportant to the person. In the 1960s, the Swiss researcher Hediger defined "personal distance", and the English psychologist Henry Osmond described "two types of space (depending on whether social relations develop or suppress): sociopetal and sociofugal", and the psychiatrist John Calhoun examined the subject of limitation. spaces and its impact on humans (spaces similar to "overcrowded environments") [19]. It is also necessary to mention: proxemics E. Hall [30]; semiotic studies of architecture and the urban environment, begun by the classic works of W. Eco and R. Bart different in methodology, but ascending to the methods of structural linguistics, attempts to identify the "language of architecture" or "dialects of the environment" [28, 43] focused on the problems of the environment and architecture, video ecology, developed in the works of V. A. Filin and followers [17].

A significant and promising direction has been active since the middle of the 20th century to this day, the phenomenology of space, dating back to the classic works by Gaston Bashlyar [31, 35—40]. Phenomenological research is capable of reaching completely unconventional and inaccessible to objectivist methods of reality, i.e., the problem of love in architecture [16, 34], phenomena of memory of the place, time experienced and its environmental traces [35—37], personification of places [18], semantic fabric of large areas, etc. In the paradigm of the urban environment, all these realities are fundamental, without studying them it is impossible to build a full-fledged ontological picture of a particular environment (and thus to perform meaningful transformational actions with it), since the memory of events, people and their emotions, hopes and plans — everything is involved. It forms a real memorable image of a particular place. The category of place (and in many Eastern European languages it is synonymous with the city) thanks to phenomenology becomes again available for meaningful understanding and purposeful elaboration, while following the centuries of artisan architecture where the ability to create places was cultivated, it has long been forgotten in modernist rationalist paradigms, design, design methodology [15, 32, 35, 37, 41].

5. Systematization of methods of design and research action with the urban environment.

It is safe to say that the most fundamental principle of differentiation of the methods addressed in the article is to distinguish them by the methodological origin of the types of knowledge they deal with. These are natural sciences, humanities and interdisciplinary methods.

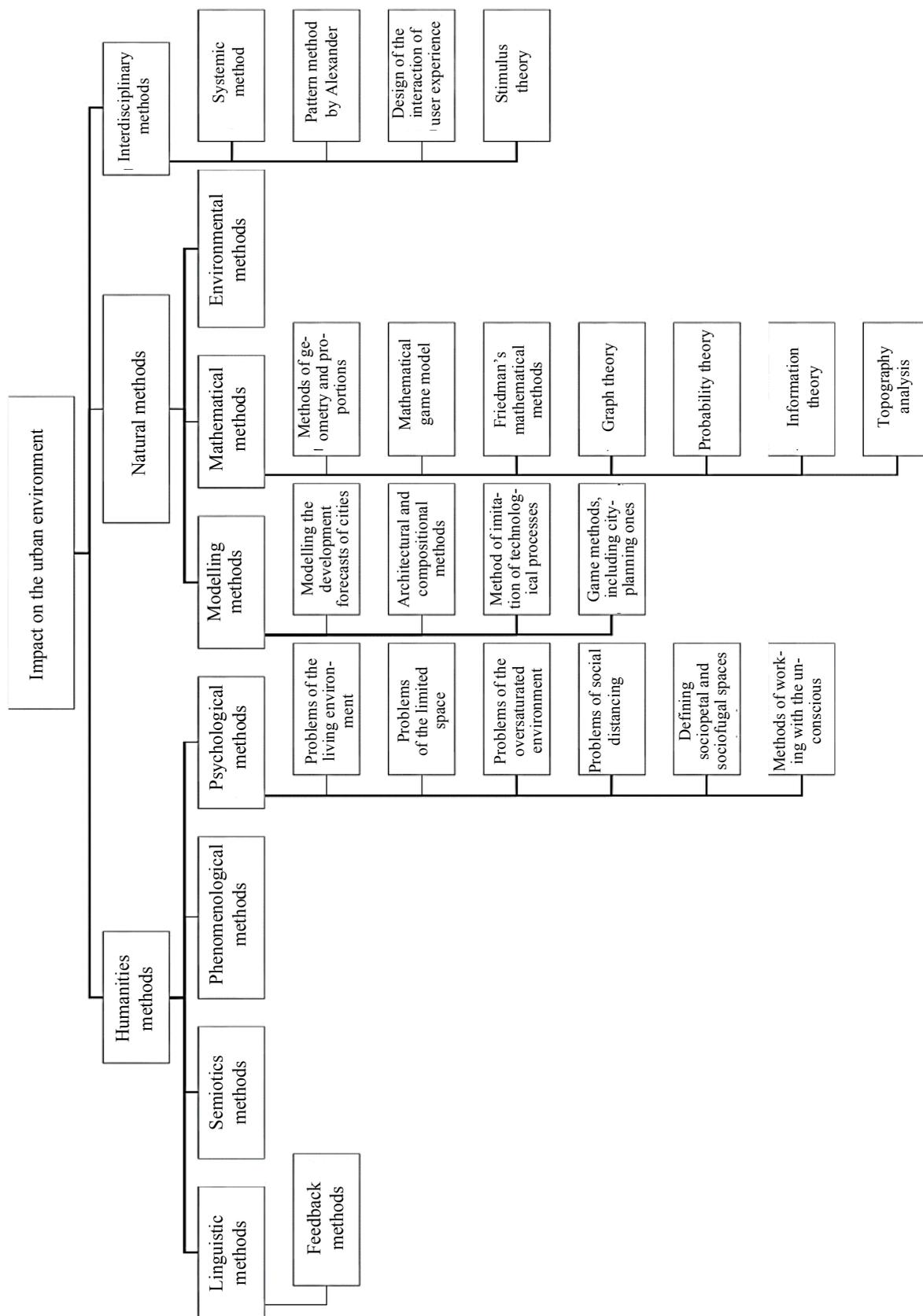


Fig. Tree of research methods and design of the urban environment

The following significant definition is related to the nature of knowledge and the type of rationalism: formalized (mathematical) knowledge and methods; intuitive and stochastic methods; celerational design strategies and value-based design strategies; modeling methods, including game, and methods of direct participation, etc.

In the process of their study, the methods of working with the environment were structured into a tree, which is the first sketch of systematization open to development (Fig.).

Any systematization is associated with assumptions and some coarsening of the material. There are also nuances in the systematization. E.g., game methods in models and in the co-organization of stakeholders are fundamentally different, which does not enable one to single out an independent block of game methods. Or, also, the rational "wing" of environmental research and development should include the works by Christopher Alexander (born in 1936) who became a "classic" of both the formalized design theory and its automation [25, 26], and strategies for project participation, architectural mythopoetics similar to environmental phenomenology. Iona Friedman also made use of mathematical methods in design, but he was also one of the pioneers and ardent supporters of the architecture of complicity (up to consultations on this issue by UNESCO). Being a supporter of a formalized approach to architectural activity, I. Friedman employs axiomatic set theories, topographic analysis, flat graph theories, information theory and probability theory, but immediately develops the so-called "self-design" method, i.e., custom construction of the project with remote support from the architect [29]. I. Friedman created futurological projects of horizontal cities hovering over Paris and other areas, which are rationalist and purely functional structures, but he did that in order to preserve the environment of historic cities and natural landscapes he had a great appreciation for. The history of environmental methods is not confined to these two original authors; paradoxes and contradictions, symbiosis and even eclecticism of methods are way too many. Hence the task of systematization is not a simple one, the work will be ongoing.

Conclusions. In the course of our study the effective and relevant to environmental values methods of designing and research of the urban environment have been identified for the first time. The methods of working with the urban environment have been grouped into an enlarged structure. It is shown that the use of specific methods is determined not only by the type of problem that needs to be addressed, but also by the individual characteristics of the performer and their equipment, hardware and tools.

There are currently a lot of methods of working with the urban environment (research, management and design). The variety of methods corresponds to the difference in the tasks set by

certain actors in the environment. Moreover, the methods of studying the urban environment, although they depend on the subject organization of sciences or types of knowledge but are commonly aimed at interdisciplinary understanding of the environment, the horizons of duty in its existence, and thus the boundary between research methods and design or management methods is not stark. In particular, the suggested design techniques help one to more efficiently tackle the tasks addressed in the study - such a "reverse" relationship between research and design is not uncommon in handling complex multi-subject objects, including the urban environment. This is one of the major outcomes of the study.

Another important conclusion is to abandon the search for the ideal method of environmental action as there is no universal and only correct methodology for both environmental research and project initiatives. On the contrary, every method, technique or method of action is valuable insofar as it corresponds to the specific qualities of the environment, i.e., insofar as it is individual. These conclusions are non-trivial and are central to the scientific and practical novelty of this work.

The development of modern and the emergence of new promising environmental practices can rely on the available variety of methods of interaction with environmental phenomena that are being currently developed in research and design and management approaches. This diversity is a kind of methodological and instrumental resource, as even the denial of a method known from a brief history of interaction with cities within the environmental paradigm has an evolutionary significance. However, the methods of urbanism, as well as providing research and findings, can and should be considered from the same viewpoint.

The development of new methods of interaction with the environment is occurring within the framework of the "new urban planning". The emergence of new synthetic knowledge and applied methodologies can be expected there, but not in traditional design occupations. Whether this conclusion means the loss of innovation resources and even design by the latter is challenging to say with a significant level of confidence. All we know is that the process of diversification of design practices is ongoing as is the process of compiling organizational forms of urban planning. Obviously, the nearest future will see significant changes in the issues addressed in the article.

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