

INDETERMINACY AS VALUE IN ARCHITECTURE

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ABSTRACT: The present socioeconomic instability indicates a growing need for architects to productively incorporate elements of uncertainty into the architectural design process. In such a climate, this paper problematises the conventional practice of designing for future users while determining all elements of programme and form during the design process, and instead argues for designing for the participation of future users and stakeholders by leaving certain elements open to interpretation, completion or change once the building is inhabited. Such an approach to design echoes the theoretical and practical considerations of a number of architects during the 1950s and 60s, who, in the face of the modernist paradigm crisis, saw potential in the application of various forms and levels of indeterminacy to architectural concepts to generate a new course for modern architecture, one that was rooted in an understanding of architecture as a dynamic and evolutionary process as opposed to finished form. Drawing on these theories, this paper explores the potential for their re-evaluation in the uncertain context of the twenty-first century. The relevance of indeterminacy as a design strategy in architecture today is considered firstly through a review of a growing current in contemporary design discourse explicating the value of this concept, before exploring its contemporary manifestations in architectural practice through an overview of several notable projects. In doing so, this paper aims to establish a renewed understanding of indeterminacy as a value in contemporary architecture.

KEY WORDS: Indeterminacy, user participation, design theory, adaptable architecture, architectural concept

Introduction

The social agenda of the modernist movement shifted the focus from the decorative function of architecture to its utilitarianism, with the aim of improving living conditions and the efficiency of fast-growing cities. Issues of form and aesthetics certainly remain a dominant concern of design, but in accordance with modernist goals, they followed function. With the rise of modernism, the increasing influence of the function of space on architectural design can be observed, and in designing how the building should be used, the architect influences the behaviour of future users (Redström, 2006). At the urban level, post-war city development plans throughout Europe were based on the orthodox application of the principles of the International Congresses of Modern Architecture (CIAM). The Functional City for modern society aimed to achieve healthier living conditions and economic construction with the application of modern technologies.

However, the Functional City and its buildings left little room for users to mark the space in which they lived. The design process, focused on achieving maximum functionality, created limited conditions of use. Users' behaviour is directed towards the intended use of spaces, imposing a solution on them to which they must adapt. For this reason, despite the humanist aims of modernism, problems arose when the intended use defined by the architect in the design phase and the actual use of spaces by the user in the use phase did not align. One of the most illustrative examples of this dichotomy is the infamous Pruitt Igoe housing complex, whose demolition less than 20 years after its construction drew attention to the need for considering more adaptable architectural solutions within the complex task of housing the multitude in rapidly developing cities in the second half of the 20th century (Maier, Fadel and Battisto, 2009). The extent to which architects should have control over matters of use became a relevant issue, along with whether the uncertain future can somehow be integrated into the design process. Potential answers to these questions were explored in the second half of the 20th century in the theory and practice of the 'generation of 1956' and their successors who introduced the broad notion of 'indeterminacy' into architectural discourse, which includes the flexibility, adaptability and polyvalence of architectural space. Drawing on these theories, this paper explores the potential for their re-evaluation in the uncertain context of the twenty-first century, with the aim of underlining indeterminacy as an important consideration in architecture today. The relevance of this concept is first discussed through an overview of contemporary design discourse dealing with this topic, and before exploring contemporary manifestations of this concept in architectural practice through an overview of several notable projects.

Indeterminacy in Architecture – Development of the Idea

The 1950s saw growing tensions between the original members of CIAM, who had had

a leading role in the formation and application of the principles of the Athens Charter, and a newer generation of architects — known as the generation of '56 — who aspired to redefine modernist theory. At the last CIAM meeting in 1959, projects that signalled the divergent directions of the further development of architecture ahead of the crisis of the modernist paradigm, towards structuralism, metabolism, regionalism and other “isms” were presented (Laurence, 2014). It was the architectural thought of this generation that gave rise to the notion of ‘indeterminacy’ in architecture, with the aim of developing evolutionary formal models, as opposed to the idea of architecture as a final art form (Van Rooyen and Bianchi, 2019). The “liberating” architecture of numerous architects of this generation — Aldo van Eyck, Herman Hertzberger, Lucien Kroll, Carlo Scarpa, etc. — who developed a vocabulary of polyvalent forms and spatial configurations with the aim of encouraging creative interpretation and “action” from the user was highlighted by Plummer (1987). Two years later, the possibility of users’ choice in the use of space became central to Cedric Price’s concept for the Fun Palace (Hughes, 2000, p. 23). Similarly, John Habraken proposed a radical participatory approach based on “supports” which are permanent, collective parts of the building defined by the architect and “infill” — variable elements defined by the user (Bonal and van den Heuvel, 2022).

The abovementioned developments represent only some of the theoretical considerations of architects during the 1950s and 1960s, but clearly indicate the myriad directions for the further development of architecture in the face of the modernist paradigm crisis. If the post-war task of building for a large number of inhabitants gave rise to maximally functional and economical solutions that were in turn criticised for their impersonal formal expression and limiting influence on user action, then during the fifties, this task turned into a question of incorporating user individuality and creative action in collective housing projects. The dominant directions in solving this issue steered towards the indeterminacy of the architectural design and the understanding of architecture as a dynamic and evolutionary process instead of finite form (Van Rooyen, 2018). However, it should be noted that many visions remained unrealised due to their radicalism and distinct utopian dimension (Koolhaas et al., 1995, p. 504), while other concepts, such as Habraken’s supports and infill, have proven to be feasible on a more modest scale. The potential for re-evaluating indeterminacy as an architectural design strategy in the uncertain context of the twenty-first century is explored in the following sections.

Indeterminacy in Contemporary Design Discourse

In contemporary design discourse, a shift from the form and function of objects as the subject of the design process to the unpredictable action of users, their changing needs and individual experiences, can be noted. In architecture, this transition has mainly been reflected in the popularisation of user participation in design. Since the 1970s, the

theoretical and practical considerations of the modes and degree of user participation have progressed from citizen involvement in the research phase of projects as passive subjects of expert “observation”, through participation in surveys and interviews, to more active forms of participation like decision-making in the design process and adaptation in the use phase (Sanders and Stappers, 2008). However, it should be noted that the conventional design process, even if it includes participation in the research phase, still implies creating for the future user. For this reason, a growing number of theorists advocate more direct forms of participation in the use phase of a building/object that are enabled by the designer deferring certain design decisions to users (Redström 2006, Storni 2013, Ehn 2008). This act of deferral integrates the notion of indeterminacy into the design of an object, creating a framework for further action. Such an approach to design is based on the understanding of architecture as an organic process defined by various actors over time, and shifts the focus of designers from designing *for* users to designing *for user participation*. Gaver, Beaver and Benford (2003) emphasise the advantages of incorporating ambiguity into design in the process of appropriation, because, preventing easy interpretations, such an approach requires the active participation of people in the creation of meaning, thereby strengthening the connection between people and objects.

However, today there is an even more urgent reason for considering the application of various modes and degrees of indeterminacy. As architecture is linked to the social, political and economic context (Đurašinović and Zeković, 2021), the instability of the current context will inevitably affect its development. Thus, a concept that arose from the expansive context of the 1950s and 1960s takes on a new meaning in the restrictive context of the 21st century. The consequences the 2008 financial crisis, for example, prompted the question of how architects can productively use uncertainty, published in the 85th edition of the journal OASE (Teerds, Havik and Patteeuw, 2011). Furthermore, the economic consequences of the pandemic and the growing political tensions of this decade indicate an even more recessive context for architecture — one that requires the flexible thinking of designers, and greater adaptability of architecture to changing environmental conditions. The following section considers the contemporary application of indeterminacy in the practice of architectural studios that take into account the influence of future users as well as the changing social context in their architectural designs.

Indeterminacy in Contemporary Architectural Practice

User participation is at the centre of the majority of projects by the Assemble collective, with the aim of empowering users, and building community and place attachment. These aims are the main drivers of the collective’s projects of co-making spaces, with specific challenges of variable site conditions. An analysis of these spaces

in London showed that the majority are located on short-term tenancy plots such as industrial sites that are affordable and suitable for experimentation, but prone to demolition and repurposing (Workshop East, 2015, p. 15). Assemble explored the potential of constructing a temporary maker space in London's rapidly changing industrial zones with the Yardhouse project, conceptualised as a modular prefabricated structure. Assemble's role in the design of the building was predominantly the structural definition of different zones, which the tenants then develop according to their needs. The possibility of personalising private workspaces contributes to creating an eclectic atmosphere in which different users coexist. Although this design decision limited Assemble's control over the aesthetics of the interior space, the architect's role was expanded into other fields – building management and event planning (Hall, 2016). With this and similar projects (e.g. Sugarhouse Studios, Blackhorse Workshop), Assemble demonstrates the possibility of extending architectural agency to the post-design stage, through participation in the operational activities of the building. This kind of cooperation between architects and users in the use phase allows the organic development and transformation of the programme and form of the space over time. Assemble's approach can be brought into relation with the principles of joint supports and individual infill initially established by Habraken half a century earlier, which allow for the transitional programme, configuration and aesthetics of a building. Additionally, the conception of the building as a disassemblable structure gives the life of the building a degree of independence from the changeable site conditions.

A different approach to indeterminacy is practiced by Lacaton & Vassal, who encourage freedom of use by providing "maximum space", which they consider a necessary prerequisite for the survival of spaces in a changing social context. Their buildings are characterised by the economical use of materials, which, along with a rational approach to designing the structure and partitions, enable the construction of a significantly larger space within the same budget as a smaller, more specialised space. In addition to the programme and square footage defined by the design brief, this excess space provides the possibility of the unfolding of an undefined programme without spatial limitations, thus encouraging user appropriation (Mayoral Moratilla, 2021). Lacaton & Vassal apply this strategy to numerous projects of different typologies, from residential (e.g. Maison Latapie) to educational (Nantes School of Architecture) and cultural buildings (FRAC Nord-Pas de Calais museum in Dunkirk). The concept of maximum space realised in these projects can be considered an extension of the principles laid out by Habraken or Hertzberger, but also the idea of maximum user freedom envisaged by Cedric Price.

The idea of spatial expansion with the aim of user appropriation is also central to several social housing projects by Elemental, realised through an approach defined

in their first project of this kind —Quinta Monroy. In the context of Iquique’s rapid urbanisation, Elemental was given the task of designing a settlement for the marginalised population that was already living in slums on the site. Given the limited budget of the project, Elemental made the decision to design “half” a house for each household, with the possibility of future expansion by the users integrated into the design. With this approach, the architects lay the foundation for the further development of the settlement, using their expertise to define the most important elements such as the urban plan, the building’s structure and all the necessary installations before giving creative control over to the user. The additional space allows the possibility of different scenarios of use, thus encouraging the process of appropriation within a provided framework and maintaining the urban and architectural qualities of the settlement defined by the architects (O’Brien and Carrasco, 2021).

The possibility of choice is also the driver of MVRDV’s concept for Silodam, a mixed-use building with the task of reconciling requirements for high-density housing with the need to express the individuality of different types of users. The solution proposed by MVRDV was a monumental building whose facade reflects the typological diversity of its interior as a testimony of the openness of the building for appropriation by various types of users (van den Heuvel, 2011). The solution was also derived from the requirement to wait with the realisation of the building in order to secure additional income, meaning MVRDV had the task of designing for the future, in the context of a fast-changing housing market. In addition to including as much typological diversity as possible into the concept, the apartments were arranged into blocks, with various possibilities for connection, to allow for possible changes in spatial requirements in the future (MVRDV, no date). By offering a large number of different programmes and housing types and stacking them into a compact container, MVRDV generates a concept with inexhaustible possibilities of combining different programmes and spatial configurations in the framework of a simple, generic volume.

Discussion

In order to overcome the problems of the Functional City that were becoming more and more apparent in the second half of the twentieth century, a need to consider a “new paradigm” in architecture arose. An analysis of the theoretical developments in architecture during the 1950s and 1960s reveals a significant current of architectural thought moving towards enabling user choice and encouraging user appropriation, completion or adaptation of buildings. Various forms and degrees of indeterminacy were considered as a viable strategy in architectural design in response to the dominant issues of the time.

An overview of the contemporary design discourse showed that the transition from the object to the unpredictable action of the user as the subject of the design process in architecture is part of a wider discursive shift that includes many different fields of design, from information technology to industrial design. Numerous theorists problematise the conventional participatory practice of determining all aspects of the design with potential users during the design phase, and see a possible solution in the indeterminacy of the design concept, leaving certain aspects for the user to complete during the use phase. Therefore, instead of creating *for* the future user, a growing current in architecture and design advocates for designing for the *participation* of the user, which can be realised through the indeterminacy of the design.

The selected projects from contemporary practice have shown conceptual similarities to the theoretical considerations of the generation of 1956. A particular link between the more “pragmatic” ideas of this generation and the contemporary examples presented can be noticed, which is in line with the current restrictive conditions for architectural design. The current socioeconomic context necessitates an architecture adaptable to various changes at the macro level, in addition to the changing needs of its users. Thus, with the Yardhouse project, Assemble simultaneously responds to the need for personalised workspaces and to changeable site conditions. In the context of the decreasing size of living spaces in cities, the rational approach of Lacaton & Vassal provides “excess” space, encouraging users to act creatively in defining it. Furthermore, Elemental developed an approach transforming limited funds into an architecture responsive to the changing developmental needs of a family as well as a tool for empowering users, while MVRDV tailors the concept for its Silodam project to the fast-changing housing market in addition to the different requirements of potential future users. The aforementioned examples also demonstrate the diversity of contexts, building types and scales to which elements of indeterminacy can be applied.

Conclusion

This paper has investigated the potential application of initial ideas about indeterminacy developed in the 1950s and 1960s in current architectural practice, through an analysis of contemporary design discourse explicating the value of this concept and architectural practices that integrate it into their projects. The purpose of the present paper was to contribute to a renewed understanding of indeterminacy as a valuable design strategy in architecture today amidst growing socioeconomic insecurities. The paper has demonstrated the relevance of this concept in the realisation of an architecture that supports change, encourages freedom of choice, and creates opportunity for the creative action of the user. It has also demonstrated the wide scope for the application of this concept, even in today’s recessive and volatile socioeconomic con-

text. Further research should include archival studies to identify and systematise the specific approaches developed during the twentieth century and case studies to investigate contemporary applications of this concept in more detail, and provide conceptual links between the two to identify the most viable strategies for contemporary application. By focusing on the restrictive financial context, the objective is to provide architectural practitioners the necessary knowledge to apply this concept in response to the volatile conditions in which they create today.

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