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Urban Crime and Pattern Conceptions: Departuring from Spatiality

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Abstract

Various conceptions of pattern from biology, computer science, and mathematics to environmental design, psychology, and sociology give rise to the multiplicity of definitions, descriptions, applications, scales, and common features of spatial patterns in urban environments. Considering the complex relations between spatiality and sociality in place theory, the study tends to explore a growing body of knowledge in conceptions of urban crime and pattern. Placing the investigations of urban crime in relation to sociality and spatiality, the paper advocates for departuring from spatiality that is the common ground between urban crime and pattern conceptions. Hence, dismissing both deterministic and free-will approaches to environmental design and addressing the urban crime as a complex city problem, the study argues that adopting a kind of spatial knowledge and possibilistic approach is critical for both understanding and transforming the city in order to investigate the issue of urban crime in relation to spatial patterns.

Keywords

1. Introduction

The idea of pattern has been largely articulated in various approaches to evolutionary transformations in generative processes in science and nature. Within the past decade, different scholars and academic trends have adopted various ranges of pattern descriptions, definitions, and articulations in design and urban studies in order to

provide a basis for understanding urban transformations, evolution processes, and morphological attributes of the city. Besides, different studies of urban crime have adopted various conceptions of crime from being merely a kind of social anomie to a kind of spatial disorder. Hence, diverse articulations of urban crime have led to different propositions of crime as a social, perceptual, and spatial phenomenon. Moreover, a review of literature indicates that criminology, environmental design, sociology, and environmental psychology are closely involved with the issue of crime in the city with relatively difference perspectives. However, these major academic disciplines tend to address and appropriate the complexity of problem with their own articulations and preconceptions of crime. Thus, the complex relations between spatiality and sociality are likely to be contested and challenged whenever the various approaches to urban crime tend to reduce the spatial-social relations of the problem. In this way, the paper includes two interrelated study of urban crime in terms of crime preventions through environmental design and fear of crime and conceptions of pattern and pattern languages. Furthermore, referring to the complexity of urban crime as one of the critical problems of the cities worldwide, the study addresses the relations between conceptions of urban crime, pattern, and pattern languages concerning the spatiality paradigm and sociality-spatiality relations.

2. Conceptions of Urban Crime

2.1. Urban Crime and Crime Prevention

Being referred to as an anomie that includes victim, offender, and situation [1], urban crime has significant economic impacts on society [2]. Moreover, crime is critically related to public health [3], sustainability [4]-[7], and place attachment [8] [9]. Crime prevention aims for decreasing and discouraging crime and fear of crime [10] in order to mitigate the possible forthcoming problems of new practices of designs [11]. Crime prevention through environmental design (CPTED) focuses on effective implementation of the built environment and design interventions in order to contribute to improve the quality of life, discourage the fear of crime (FOC), and decrease the crime rate [12]. Since the psychobiological and environmental impacts on behavior have been largely ignored in most of the studies on crime prevention [13], the idea of crime prevention can be rooted back to Jeffery [14] as it is firmly related to internal physical organism and external physical environment [15]. Crime prevention tends to identify and modify the social and environmental conditions in which specific opportunities mediate the possible occurrence of crime [16]. Moreover, while different conceptions of urban crime in sociology, psychology, and criminology have generally focused on socio-economic status, demographic profiling, and socio-cultural context of the city, the early environmental studies of urban crime were relatively preoccupied with deterministic articulations of crime in which sociality and behavioral patterns have been supposed to be entirely determined by spatiality and the built environment.

While the early trends and propositions in crime prevention through environmental design [17]-[19] have relatively adopt a deterministic conception of urban crime, further articulations of crime from 1980s as crime pattern theory [20]-[22], situational crime prevention [23] [24], rational choice and opportunity [25] [26], and routine activity [27] [28] have moderately adopted a possibilistic approach to urban crime. Thus, the first and second generations of crime prevention through environmental design are distinguishable from each other in terms of their underlying propositions towards the relations between human and built environment. In this way, while the first-generation studies of urban crime have generally advocated for a deterministic conception of crime in relation to the built environment, the second-generation studies of urban crime have relatively adopted a possibilistic approach towards the relations between crime and built environment. Whilst factors of the first generation are territoriality, access control, surveillance, image and maintenance, target hardening, and support activity, the second generation addresses socio-economic and demographic profiling, risk assessment, and community participation [2] [29]. Meanwhile, it has been denoted that the criteria of both first and second generations of crime prevention through environmental design have vague boundaries and poor spatial and diagrammatic representations [30] [31]. In other words, the proposed factors are not necessarily distinguishable in meaning, spatial structure, and physical representation.

2.2. Urban Crime and Fear of Crime

Fear of crime (FOC) has been largely ignored in the statistics of crime and police documentation of the reported crime occurrence [32]. Being addressed as a particular field of study in criminology [33] [34], fear of crime in-

dicates the anxiety towards the possible incidence of crime and the predictors that are closely related to crime by individuals [35]. Recent studies on the relations between fear of crime and victimization denote that there might not be essentially a direct relationship between victimization and fear of crime [36] [37]. Meanwhile, fear of crime and perceptual dimension of urban crime are different across age and time [38] [39]. Furthermore, it has been largely argued that mass media can also manipulate the fear of crime [40]-[43]. However, most of the studies on fear of crime have generally reduced the complex relations between the perceptual aspect of urban crime and the built environment.

3. Conceptions of Pattern

3.1. Pattern and Abstract-Concrete Relations

Pattern is likely to be considered as a solution to an existing problem in a given context [44] [45]. In other words, pattern is concerned with the interrelations between context, forces, and spatial structures [46]. However, patterns are naturally multidisciplinary [47] and structurally generative. Thus, patterns tend to diagnose and improve the existing condition by providing possible solutions for the problems [48]. Meanwhile, patterns should be in relation with an extensive range of the other patterns [48]. A pattern is likely to address and explore a repetitive problem in the built environment [49]. In this way, pattern as a wholeness [48] conveys DNA in living structures [50]. Thus, being placed between material and energy [51], a pattern tends to categorize and classify [52]. In other words, patterns are related to a combination of similar properties and features [53] and practical theories are likely to claim for predicting the future by generalizing patterns [54]. While patterns are neither objective nor subjective, they cannot be defined as merely abstract or concrete (**Figure 1**). Therefore, patterns are likely to be conceptualized between subjective-objective and abstract-concrete relations.

Patterns are extensively broad while forms and shapes are relatively limited [55]. In fact, patterns change through evolutionary processes [56]. Thus, reducing patterns to physical conditions, forms, and shapes ignores the process through which a pattern might change, transform, and evolve [51]. Moreover, processes are working through patterns [57] as the main idea [58]. It has been argued that patterns are likely to be repeatedly practiced regardless of technological and economic issues [59]. Meanwhile, perception of patterns is a mental process [60]. Researches have already indicated that kinds of repetitive patterns are pleasant for the mind [61]. In this way, complex patterns tend to increase pleasure [62]. Moreover, the process of pattern recognition, as one of the fundamental skills of the human being for survival [63], will be possible whenever the perceived pattern and mental schema are in consistency [64]. Thus, pattern recognition as a coherent whole is closely related to the perception of the real world [65]. It has been denoted that the key tool for extracting patterns is an explorative observation [63] [66]. Furthermore, there is a combinational approach to pattern theory that gives rise to the consideration of global and local structures [67]. Hence, while implementation of patterns is related to transcendence [68], patterns include an extensive range of values that are relatively hard to express [69].
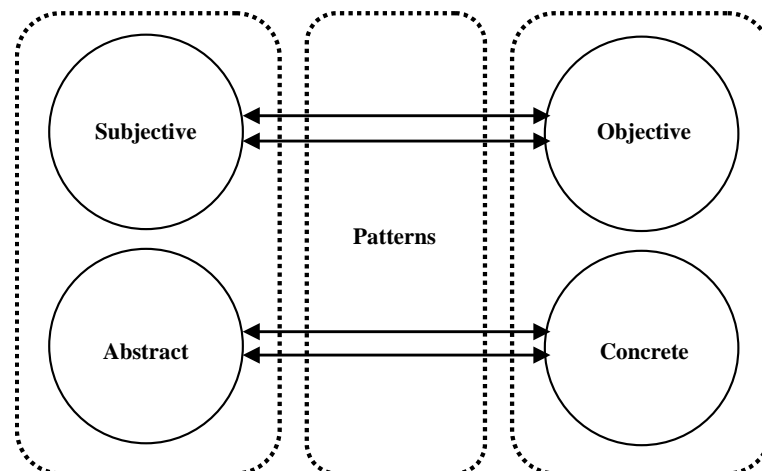

Figure 1. Patterns in between subjective-objective and abstract-concrete relations.

3.2. Patterns and Practices of Design

Patterns have been adopted in design process as a practical guidance [70], a diagram or an abstract [71], and a tool for describing and constructing [72]. Thus, patterns are a kind of abstract mental conceptions [73] from objective forms that are likely to be repetitive in specific contexts [74]. In other words, patterns are a kind of descriptive expression of different relations of a phenomenon that is adapted to the context [75]. In this way, a design pattern captures, defines, and specifies the key features of a design structure and made them applicable for further possible implementations [76]. However, a design pattern is reliant on its own condition, functionality, and applicability [77]. That is why a pattern is more concerned with the problem itself rather than solution [78]. It has been argued that patterns are closely related to design as an expression of identity [79]. Furthermore, rather than capturing the dynamic and stable structures of repetitive solutions in a particular context [80], patterns are likely to initiate a balance between various design forces [81]. Meanwhile, in relation with linguistic patterns, shape grammars are able to contribute to the generation and development of different design languages [78].

The concept of pattern has been largely adopted in architecture, urban design [82], planning, landscape [83], and design practices in the last decades with different articulations. Similarly, pattern has been referred to as a kind of configuration [84], fundamental properties of a spatial design [50], a kind of order [85], repetitive solution [86], systems archetypes and generic structures [87], and a perceptual structure containing model, form, and design [88]. However, long before mathematicians explored the patterns, artists have had a sophisticated understanding of the generic principles for developing patterns [89]. Meanwhile, it has been noted that patterns can be interpreted from biology and implemented in architecture [90]. Thus, a pattern as a reasonable response to needs is actually able to encourage life in different systems and environments [48]. Furthermore, It has been argued that the origin of patterns as architectural solutions and design-level suggestions can be traced back to vernacular settlements and traditional architecture [91]-[96] in which patterns are likely to generate, evolve, and transform through a combinational process of discovery and invention.

3.3. Patterns and Pattern Languages

Criticizing the process of housing production [97] and extracting contextual and structural patterns from traditional and vernacular settlements, Christopher Alexander advocates for generating "a pattern language", as a kind of network-like spatial and diagrammatic knowledge, in order to consider the real needs and behaviors of the inhabitants in the process and practices of participatory and consensus design [98]-[100]. Consequently, these works have had considerable impacts on the formation of "space syntax" approach [101] [102] in architecture and urban design [50]. In this way, it has been argued that pattern is a kind of natural "rule" that gives rise to the relations between a problem and a solution in a context (**Figure 2**) in order to contribute to the process of possible generation of living structures [46] [103]. In fact, a pattern is likely to emerge in different shapes and types [46].

Pattern languages as systems contain various patterns and connection networks [104] in different scales [86]. In other words, a pattern language can be conceptualized as a network of patterns [105] including a system of connected patterns [45]. Pattern languages are generally based on previous experiences [91], the real needs, and desires of the ordinary people rather than elitist visions of the professionals. Moreover, it has been noted that the
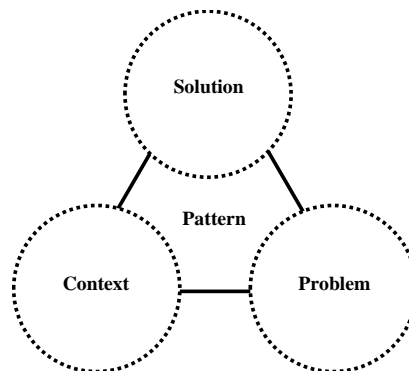

Figure 2. A model of pattern based on Alexander [46] in relation to problem, solution, and context.

generation and formation of a living environment is highly dependent on dwellers and inhabitants rather than architects and designers [106]. Thus, pattern languages are coherent wholes consist of the interrelated patterns [107]. Generating a system [44], a pattern language tends to address the fundamental challenges of architectu-reexplicitly [48]. Meanwhile, implantation of spatial patterns and pattern languages can contribute to the process of group work and collaboration [108] [109] and facilitate the practices of multidisciplinary design [48]. In this way, a pattern language includes a structure of connection network [98] that might contribute to the generation of wholeness if it would be morphologically and functionally perfect [46]. Meanwhile, this network is not a hie-rarchic structure that has been pre-imposed by a tree-like thought [110]. Thus, pattern languages can holistically [48] contribute to the generation of complex systems. Furthermore, pattern languages can be evaluated based on their internal and external validity [111].

4. Urban Crime and Patterns: A Common Ground

Urban crime has largely been addressed with different approaches to the conception of crime and its main initia-tives. However, the growing body of knowledge in the studies of urban crime refers to the social and spatial as-pects of the problem in the cities worldwide. While different approaches to the issue of crime can be categorized in two broad ranges of sociality and spatiality, it is possible to denote that urban crime cannot be thoroughly ex-plored in the absence of either social constructs or spatial features. Besides, considering the relations between sociality and spatiality in the city, it has been critically argued that the practices of design and interventions in the built environment need to be based on "design-level" theories in which the spatiality is likely to be consi-dered as a departure point [112]. However, it does not necessarily mean that the spatial interventions can be simply reduced to the provision and implementation of some generic, typical, and taken-for-granted guidelines through which most of the social aspects of crime are deterministically reduced, arbitrarily dismissed, and expli-citly or implicitly ignored without context sensitivity.

On the other hand, while both determinism and free-will approaches in environmental design cannot effec-tively address the multiplicity of the city problems, it is not reasonably possible to advocate for adopting a kind of narrow-minded determinism in which designers are generally considered as the elites who have an unlimited power to determine the social outcomes of the spatial modifications. As it has been insightfully argued, city problems are structurally a kind of "organized complexity" [18] and "semi-lattice" [110] that cannot simply be treated through adopting a rigidly hierarchic "tree-like" way of thinking. However, some of the spatial patterns outlined in Alexander, *et al.* [98] have a deterministic approach and some of them cannot be implemented to-gether in a same context. Thus, there is a possibilistic relation between urban crime and built environment [113]. In this way, adopting probabilistic and possibilistic approaches rather than deterministic and free-will ones (**Figure 3**), patterns and pattern languages are closely related to the process of decision-making, design-level
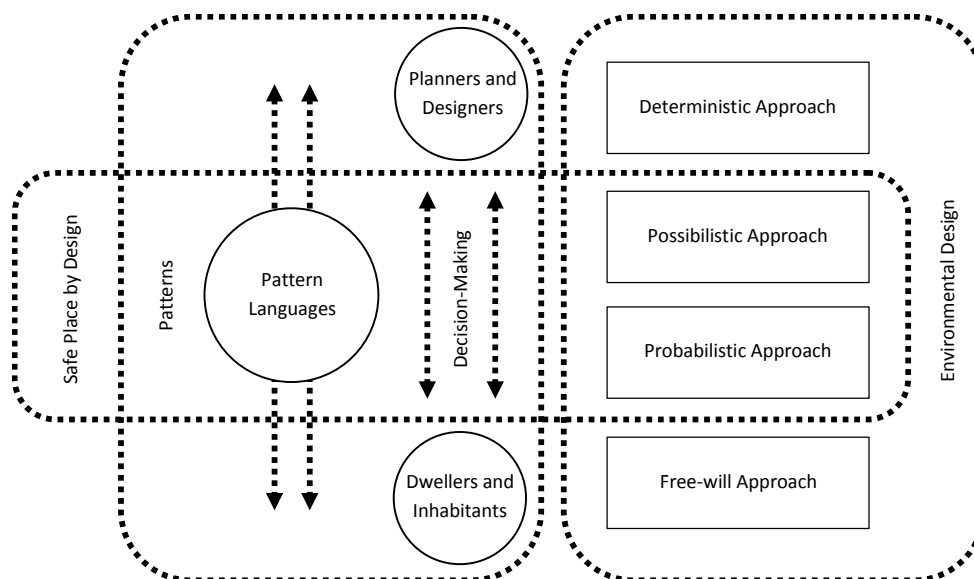

Figure 3. Urban crime and patterns in relation to Lang [114] approaches to environmental design.

modifications, and evidence-based interventions in the built environments.

Furthermore, the issue of urban crime is multidimensional. That is why any desire for a safe place incorporates functional, morphological, perceptual, and social dimensions of the urban environments. Moreover, it has been denoted that the criteria of crime prevention through environmental design (CPTED) cannot simply be limited to the physicality of the urban environments because almost all of them encompass various dimensions of urban design [115]. Meanwhile, the complexity of city problems gives rise to the need for conducting holistic, multi-scalar, multidimensional, and multidisciplinary studies of urban crime in relation to the built environment [116]. Hence, the need for "design-level" theories in relation to spatiality and sociality [112] advocates for the analysis of spatial patterns in urban design level [117] [118] within the spatiality paradigm in which spatiality is the departure point [112] and the relations between urban crime and built environment is neither deterministic nor free-will. In the same vein, the study denotes that the spatial patterns intended to mitigate the possibility of urban crime in public places and urban spaces would be better to contribute effectively to urbanity in general and urban life in particular. Otherwise, these patterns might lead to segregation and social exclusion in urban environments. Meanwhile, since both observation and reflection are actively involved in the generation process of patterns, it should be noted that relying merely on invention in the absence of discovery and explanatory observation might bring the unintended consequences of imposing abstract and subjective conceptions of pattern as a kind of determinism to the real practices of everyday life in the city.

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