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Identification of Environmental Design Methods and Techniques for Preventing Vandalism

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Abstract

Vandalism as a concept in the field of architecture means 'conscious and constant destruction of public property'. Nowadays, this social deviancy is regarded as a complicated problem and a serious threat in many cities all around the world. Many methods and tools have been used in urban areas to prevent the occurrence of such vandalism. The main purpose of this paper is to introduce and distinguish this concept and investigate methods and techniques used in environmental and urban design, focusing on normative theory of environmental design. This theory aims to discover the most crucial aspects of quality that lead to forming resistant and stable spaces against vandalism. The findings of this paper show that the quality of elements such as 'security', 'comfort', 'richness', and 'control' are considered to be the most important criteria for evaluating vandalism in urban spaces. For preventing this environmental destruction in public spaces, we can cite certain factors such creating defensible spaces, crime prevention through environmental design (CPTED), improving the appearance of the environment, and enhancing the sense of public ownership and cooperation. Applying all these approaches in urban spaces leads to bringing a sense of affiliation to users of these spaces; in such a situation, a person feels a sense of belonging, duty, and ownership of the environment.

Keywords: vandalism, environmental design, environmental quality, design criteria, normative theory.

بازشناسی روشها و شیوه های طراحی محیطی برای پیشگیری از تخریب گرایي فضا

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چکیده

«تخریب گرایي» یا وندالیسم به معنای تخریب اموال عمومی در سطح شهر، نوعی پدیده بیمارگونه می باشد. این پدیده در سطح جوامع بشری از رشدی شتابان برخوردار گردیده است و برخورد با آن از جهات متفاوتی امکان پذیر می باشد. دانش های طراحی محیطی و طراحی شهری با رویکرد طراحی مجدد عرصه های همگانی و ارتقاء کیفیات محیطی در آنها به عنوان دانش های کلیدی در حل این معضل مطرح هستند. هدف از نوشتار حاضر، شناخت مفهوم تخریب گرایي و تعیین مهمترین کیفیات هنجاری محیطی وابسته به آن است. روش تحقیق بر مبنای «تحلیل محتوای» ادبیات طراحی محیطی و طراحی شهری و علوم مرتبط همچون روانشناسی و جامعه شناسی محیطی، استوار است. در این ارتباط برخی مشاهدات محیطی در شرایط ایران و در جهت کشف و بازشناسی مظاهر وقوع تخریب گرایي صورت پذیرفته است تا بدین ترتیب نتایج عینی و ملموس قابل استخراج باشد. یافته های این نوشتار بر این امر دلالت می نماید که فلسفه استفاده از طراحی برای کاهش تخریب گرایي، کاهش فرصت ها و قابلیت ها برای وقوع جرم است. شیوه ها و ابزارهایی همچون: «طراحی فضاهای قابل دفاع»، «طراحی محیطی برای جلوگیری از تخریب گرایي»، «ایجاد حس تعلق خاطر از طریق مالکیت، مشارکت و مسئولیت در فضا» و «مجموعه اقداماتی که منجر به زیاسازی محیط و فضای شهری» می شوند، می توانند به میزان قابل توجهی مانع از بروز این پدیده در سطح شهر و فضاهای همگانی آن شوند.

واژگان کلیدی: تخریب گرایي، طراحی محیطی، کیفیت محیطی، معیار طراحی، تئوری هنجاری.

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Introduction

Vandalism, which means destruction of the public property in a city, is an awkward phenomenon. This phenomenon has reached a dramatic growth in human society and the ways in which we can confront differ according to the perspective that we choose. Those sciences pertinent to environmental and urban design that have some approach towards redesigning public spaces and promoting environmental qualities are considered as fundamental ones in dealing with these contemporary issues. The aim of this paper is recognition of the concept of vandalism and the identification of the most important strategies in environmental and urban design that can prevent vandalism with a view to urban spaces. Although cultural strategies represent one of the most important aspects of recognizing and dealing with this phenomenon, these are not the subject under discussion here.

The method employed in this research is based on the 'content analysis' of urban and environmental design and other related sciences such as environmental psychology and sociology. Concerning what has been said, some environmental observations have been made to discover and identify the reasons for and causes of vandalism. Through this means, it is possible to extract the tangible and real results. The structure of this research based on the aforementioned method is, first, identifying the causes of and reasons for vandalism and its reflection in the city. In later stages, what is discussed and analyzed is the most important qualitative criterion in analyzing vandalism and its impact on the city. Finally with regard to the specification of these criteria, the most important methods and techniques (strategies) are explained designed to increase space quality and aiming to prevent environmental destruction.

Normative Theory of Environmental Design

The science of environmental design in general and the purpose of urban design in particular are to try to meet the needs of the environment and to promote the

quality of the natural and human-made environment. Accordingly, Environmental and urban design are a kind of science and profession through which we can identify the quality of an environmental structure and attempt to find a solution for its management and organization. The Society of Urban Designers in Australia has provided a comprehensive definition of environmental design. According to this, "Environmental Design is an organized and creative way which its purpose is being effective and responsive towards the dynamic changes in cities and other urban areas. Architectures and urban designers, through formulating different patterns and policies, try to meet the social, economic, cultural, and environmental needs of societies" (Government of South Australia, 2002). A good understanding of these changes and then trying to find an appropriate response needs deep insight into the nature of human societies. Therefore, environmental designers (urban designers, urban planners, landscape architects) should find the means and the norms within the environment that lead them towards the desired result. Some theoreticians have proposed such theories as normative theory, procedural theory, positive theory and rationalist theory for this purpose. Given that the current paper is focused on the evaluation and identification of qualitative norms of urban design, we have specifically chosen the normative theories of environmental design.

Normative theories of environmental design are those theories that, while emphasizing understanding of the global mechanism, try to turn their focus on distinguishing good from bad, true from false, and appropriate from inappropriate. These theories deal with designers' philosophical stances regarding the relative importance of different architectural challenges and the mechanism which is needed for fulfilling them. The main approach of the normative theory of environmental design is to answer to this fundamental question "which qualities contribute to a good environmental design and which things contribute to a good process in an environmental

design? And if these are in contrast to each other how it is possible to resolve the conflict?" (Golkar, 1999).

Lynch (2002) has prescribed seven criteria — vitality, meaning, fitness, accessibility, surveillance, efficiency and justice — for achieving an optimal form of a city. Therefore, the aforementioned theory from typological standpoint is considered as a normative theory of environmental design since, in this book Lynch, when noting the characteristics pertinent to the 'appropriateness' of a phenomenon, talks about good city form. Among other normative theories, we can mention the New Theory of Urban Design proposed by Alexander (1987). He set out seven rules and some basic stages for achieving "wholeness in an artificial environment". Furthermore, in proposing this theory Alexander attempts to point out the principles and characteristics required for achieving that special quality known as "wholeness" in the environment.

The tools for describing and analyzing normative theory are the norms and criteria used for describing environmental quality. The process of analyzing and finding a relevant answer to the qualitative criterion of environmental design is such that, at first, environmental design works on recognizing a set of components that are considered as environmental qualities — such as image, scape, function and eco-environment — and measures which denote the concept of environmental quality or the structure of environmental quality, like vitality, security, permeability etc. After that, it tries to discover the relationship between society's needs and the criterion of environmental quality through analyzing these factors. Later, the relationship between society's needs and criteria of environmental quality is analyzed through factor analysis. In the end, the patterns of human-made spaces are separately defined and designed and these are considered as models of ordered spaces with optimal environmental quality.

Concept of vandalism

In order to understand the meaning and the concept of vandalism, we must refer to the English language,

since this term was first introduced professionally through this language into the literature specific to environmental science and, later on, it entered the field of environmental and urban design in Iran. Lexically, vandalism refers in English to "destruction of public places and properties in the city" (Longman, 2003). From an etymological standpoint, this term derives from the word "vandal" which was the name of a Germanic tribe of the 5th century AD occupying Slavic lands between the Ordu and Vistula Rivers. They were cruel and savage warriors who attacked and ravaged many different lands surrounding them, destroying and vandalizing the lands and regions they occupied. Their wilful and vandalistic character is the reason why in pathological discussions the term vandal is used to refer to all those malicious behaviors which tend deliberately to destroy public or private property and art. Moreover, having an animosity towards science, industry, and civilization is also related to vandalism and its concept in the discussed field. (Cowan, 2005). In the Persian dictionary (Dehkoda, 1998) the term is used as an equivalent to "vandalism" in English and is defined as, "Destroying and ruining". Reviewing the term vandalism both terminologically and etymologically, then, we can define this term as "violence towards and the destruction of public and personal property in the city".

The causes of vandalism

A review and content analysis of the existing literature in the environmental sciences, taken from of environmental design, environmental psychology and sociology, attempts to take into account the nature and the causes of the occurrence of urban vandalism. Moreover, it deals with extracting the most important causes of vandalism occurring in the city. These causes are categorized into internal and external ones. Internal causes refer to inherent characteristics of the objects and urban spaces and also to the internal and individual characteristics of the people. On the other hand, external characteristics refer to environmental

and social factors that play a key role in bringing about the desire for vandalism.

Some scholars who emphasize the role of social factors in the environment say that vandalism is the reaction of people towards the environment because of their dissatisfaction towards the place they live in. It also represents a kind of crisis in social interactions, through which the lack of belonging is expressed towards the spaces. It should be mentioned that vandalism is an antisocial behavior. In a similar manner, some have emphasized the lack of sense of belonging towards public properties as a result of which vandalism is an epidemic phenomenon that has crept into many city environments. The most important reason for vandalism occurring is that people do not have any sense of ownership towards public property (Moradi, 2002). Hirshi, one of the pioneers in social control theory has considered vandalism as similar to other forms of crime which is caused by lack of social control and observation. He believes that, when the social control decreases, social unity will consequently diminish. Therefore, this leads to a decrease in the power that brings unity in the society. As a result, the ability to prevent social crimes will be weakened and the possibility of social misbehavior will escalate (Turvey, 2005).

Some researches note the presence of vandals among groups of criminals and they believe that group pressure and group objectives are the factors that may lead to criminal behavior. In other words, vandals often act as a gang to destroy public properties. Therefore, it is group objectives not individual ones that are the inherent factors in these kinds of behavior. Freud, in his theory of psychoanalysis when talking about the source and nature of behavior and the psychological roots in misbehavior occurring, has mentioned the factors which may be the cause of vandalism and violence. He believed that if a person has not reached his natural acceptance in society in childhood, a kind of imperfect personality will be constructed and behavioral standards and moral consciousness will not be developed and, as a result,

such a person will not have the appropriate behavior and will behave violently and uncontrollably in society. Therefore, Freud places an emphasis on the role of the family and environment in the occurrence of vandalism in the city.

Some investigators believe that numerous and various factors are involved in bringing about vandalism in the society. For instance, they have referred to “failure in social and family relationship”, “family factors”, “gender and age”, imitating other criminals’ ‘feeling as a stranger in the environmental conditions”, “family factors”, “excitement and excursion for the young people”, “alienation towards self, nature, and other fellow creatures”, “deficiency in public properties and facilities”, and “snowball phenomenon”. Turvey in his book on criminal profiling does not regard vandalism as a momentary criminal intention, but he places the emphasis on a set of environmental behaviors and factors that act as prerequisites for vandalism occurring in the city (Turvey, 2005). In his book on vandalism: behavior and motivation, Leboyer also mentions that the destructive behavior of vandals is the result of a special and stimulating relationship with the environment (Leboyer, 1984).

Weinmayer (2002) considers vandalism to be the result of the inappropriate and unfitting design of city spaces. He says that “designers are the real destroyers in the society. A careless and low quality design and planning is an agent in the growth of vandalism”. However, the current evidence is not in favor of Weinmayer, because there are places and spaces with appropriate and secure designs which did not end to satisfactory results. But the significance of this theory lies in its special attention to the status of environmental design and promoting environmental qualities in relation to anti-destructive norms in the city. Some psychologists consider vandalism as a kind of aggression in behavior for which there is no special reason for its emergence, or that it is an expected response resulting from social dysfunctions and cultural obstacles; it is a kind of complex and lack of respect resulting from a failure to fulfill dreams and goals.

Reflection of vandalism

Vandalism appears in the city in various forms. Those behaviors which are a conscious destruction of properties are manifested in different forms such as: graffiti or writing on the wall; throwing rubbish in inappropriate places; breaking glass, transparent and soft surfaces; using explosive and flammable materials; ruining or damaging green spaces; damaging furniture; selling drugs; and violating women and the emergence of sexual deviations in society.

Destruction or vandalism may happen in both the private and public dimensions of society. While the area of environmental design promotes the quality of life in public and open spaces, what is under examination is investigating and identifying the urban spaces that result from this norm in the city. Based on environmental observation and revision of some of Internet information and evidence, we have made a list of certain spaces followed by vandalistic behaviors that may happen in that context.

Table 1- checklist of important spaces prone to vandalism.

Vandalistic behavior	Spaces prone to vandalism
<p>Floor/ground: Writing on the floor, leaving rubbish, damaging soft surfaces like grass, putting obstacles and object midway especially in the way of passer bys, damaging herbal coverage.</p> <p>Body: Writing on the wall, breaking glass and soft and transparent surfaces, breaking shop doors, and using explosive and flammable materials.</p> <p>Urban Furniture: Breaking ornamental lights, damaging trees, post boxes, public telephones, uprooting bars, damaging recreational equipment, advertising posters and traffic signs, benches, statues, bus shelters, and public toilets.</p>	<ul style="list-style-type: none"> • Places which are out of sight • Dark places at night • Lost spaces • Open and deserted spaces • Green and spotless spaces • City spaces which brings the possibility of escaping • Places which attract a special class of people • Places which make others feel envy • Places which are empty of people

Figures one to three below show examples of vandalism in city spaces.



Figure- Writing on the wall, Ahmad Abad, Mashhad



Figure 2 - Damaging public furniture.



Figure 3 – Graffiti.

Qualitative Criteria for Evaluating Vandalism within Space

According to the results of research projects conducted by theoreticians and scholars in environmental and urban design, it is possible to build some vandal-free or anti-vandal spaces through injecting some of the quality norms to the area in question. These researches have been generally concerned with ‘vandalism in the environment’ as a process of studying the needs and conditions of an immune and peaceful life and the

occurrence of anti-social norms (Newman, 1972; Bentley *et al.*, 1996; Francis, 1989; Kaplan, 1987; Lang, 1987). According to the result of these complementary researchers, one can relate vandalism to concepts such as comfort, safety, richness, and surveillance. Any decrease in the intensity of these qualities will leave more space available for vandalism to occur. As Newman the theoretician of defensible space states, social damages generally tend to happen in places that are potentially ready to be damaged (Newman, 1972).

Comfort is one the primary needs of human beings and with which they would be deprived of their other legitimate rights in the public space. Some of the aspects of comfort in urban spaces are: aesthetic considerations such as rain, intense sunlight and strong winds; a place for sitting; and physical and mental security.

Security as a primary prerequisite in all spaces and, as such, has received much attention. Based on the research conducted by Francis, the sense of security is a prerequisite for using any kind of space (Abaszadegan, 2003). Lang has proposed a model for the quality of urban design. In this model, he mentions the need for security (as one of the six quality needs) including factors such as needs related to being safe from dangers and contamination, possessing a private zone, and considering the issue of nobility (Lang, 1961). He believes that these needs will be met through a proper response to the quality norms of surveillance and protection of space and the penetrability, accessibility and flexibility of space. In this regard, the British Commission of Architecture and Artificial Environment in its book on design considers the sense of safety and security in urban spaces and streets as a factor that is highly affected by the presence of surveillance in urban spaces (Commission for Architecture, 2003).

According to the definition given by Bentley *et al.* in their book on responsive environments, *richness* is the quality generated through perceptual experience gained from the environment that lets inhabitants to enjoy their surrounding space. This quality is related to some senses in human beings such as displacement, smell, hearing and touch. Hence, ignoring any of these senses in urban public areas would lead to dissatisfaction and losing the sense of belonging to the space where the inhabitants live.

The role of *surveillance* or 'control' in preventing possible vandalism in the space cannot be ignored. When there is no rational or reasonable public surveillance in urban places, the situation would be ripe for the emergence of vandalism. Jane Jacobs, in a

different sense, refers to surveillance as "watching the street". "A street which does not transfer the sense of participation and social interaction to the pedestrian is more likely to make the situation ready for vandalism compared to a street which reflects the sense of unity and social supervision" (Jacobs, 1961). Francis believes that control is a quality that increases the sense of belonging towards the space, stating that control means an individual's or a group's ability to access, equip, affect, achieve ownership of and give meaning to a public space (Francis, 1989). Lynch believes that control or surveillance is a very important quality in open public places. He believes that presence or lack of control could have serious consequences that may affect the amount of anxiety, satisfaction, and pride. Lynch has identified five separate types of control: presence, utilization and activity, possession, conformity, and resignation. Based on this, the British Society of Architecture and Artificial Environment, has defined surveillance as "discouraging or preventing others from doing improper deeds through the presence of pedestrians or the possibility of being seen from the neighbouring windows" (Commission of Architecture, 2003).

From Thompson's point of view, *ecology* is one of the effective elements in landscape. Before many other experts, Garrett Eckbo paid attention to the key role of ecology in a healthy environment. He believes that the public needs designs to be ecologically responsive (Eckbo, 1998:17). Although paying attention to ecological criteria in order to preserve the environment and prevent its destruction through considering factors such as biodiversity, water quality, diversity of plant species etc. isn't our main focus, some of the strategies for inhibiting ecological and environmental vandalism are attributable to these factors.

Methods of Urban/environmental Design

To deal with vandalism and to decrease its destructive effects on the environment, in addition to knowledge about its social and cultural texture and the

identification of its psychological roots, one also needs to apply certain tools and methods. These methods should be efficient enough to be able to prevent vandalism. The philosophy behind the use of design in preventing vandalism is to decrease the opportunities and capacities for crimes to happen. In a previous section of this paper concerning the theory of normative environmental design, the most important environmental qualities which affected the impacts of vandalism on space were reviewed. The aim of this section is to represent the methods by which environmental qualities are able to fulfill their role in preventing vandalism.

Designing Defensible Spaces

The idea of 'defensible spaces' was first introduced by Newman (1972) in his book on creating defensible space about 30 years ago. He believed that indefensible spaces which have lost the quality of defensibility are those spaces which are not possessed or protected by anyone. These spaces are not easily visible and so they are convenient for different types of illegal and out-of-norm activities to happen. He believed that a decrease in their 'reveal' and readability as well as visual disconnection lead to this situation. In contrast, defensible spaces are those public and semi-public spaces that are capable of being seen, bordered, and maintained by people (Commission for Architecture: 2003, 89). The most important quality in the formation of defensible spaces is 'reveal'. If the reveal of a space decreases, the possibility of committing crimes will increase. Newman mentions a series of actions to increase defensibility in residential areas and the spaces between them which are: changing the form of a space; increasing the lamination and reveal; removing indented spaces or L-shapes by limiting them; using indefensible spaces optimally and predicting their new and special applications; avoiding the design of impenetrable spaces; using different kinds of applications; creating the possibility of the presence of groups from different social class statuses; preventing

the construction of empty and isolated spaces for youth; and changing the application of neighboring half-constructed buildings (Newman, 1996).

Crime Prevention through Environmental Design (CPTED)

The theory of preventing crime by using environmental design (CPTED) first was introduced by Jeffrey in 1971. One year later, Newman published his book on defensible spaces and preventing crime by urban design. Jeffrey's model seemed to be more complete from various different aspects. His theory had a multi-faceted approach towards the issue while Newman had only included physical aspects in his model. Jeffrey's model is based on the idea that a proper and effective design for an artificial environment can promote security and decrease the frequency of crime. He proposed four main principles: natural surveillance in space, controlling access to space, limiting the space, and protection and management of space. These four principles could lead to different strategies for design and planning in order to increase security. The strategies mentioned by Jeffrey are as follows.

- 1) Providing light and appropriate and attractive lamination.
 - 2) Decreasing the number of hidden places to the least possible.
 - 3) Avoiding the creation of closed-off places and dead ends.
 - 4) Create mixed uses.
 - 5) Lively and active uses of space.
 - 6) Creating signs in the space.
 - 7) Creating the sense of ownership of the space by proper protection and management.
 - 8) Increasing the quality of the environment.
- (Government of South Australia, 2002)

Beautification of Space

Beautification can be used as an effective way of dealing with vandalism. In this regard, Clark states that the beauty of space prevents vandals from

damaging the environment. Beauty is convincing in its own sense (Cited in Goldstein, 1996: 116). Among the suggestions given by a number of design experts and psychologists concerning ways of dealing with vandalism, there are some points to be made about beautification as follows. First, use cases that are beautiful -experiments show that the damage will be trivial. The materials used do not necessarily need to be of a high quality; the only important point is that they are replicating materials that do not look new anymore. This will play with the consumption-oriented nature of most vandals' minds. Any kind of vandalism should be restored as soon as possible so that the possibility of further vandalism decreases (Goldstein, 1996: 256). The most important points in beautification are as follows.

- 1) Using beautiful and quality materials.
- 2) Paying attention to the aesthetic sense of citizens in order to make them like their city.
- 3) Special attention to maintaining the beauty and cleanness of the urban space.
- 4) Proper use of vast wall plates to create landscape and for the beautification of space.
- 5) Creating order in space by the use of geometry of the ground and body.

Intensifying participation, possession and responsibility in space

Alexander believes that the real home is where, in addition to the sense of possession, one experiences the feeling of participation with others (Yarahmadi, 1378: 198). He introduces the concept of a 'common language of design', stating that the common language of design prepares the people, in any profession or position, to participate in order to recover the process of organic order in the society and convert it to a zone of security and facilities as it was before (Yarahmadi, 1378: 253). The participation of people in the design process of an urban space could reveal the hidden meanings in the space and informed design of the environment makes these meanings clearer and, consequently, the relationship with space would be

amplified (Abaszadegan, 1382: 18). In the urban design compendium, Davis refers to design based on a sense of possession and public participation as one of the three main principles of security in space. He states that when people feel that public spaces are theirs, they will feel a responsibility to protect them. Public spaces could be designed in such a way that it amplifies the sense of possession, mutual defense and sense of ownership. There are numerous examples that demonstrate that an intelligent combination of a proper design, good management and public participation have a powerful effect on the creation of greater immunity along with decreasing vandalism and the risk and fear of crime and violence (Davis, 2000: 92).

Therefore if the sense of participation and, consequently, the sense of responsibility are increased in space, the inhabitants will consider the space as being theirs and avoid vandalism as far as possible.

Conclusion

Vandalism is as old as urbanism. Although it was not previously considered to be of any great importance now, in big cities, the direct (material) and indirect (sense of insecurity, visual pollution) effects on the quality of environment and urban life can no longer be ignored. Dealing with vandalism, one should be equipped with an updated knowledge of management in environmental design and, particularly, urban design so that it would be possible to overcome the problems and difficulties in different areas in urban societies and particularly metropolises. Moreover, one needs to have the knowledge and skills available in order to eradicate vandalism before any other compulsory or imperative action would be needed.

According to the findings of this paper, qualities such as 'security', 'comfort', 'richness', and 'surveillance' are key environmental features. Promoting these qualities leads to the creation of sustainable spaces that are resistant to vandalism. The philosophy behind using design to reduce vandalism is to decrease the opportunities and capacities for crimes to happen. Methods and tools such as 'designing

defensible spaces', 'environmental design for preventing vandalism', 'creating the sense of affiliation through possession, participation, and responsibility in space', and 'a set of action in order to beautify the urban spaces and environments' could all be used to prevent vandalism effectively across cities and public places.

As the most important outcome of this paper, it is clear that it is necessary to conduct further research and investigate all factors and criteria for the evaluation of environmental qualities related to vandalism in public spaces and, ultimately, to extract specific principles, conclusions and guidelines for application. Additionally, further research particularly conducting relevant case studies in this regard is strongly recommended.

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