

The Significance of David Harvey's Spatial Theory in Post-modern Architecture in the Context of Ecology and Society: The Example of Las Vegas Architecture

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Abstract: Post-modernist architecture has been the subject of much debate, and a clear definition of it has not been settled. It is also difficult to converge on the views on the association of postmodernism with modernism. On account of its complex and profound theoretical connotations and as a reflection on modernity, postmodernism is concerned with the future and destiny of humanity. The future of post-modern architecture is of great significance to the continuation of human civilization. Few studies have been capable of integrating post-modern architecture with social and ecological perspectives in the prevailing academic vision. This paper will focus on the case where modern architecture and past post-modern architecture no longer meet the demands of both humanity's social development and environmental protection, drawing on David Harvey's spatial theory to add ecological protection elements to post-modern architectural design and from the Time-space compression theory to solve the problem of the lack of humanity in past post-modern architecture. It is concluded that improving the transportation networks between architectural spaces or with the exterior and utilizing new materials and structures can bring new dynamics to post-modern architecture.

Keywords: spatial theory, time-space compression, modernist architecture, post-modernist architecture, Las Vegas architecture

1. Introduction

Modern architecture, despite providing all the basic functions at the residential level, has accordingly left the world with a square box landscape of "white terror". In the majority of developed regions, the basic requirements for habitation have been fulfilled since the 1960s and 1970s. Nowadays, the conflict between man and nature, society and nature, is increasingly prominent. Moreover, post-modern architecture, which can cater to people's spiritual needs now, has strayed in another wrong direction (dehumanization). Consequently, the design of post-modern architecture is not only urged

to transcend the anthropocentric gaps but also to refrain from falling into nihilism (the belief that human existence is meaningless and that the existence of the world is meaningless). In this way, the issue of how to enable post-modern architecture to embody the values of human civilization rather than to highlight the human-nature dichotomy gradually became the topic of an intense research focus. Whereas architecture owns natural properties, social properties can be given by man. As nature is a creature of the Creator, architecture is a human creation. In the beginning, architecture was the masterpiece of man, imitating nature. A well-designed building is not an isolated building, it is part of its surroundings, and a great design is one that corresponds to its surroundings and is embedded in the local culture, with its unique features and regional identity, which makes it viable [1]. Without eco-nature, architecture will not exist, not to mention post-modern architecture. As the resources available for economic development are depleted, all economic figures and indices will be reduced to nothing. The myth of the economy (the frenzied pursuit of economic development) will only lead to a desperate future for mankind. It calls for a focus on ecology and nature and the continuation of human civilization. Harvey's spatial theory acknowledges the natural properties of "space" and requires "relative space" to conform to nature, while at the identical period, it emphasizes the social properties of "related space". It also emphasizes the social properties of "relevant space". This paper focuses on the view that modern architecture and post-modern architecture can no longer meet the requirements of "people-oriented" and environmental protection simultaneously; utilizing the spatial theory and Time-space compression theory of post-modern architectural theorist David Harvey, it is proposed that post-modern architecture is needed to meet both the requirements of environmental protection and of humanization at the design and application aspects in order to comply with the "human-oriented" architectural philosophy and to prompt the further development of post-modern architectural theory.

2. Theory Framework

2.1. Spatial Theory

While people think of "space" as a physical container, post-modern architectural theorist David Harvey has given space a social dimension. He has attempted to redefine the concept of space from a social perspective and has drawn the conclusion that space is, in fact, constructed under social practices. Architecture is not only a space with natural properties but also social properties and should be a "humanized" space. In his further research, David Harvey divides space into "absolute space", "relative space", and "related space". Firstly, in Harvey's view, "absolute space" is pre-existing, and its main properties are fixed and can be measured or calculated on a standardized scale. It is the most basic concept of space. Furthermore, "relative space" emphasizes the relationship between spatial structures themselves and other frames of reference and even the connection between different spatial structures. The concept of "relative space" is broader than that of "absolute space" and, in this case, refers to the natural properties of space itself, i.e. it becomes part of nature after being created by humans as a man-made object. In conclusion, "related space" places more emphasis on the intrinsic relations of space under the influence of time and the relational nature of the historical, social and psychological processes that are internalized in space. "Space", in this case, refers to space with social properties, the place where people engage in socially productive practices. Meanwhile, Harvey does not consider the three types of "space" to be isolated but rather to be connected to each other in a "dialectical tension" [2].

2.2. Time-space Compression Theory

"Time-space compression" is an influential concept introduced by the famous American Neo-Marxist David Harvey in his book *The Post-modern Condition*. Under a certain level of social productivity,

the convenience of the transport system affects the fluidity of capital. With greater accessibility, there is more mobility for capital. Time-space compression refers to the construction of a complete transport system and telecommunications facilities that eliminate space with time and reduce the public time in which goods and capital circulate, allowing capital to extend to all corners of the world with the maximum speed of circulation. The reasons for time-space compression are that social processes determine the form of time-space. The essence of time-space compression, as an important part of Harvey's spatial thought, is still the changes in the capitalist mode of production due to the profit-seeking nature of capital requiring an accelerated turnover in time and a reduction in the distance in space [3].

2.3. Modern and Post-modern Architecture

Modern architecture denotes the new type of architecture that has appeared in the wake of the Enlightenment as distinct from traditional ancient architecture. Modernism was born when people ceased to believe that they were subject to God or nature or when they began to think that they could know themselves. When the Enlightenment rose in the eighteenth century, "reasoning" gradually became the paramount quality of human beings. When a man thinks for himself, as Kant says, he no longer relies on outside forces; what he implies is that he has not only the capacity to reason rationally but also the strength to express them [4]. When architecture was given the attributes of "reasoning", modern architecture was born accordingly. In modern architecture, more "human" features can be identified, such as human-centred utility, convenience and intensification. All of these are distinctive features that distinguish it from traditional ancient architecture.

Post-modern architecture is a term that refers to the "anti-modern architecture" that occurred in the mid to late twentieth century as a product of new structural design and new materials with a more aesthetic connotation. The term "postmodernism" was first used to describe architectural styles that first appeared in the mid to late twentieth century, for example, in the American architect's book *The Language of Post-modern Architecture*. Postmodernism in Western architecture embraces a host of schools of thought that do not all coincide in their views on architecture, and its proponents have not formed a complete theory of architecture to date [5]. Nevertheless, postmodernism opposes the functionalist style (rigid and unenthusiastic) of modern architectural design. Post-modern architects have sought to change the traditional architectural paradigm by giving more meaning and colour to buildings and architectural spaces through innovations in materials and structural techniques. For instance, the Sydney Opera House and the Las Vegas building are designed with both humour and exaggeration [6].

In 2018, the American architect Robert Venturi passed away; in 2019, the architectural historian and theorist Charles Jencks departed. As the most iconic practising architects, as well as theoretical exponents of post-modern architecture, have left, the definition of post-modern architecture has become even more vague [7]. However, genuine post-modern architecture should satisfy both social and ecological requirements. However, there is no clear boundary between modern and post-modern architecture. The relationship between modernism and postmodernism, for example, is unstable. Postmodernism is rebellious without being able to divest itself of the self-destruction that originated within modernism. Therefore, some academics believe that post-modern architecture is also only a developmental stage of modern architecture. Post-modernist architecture is derived from modernist architecture, but it is also witnessing the demise of modernist architecture. It is an alternation of the old and the new, as modern architecture is the case with traditional ancient architecture.

3. Example Analysis

Robert Vinci, a flagship of post-modern architectural theory, believes that architects need to follow the path of Las Vegas to engage in dialogue with the masses [8]. Las Vegas was founded in 1911 and has been around for over 110 years. It is internationally renowned as a gambling city and entertainment capital. From its early beginning as a tavern and a small gambling house to its current location of large casinos, luxury hotels and a wide variety of other entertainment facilities, Las Vegas has undergone tremendous changes. The change is reflected not only in the architectural design of Las Vegas but also in the landscaping of the city's streets. The city's urban designers have endeavoured to integrate every aspect of the city's landscape into the local culture, making it a unique entertainment destination. The city scene is constantly being reinvented to bring it to life. The city is seen by hundreds of millions of visitors each year, experiencing a different picture of urban life. Las Vegas, a city renowned for its unparalleled style and spectacular landscapes, displayed a unique and creative style in its buildings and neighborhoods from the early stages of its development. Among the most famous of these is The Strip, a 6.5-kilometre stretch of one of the city's largest tourist attractions located in the heart of the city, a thriving street lined with iconic commercial and entertainment buildings such as luxury hotels, casinos, shopping venues and restaurants. It offers a panoramic view of national landmarks such as the Pyramids, the Eiffel Tower and the Statue of Liberty. Its seductive exteriors and beautifully decorated interiors, recreated by flashing neon lights at nightfall, are dream factory of entertainment that attracts many tourists [6].

Denise Scott Brown, Robert Venturi and Steve Izenour's 1972 book *Learning from Las Vegas* brought the Las Vegas cityscape to the attention of academics and the public generally, causing a huge sensation. When the post-modern architecture of Las Vegas came to the forefront of scholarly research, it was found to be an exceptional category of humanized architecture that could be used on a large scale. It is not like the post-modern architecture of the past, which was incompatible with the basic residential and other aspects of human needs, nor is it like the traditional, modern architecture, unconventional and hardly providing aesthetic demands. In the author's view, it is a practical vehicle for the spatial theory proposed by David Harvey. It guides the future direction of post-modern architecture, depicting a clear and elegant blueprint for its adaptation to human society and to ecological nature. For example, Figure 1, the Las Vegas Dome (MSG Sphere), designed by Populous "Golf", the architectural firm behind Wembley Stadium, is a recessed structure. The MSG Sphere is also selectively permeable by virtue of the materials used to construct it, allowing the right amount of air and sunlight to be used, and it is even functionally energy efficient, wind and sand resistant and seismically stable. This is in accordance with Harvey's "Spatial theory" of "relative space". Moreover, the four new bridges will connect the structure to the adjacent area, in line with Harvey's concept of "Time-space compression" and "related space", enhancing the internal continuity of space and its connection to the external space, facilitating the transport system and providing convenience for the residents.



Figure 1: MSG Sphere Image credit: from Madison Square Garden Company, Public domain, via Baidu Commons <https://xueqiu.com/1445657263/127512945>.

4. The Significance

4.1. The Economic Significance

According to the Las Vegas Convention and Visitors Authority, Las Vegas had more than 42 million visitors in 2015 and was among the largest cities in the United States. In the recent decade, Nevada has added approximately 330,000 new residents and 250,000 new jobs in nearly all industries, a higher percentage than most other states in the US [9]. Tourism revenue is an essential source of income for Las Vegas. The post-modern architecture of Las Vegas has contributed significantly to the vast economic volume of the tourism industry.

When architecture possesses an aesthetic function, it can create an economic inner circle that contributes significantly to the city's economic development. The buildings of Las Vegas, for instance, are colourful sculptures in the sunlight, black profiles in the backlight, and then a light source at night. Despite not having the spatial expertise of an architect, the local citizens are capable of drawing on their own aesthetic approach to these post-modern buildings for their spiritual requirements. Consequently, the designers further catered to their preferences and whims by constructing mysterious narrow streets and using trademark installations such as neon lights and advertising panels to make the restaurants mundane but lively. The architecture of Las Vegas is a stark rejection of the "less is more" simplicity of the so-called post-modernist label, bringing back to the city the popular symbols favoured by the general public. In short, these buildings do not have the "difficulty of applying to large-scale urban planning" that post-modern architecture has faced in the past, and they can be promoted and used more widely. On this account, as people are fulfilled their aesthetic requirements, it is more likely that they will develop consumption trends and desires. Aesthetically oriented buildings are, therefore, more likely to meet the needs of "people-oriented" socio-economic development. In the city of Las Vegas, post-modern architecture itself has contributed greatly to the economic vitality of the city, and the success of Las Vegas has provided some economic inspiration for post-modern architectural design.

4.2. The Social Governance Significance

This characteristic architectural representation of Las Vegas, born out of commercial necessity, was well accommodated to the demands of the rapid expansion associated with urbanization and the high speed of car traffic moving over long distances on wide roads. In contrast, modern architecture in the

past has focused on coherence and harmony, and as a consequence, buildings have appeared in an intensive manner. In modern architectural theory, the concept of “fight for every inch of land” has led to some extremely irrational urban road plans in previous times. Whether in terms of width, extensions between roads or external connections, humanity is lost. In turn, the cold buildings that were erected in order to comply with the logic of the mechanical theory, resulting in specific areas of the city being presented in the same form, not only failed to satisfy the daily necessities of contemporary life but even took away the lustre of human architectural civilization. The design of Las Vegas is in line with Harvey’s theory of “Time-space compression”, and the design of the roads reflects the extensibility of the internal and external connections between the roads, which facilitates people’s lives and the administration of the city, and has provided a model for post-modern architectural design in terms of social governance.

4.3. The Ecological Significance

As a jewel in the desert, the relationship between Las Vegas and nature is crucial if we are to achieve sustainable development. From the point of view of natural resources, Las Vegas is located in the Nevada Valley, surrounded by barren desert and Gobi regions, with minimal rainfall, as dry as Death Valley, hot summers, cold and windy winters, without beautiful natural scenery or significant human attractions, and not ideally located, making tourism development “inherently inadequate” [10]. It has no natural beauty, no cultural attractions and is not strategically located. Nevertheless, Las Vegas has developed a mutually beneficial model in which the economic income generated by post-modern architecture ultimately feeds back into ecological governance, and ecological stability provides for the economic prosperity and social stability of Las Vegas. Without sufficient capital investment in ecological governance, water scarcity and sandstorms will destroy the lives of the city’s inhabitants and even the desert-born city will eventually be engulfed by the sand.

The annual ecological management measures in Las Vegas are mainly composed of overwaters, urban wetlands and urban wetland parks. The natural relationship between them is that the urban overwater zone is the basic support for the urban wetland, and the urban wetland is the central part of the urban wetland park. As the ecology of the urban overwater zone is stable, the urban wetland can function properly, and in turn, the urban wetland park will also be stabilized [11]. This logic of eco-city governance would gradually penetrate into the minds of post-modern architects, and by following the natural laws and bringing into play the self-regulating mechanisms of natural stability, it would be conducive to the improvement of the ecological environment of the city, highlighting the harmonious development of man and nature, and exerting a profound influence on the development of later emerging cities.

5. Conclusion

Ecological and natural conservation and sustainable socio-economic development entail an aesthetic function for architecture. Besides, post-modern architectural theory is like a castle in the air, hardly to be studied and explored more deeply.

In Harvey’s later study of the relationship between modernism and postmodernism, it is clear that the relationship between modernism and postmodernism is highly complex. Postmodernism cannot be considered simply an epochal concept; it may also be a form of “modernism in its heyday” that has defected from within modernism. Postmodernism is still a new and relatively unknown phenomenon, and it requires further research at all levels in order to promote the overall understanding and investigation of postmodernism. Improving the theory of post-modern architecture is not only a way to improve itself but also a way to improve the theory of architecture in general and explore new paths and directions for the development of architecture in the forthcoming future. For

currently, post-modern architecture can only be applied and promoted on a smaller scale. It is extremely difficult to apply post-modernist architecture to large-scale urban planning precisely by focusing on individuality and differentiation. However, if one does not approach the future of humanity from a social and ecological perspective, one risks sinking into a kind of nihilism. What is essential is not to distinguish between post-modern and modern architecture from the traditional perspective of form and architectural style or the purpose of the design. Instead, one needs to take a historical perspective and realize that modern architecture is also individual and differentiated from the traditional architecture of the past, in the sense that the original modern architecture was also new and ahead of its time. It is because the architecture developed beyond the requirements of the times. It is also true today that only a few buildings have been designed in accordance with post-modern architectural theory. However, if the future of architectural design is to develop uncontrollably on the path of dehumanization, then the civilization and culture created by man will revolt against man.

Therefore, post-modernist architecture should not be allowed to go beyond the “human-oriented” principle of architecture, nor should it abandon the natural philosophy of harmony and unity with nature. Currently, space is shrinking into a “Global Village”, causing human society to become economically and ecologically interdependent. Through the “Time-space compression”, the transportation system between spaces or with other spaces outside is improved, people’s lives are facilitated, and time and other costs are reduced, giving a human face to post-modern architecture and meeting the requirements of the social dimension. In the design of the building, the use of new building materials and architecture can give the post-modern building a new lease of life by drawing on the concepts of “relative space” and “related space” of Harvey’s “spatial theory”. The use of new building materials and architecture can bring new vitality to post-modern architecture and integration with nature.

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