Universal Application of Landscape Architecture Based on Computer Aided Design

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Abstract. The universal application of landscape architecture is a comprehensive review in its industrial contents from the perspective of the whole people. It horizontally expanded the traditional objects of landscape architecture from the top national planning, government projects and related estates level to the concern of the whole mass people and the society, involving cities, villages, towns, suburbs, intercity and other areas, deep integrating the human design and natural environment, unifying local design and overall planning, linking conceptual design with actual effects, integrating those core fields such as design, computer application science, landscape architecture, urban and rural planning, in order to achieve co-prosperity between man and the nature.

Keywords: Landscape architecture; Computer aided design; Creative thinking; Sustainable design; Human oriented design.

1. Preface
As a practical activity of human beings, landscape architecture has gradually developed with human civilization, satisfying the basic needs of the masses for material and spiritual life. At present, China's landscape and gardening industry is booming, especially under the simple call of General Secretary Xi's "lucid waters and lush mountains are invaluable assets", and the landscape and gardening projects has grown to be one of the most hot spots recently.

2. Restrictions
Theoretically, from the development of traditional landscape architecture to modern ones, the core issues are always about landscape (or scenery), ecology, cultures, leisure as well as disasters reductions. With the impacts of a series of developments such as conservation-oriented society, sustainable development and the creation of ecological society, the study of landscape architecture is deeply involved in art and science, material and spiritual, nature and human artificial, ecology and development, and has made a series of progress. As the "ecological habitat and the art of living", the core values of landscape architecture are embodied in different scale systems. In terms of the protection and utilization of natural resources, landscape architecture plays an irreplaceable potential to serve the country's economic construction, ecological construction and other fields. They spare every effort for the natural blood of a country, a region and a site, and are an important pillar for future industry development. While in the management of national landscape resources, the macroscopic analysis, protection and utilization about a district play a central role in strategic guidance; And at the creative industry level, landscape architecture provides sustainable design consulting services for the country’s economic layout, industrial structures, resources protection as well as tourism and leisure. Landscape is a force that breaks through all boundaries and obstacles. It integrates nature and humanity in different countries and different fields. While creating life, it drives economic development and cultural construction.
And practically, with the development of urbanization, constant economic construction has made people who are originally integrated with nature increasingly distant. As a result of urbanization, the natural resources on which we depend are shrinking, so that we need to spend a lot of manpower, materials and financial resources to make up and rebuild artificial parks and wetlands. In the course of artificial transformation, the landscape architecture has made a lot of investment, and tried much efforts to reverse the unfriendly arrogance, but also done a lot of "uninteresting" things. It is roughly expressed in the following aspects:

2.1. “Altar” Stationed of Landscape Architecture, Which Means the Limitation of the Actual Research Objects about Landscape Architecture
Throughout the well-known landscape projects, undoubtedly turn out to be those large urban parks, municipal green spaces and squares, comprehensive land planning, urban constructions and so on. The guidance and supervision of the state is an important leading factor in the establishment of the gardening view of the whole people. However, the long-term and large-scale construction of the municipal level will undoubtedly allow more “landscape gardens to be mainly applied to the upper level of land planning and municipal green space”. Cognition is widely accepted. The public regards the landscape garden as having nothing to do with themselves. The professional aspect will not promote the development of landscape architecture. It is not beneficial to the symbiosis between nature and human beings. It is impossible to improve the status recently and achieve ecological co-prosperity with the theory and practice of landscape architecture.

2.2. The Treatment of Landscape Architecture Objects Attaches Much More Importance to the “Cultural Landscape” but Lacks Respects and Maintenance s for the Natural Landscape
Judging from the existing various types of landscape architecture projects, the artificial design techniques based on culture are not uncommon, and they are spread by culture. Digging earth to form mountains and flating mountains to platforms, just for the suit of local resource endowment and the spirit of the local customs, and promote residents' memories of a venue, a period of history, and a space. In fact, the superficial expression of the basin form is costly but only a glimpse of “one glimpse”; moreover, the lack of design considerations and similar so-called “cultural landscapes” are everywhere.

2.3. Lacks of Overall View in Practice Process, and There is a Gap between the Top Layer and the Grassroots Construction
In the past few decades, China's landscape architecture has flourished, especially in the municipal top level construction and the local grassroots level, and there has been a boom in both ends and an obvious gap in the middle. This mid-section is especially concerned with the urban residents' lives, as well as the urban and rural areas, the countryside, and even the wider national landscape aspects.

2.4. Refined Landscapes are Highly Sought after While Large-scare Nature Conservation and Planning did not Gain Corresponding Attention
Enough efforts were done to achieve perfect view of the target project, while keeping the eyes off the surroundings. Or designing only according to budgets. Refining is not without value, but too much emphasis on the refinement of local links and neglecting the role of the big background and the environment is undoubtedly a slap in the end.

2.5. The Theory and Methods of Landscape Architecture Design are Outdated and the Routines are Prevalent
A good reality case undoubtedly provides more feasibility and persuasiveness for the new design, but the essence of design is to innovate and find the characteristics that belong to the project itself. Although creation is diversity, blind European, American, Japanese, Chinese, as well as other lack of personalized designs and practice cases, is undoubtedly a counter-evidence of human oriented design.
2.6. Comprehensive Defects in Landscape Architecture Research
From the research content, landscape architecture is undoubtedly a marginal comprehensive discipline, especially in the current development of science and technology, has an inseparable relations with design, ecology, sociology, architecture, environmental engineering, planting as well as computer science, etc. The landscape architecture is a common cause of the whole society. It requires the strength and construction of all aspects to make the interaction between man and nature ecologically more prosperous.

3. Solutions
In view of the above research background, this paper intends to explore from the generalization level of landscape architecture, focusing on computer science, design, landscape architecture and other majors, from the perspective of life to consider the benefits and role of landscape architecture; And from the perspective of social life molecules, excavating the application and popularization of landscape architecture in theoretical research and practicing.

3.1. The Overall Universal Concept View of Landscape Architecture
The development of the landscape garden industry is based on generalization, that means related to the universal existences. The objects and contents of universal application are the basis of the subject research and the first step of “going out of the altar”. In this part, we need to conduct research and analysis from all levels of life of the people, switch between different roles and positions, and perceive the commonality of the whole people, and use these as the basis for generalization. And then, from the perspective of the three-in-one of nature, ecology and social development, consider the internal and external links and characteristics of overall the planning and partial design.

3.2. The Design Concept of the Landscape Architecture
Different design objects have different design concepts in view of time and space differences. At the same time, local typicality, the overall relevance between parts and the whole are the core issues of design planning. Only the design concept that combines the local, highlights the characteristics, complements the whole and harmoniously coexists with nature can be passed down in history.

3.3 Research on the Visibility and Accuracy of the Landscape Architecture Universal Application
Theoretical research and practice have a long time span, and because of this, the feasibility and effectiveness of the research results cannot be accurately estimated. The study of generalization is much more about time and space, and the visibility and accuracy of the results are even more unavoidable. Focusing on the above content and core issues, we can deconstruct research from two major blocks. First of all, is the system construction and content research of landscape architecture. From the aspects of macro-planning and micro-design content, comprehensively considering the geography and planning information, hydro-logical information, plant landscape information, ecological information, space and site information, etc. From the perspective of the ecological co-booming, exploring the feasibility and effectiveness of the landscape architecture universal application, in order to establish a long-term mechanism to achieve a healthy and balanced state of coexistence, common prosperity and mutual benefit. Second, relying on the parametric simulation system, the design result in the end is associated with the preparing practice ahead. Using computer-aided design technology and collaborative design, the pre-designing diagram is realized, and the above-mentioned design concepts and schemes are digitally displayed through computer simulation and simulation. Meanwhile, in view of the complicated time span and influencing factors of the landscape gardening projects, during the parameterization in the project’s beginning, the medium-term intervention of the influence factors, the actualization of the impact factors are entirely concerned in actual cases, combined with virtual reality and animation, and finally synchronously affects the overall design plan, forming a dynamic, time-sensitive, accidental semi-real state. In this state, the predictability and real-time effects of the program can be greatly improved. After expert review or parametric verification, the content of the
research will achieve more realistic, effective and comprehensive results in the overall and point-like links.

**Figure 1.** The technological program of the research on the universal application of landscape architecture.

The whole research framework as shown in Figure 1. In terms of research content and methods, it is fully cross-border and integrated with related majors, such as design and computer application science. Landscape architecture is an old but young discipline, especially in the design innovation methods and overall caring issues, it is still in the stage of “holding the case” in solving design problems. It is inevitable that there will be an embarrassing situation in finding its own footsteps and styles. In contrast, the creative ideas and methods of design complement the shortcomings of landscape architecture. On this basis, with the iteration of modern computer application technology, as well as digital, parametric, virtual reality, dynamic evolution assistance and verification design, in order to achieve all-round optimization and co-prosperity in the beginning and ending of design and practice.

And when it comes to the research objects, generalization means that the majority of the people are the parties involved in the research and application of landscape architecture. At the same time, it means that the land is a complete and inseparable unity, which requires the overall caring and returns the landscape gardening to every day’s and everyone’s life. And that expands the connotation and extension of the landscape architecture industry.
Finally, in terms of design verification and achieving, through virtual reality, not only the perception of the case is realized, but also the parameterized intervention of the influence factor provides a much more long-lasting, real-time dynamic result for the case display, which is the strong evidence for the feasibility and effectiveness in auxiliary and verification design.

4. Conclusion

The universal application of landscape architecture is a comprehensive review in its industrial contents from the perspective of the whole people’s life. It horizontally expanded the traditional objects of landscape architecture from the top national planning, government projects and related estates level to the concern of the whole mass people and the society, involving cities, villages, towns, suburbs, intercity and other areas, deep integrating the human design and natural environment, unifying local design and overall planning, linking conceptual design with actual effects, integrating those core fields such as design, computer application science, landscape architecture, urban and rural planning, in order to achieve co-prosperity between man and the nature.

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