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Monsingh David Devadas

Anna University, India

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Discussion on Municipal Road Design Optimization based on BIM Technology

Yong Yang*

China Merchants Chongqing Communications Technology Research & Design Institute Co., Ltd., Chongqing 400067, China

Abstract: In order to improve the implementability of municipal road design, the rational application of BIM Technology in the process of road design is a common method in current road engineering design units. The advantages of BIM Technology, such as visualization, simulation, coordination and optimization, are increasingly recognized by the industry. In this paper, the author draws on many years of practical experience to introduce the advantages of BIM Technology, as well as how to apply BIM Technology to optimize municipal road design work and to discuss some views, in the hopes of assisting in the further improvement of the level of municipal road constructions in China.

Keywords: BIM Technology; Municipal roads; Design and application; Value analysis

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Corresponding author: Yong Yang, yangyong1@cmhk.com
Yong Yang, master and senior engineer, who was born in Nanchong, Sichuan Province in 1990, works in road surveying, desig ning and consulting.

1 Introduction

Based on the rapid expansion of China's municipal road scale in recent years, the road engineering design concept has changed to a great extent, especially in some large area road network construction, bridge and tunnel comprehensive engineering, where the traditional design method has been unable to meet the increasing demand for project visualization. Recognizing the advancement of BIM Technology, its incorporation into the municipal road engineering design can not only reflect the advantages of visualization and simulation in the design, but also has a high implementation value in terms of reducing the construction period, improving the construction quality and lowering the investment cost. Scholars Wang Yasheng and Wang Yu[1] discussed the implementation of BIM Technology in municipal site planning, road traffic optimization, underground pipeline layout, landscape and surrounding environment coordination, engineering quantity statistics and review, in the hopes to provide new design ideas for the municipal road projects. In addition, Gao Sheng[2] has introduced appropriate improvement measures to make BIM Technology's implementation in municipal road engineering design more scientific and reasonable. In the following statements, the author discusses some perspectives on BIM Technology in the optimization design of municipal road, in order to enhance the design of municipal road engineering in China and create a trustworthy municipal engineering.

2 BIM Technology Advantages

2.1 High degree of visualization

The biggest implementation advantage of BIM Technology should be its high degree of visualization. In the designing stage, the relevant work can be completed intuitively based on three-dimensional plans. At the same time, acknowledging the sophisticated modeling and rendering capabilities of BIM Technology, both the effect display of design outcomes and the construction simulation will be accessible. The rational implementation of BIM Technology in the design of the municipal road engineering can not only correct the design errors in time for the design

unit, but also provide more rapid visualized and construction unit. In the past, when we carried out the design work of the municipal road engineering, all the design plans were presented in the form of plane paper drawings. Since these kind of design drawings are limited to plane expression, it's easy for the construction unit to have a poor interpretation, resulting in confusion during construction and even rework. The implementation of BIM Technology to the municipal road engineering design can connect all links naturally and achieve overall engineering design control by ensuring the accuracy of each design unit.

2.2 High degree of simulation

Considering BIM Technology is based on a software to achieve a function, it may be seamlessly integrated with modern digital analogue simulation systems. This method can not only make engineering design and simulation work more realistic, but it can also visually present the design structure, according to practice. For example, in the design of a downtown road section, the street surrounding signboards and traffic signal lights can be clearly displayed on the design drawings, ensuring that the entire simulation is achieved. The simulation effect on municipal road is shown in Figure 1.

2.3 Strong optimization

The implementation of BIM Technology can really optimize the overall process of the project. At the start of the design process, the main links of engineering design, construction and management three-dimensional implementation plan for the can be optimized in real time. The traditional design plan can be difficult to create the appropriate construction plan, especially for the projects with large quantities and high technical content, but BIM Technology can be very competent, allowing the entire project to be perfectly displayed in the design drawings. The comparison of BIM Technology optimization plans is shown in Figure 2.

2.4 High coordination

For municipal road engineering, whether in the design or construction process, it requires multiple departments to clearly divide their responsibilities, coordinate and upgrade, in order to enhance completion of the overall work[3]. However, there are differences in the starting point between the design and construction units which may easily lead to having differences in some details during the construction process, resulting in reducing the construction benefit and increasing the construction cost. Nevertheless, BIM Technology can solve the problem with its high coordination software which integrates information series design and construction. It can not only better simulate the entire engineering construction process, but also make Party A and the construction unit more aware of the entire construction process and identify potential problems in construction in time, ensuring the smooth progress of engineering construction, improving engineering quality and reducing construction cost and increasing enterprise economic efficiency.

(a) Effect before simulation (b) Effect after simulation

Figure 1. Simulation effect on municipal road

3 Discussion on Municipal Road Design Optimization Plan based on BIM Technology

3.1 Analysis of information model software for synchronization management

In essence, BIM Technology is a comprehensive information model software for design and construction that integrates all types of closely related data information. As a result, BIM Technology has a significant advantage in terms of information synchronization management, as it can make engineering physical and functional characteristics available in digital form. In practical implementation, when a decision needs to be made, the data information in the software can be directly extracted to provide important data reference for engineering decision-making. For example, in the process of laying out municipal pipelines, a BIM software can integrate all kinds of pipe network engineering information and clearly achieve the information management of municipal road construction. In addition, the municipal road operation and maintenance software in BIM integrates BIM, Internet of Things and GIS technology, allowing the municipal road engineering management work orderly.

3.2 Realization of geographic data informatization

The display of geographic information is enhanced using BIM technology, whereby its three-dimensional display will be more vibrant than the standard two-dimensional geographic display and vertical display. Furthermore, different colors are utilized to indicate different layers so that soil information, soil thickness, and continuity can be viewed from various perspectives[4]. At the same time, the BIM Technology can integrate all the parameters of each soil layer. thus, designers no longer have to choose engineering parameters between geographic profiles, drawings, and tables when carrying out design work, which greatly improves the work efficiency.

3.3 Applying BIM Technology to route design

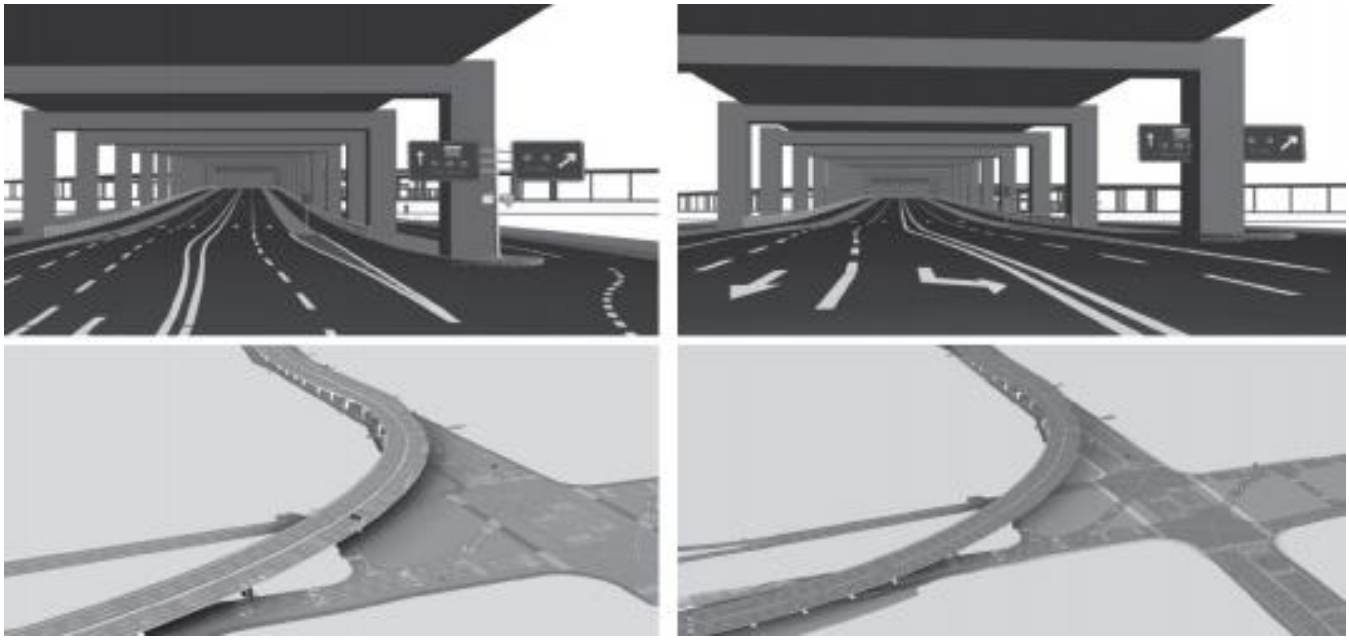
The most important part of the municipal road route design is the determination of the route center line, which contains a variety of control elements in the design process. When designing urban roads, BIM Technology is used to simulate the road center line in urban road designs on the basis of conforming to the control elements, to find out the possible problems, adjust them in time and formulate the optimization plan. Through the application of BIM Technology, the design of the road route can be expressed as a three-dimensional model, which can avoid repeated modification, effectively improve the design level of the road and promote the Chinese urban road design to achieve more accurate outcome.

3.4 Automatic calculation of quantities

In the traditional two-dimensional design process, CAD engineering drawing can only store the geometric information such as points, lines and surfaces of the project, so the calculation of all information depends on manual work, which is not only low accuracy, but also time-consuming and laborious. BIM Technology can not only display the pavement, foundation, curb and other structures of the road, but also allow designers to use the data integrated by the software to quickly calculate the design quantities. The quantities calculated by BIM software can avoid human errors and make the calculation results more accurate as well as can be directly submitted to the cost department for calculation. As a result, the construction links are gradually refined as the refinement degree of BIM Technology improves, and project cost information becomes more transparent and accurate, whereby saving a lot of labor costs.

3.5 Visual disclosure

Visual disclosure can make the technical personnel of the construction unit quickly understand the design intention of each field of the project. At the same time, since the BIM software contains all kinds of geometric and auxiliary information, the construction unit can easily investigate the relevant data to ensure the consistency between the project completion results and the design, as well as it can greatly avoid the rework and waste in the construction process.



(a) Effect before optimization (b) Effect after optimization

Figure 2. Comparison of BIM Technology optimization plans

4 Conclusion

Firstly, this paper explores the implementation advantages of BIM Technology. Then, it discusses the municipal road design optimization plan based on BIM Technology. The analysis shows that the implementation of BIM Technology in urban road design can effectively replace the traditional two-dimensional design. This will greatly improve the quality of project design, make the design of urban road more scientific and reasonable, as well as have a positive significance for optimizing urban road designs. Hopefully this paper can provide theoretical references for BIM Technology in the municipal road design, which will comprehensively improve the overall quality of the project as well as bring higher economic benefits.

Disclosure statement

The author declares no conflict of interest.

References

[1] Wang, Y.S., Wang(2021), Y. Optimization of Municipal Road Design based on BIM Technology[J]. Housing and real estate,(6): 25.

[2]Gao, S(2020). Municipal Road Optimization Design Strategy based on BIM Technology[J]. Sichuan building materials,(6): 10.

[3]Zhang, X.H(2019). Application of BIM Technology in Municipal Road Design Optimization[J]. Intelligent City,(11): 14.

[4]Zhao, X.G(2017). Municipal Road Design Optimization based on BIM Technology[J]. Building materials and decoration,(12): 08.

[5]Zhang. Y(2009). Research on BIM based Construction Engineering Information Integration and Management[D]. Tsinghua University.

[6]Chen Y, Dai HJ, Liu J, *et al*(2008*)*. Framework of Building Information Model (BIM) in Project Management Information System[J]. Construction technology,37(2): 5-8.

[7]Eastman, C., Teicholz, P., Sacks, R., *et al*(2008). BIM Handbook[M]. John Wiley & Sons.

[8]Time to Start Thinking About Building-Information Modeling, Design Firm Management & Administration Report; May 2004:4(5).

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Analysis on the Safety of Expressway Interchange

Jinxi Ding*

China Merchants Chongqing Communications Technology Research & Design Institute Co., Ltd., Chongqing 400067, China

Abstract: Currently, expressways encourage the use of interchange design methods in the layout mode to improve the safety of expressway operation in order to relieve road transportation pressure and strengthen the prevention of traffic safety accidents. The advantages and characteristics of the interchange method are more obvious and have important application value when compared to other interchange methods. This paper mainly studies and analyzes on the safety design and major challenges of interchanges in order to ensure the safe application of interchange forms in expressways.

Keywords: Expressway; Interchange; Safety

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Corresponding author: Jinxi Ding, 270872203@qq.com

1 Introduction

Since the reform and opening-up, China's socio-economic level has been significantly improved. Under such an evolution, people have put forward new requirements for the basic functions and comfortable experience on the road. In view of the current highway construction situation, the traditional highway interchange method has been difficult to adapt to the current development especially with the continuous improvement of highway construction level. In order to ensure the quality and safety of expressway operation and appropriate traffic flow, designers encourage the use of interchange design methods to optimize the layout and structure of expressways. During the specific design process, designers must combine safety performance design requirements, actively combine expressway network and interchange characteristics, scientifically position expressway operational functions, as well as establish a scientific and appropriate interoperable safety design plan during the specific design process.

2 Analysis of the Components and Major Challenges of Expressway Interchange Safety Design

In order to ensure that the quality of expressway operation can be enhanced and strengthened, designers should proactively base themselves on the safety performance design standards in the process of applying the interchange design mode, and conduct major research and analysis on the factors that affect the safety of the interchange from multiple aspects. Simultaneously, based to the analysis and feedback results, the relevant major components are planned and deployed in a reasonable manner to ensure that the safe operation of the expressway interchange can achieve the expected effect[1]. Based on previous design experience, the safety design of expressway interchanges can be studied and analyzed from the following points.

2.1 Entry and exit placements

The placement of entrances and exits can be regarded as an important component of the expressway interchange's safety design system. In the specific design process, the designer should set a scientific and reasonable distance between the entrances and exits of adjacent main lines that communicate with each other as there are safety driving requirements for interchanges. In general, the distance adjustment needs to be scientifically set according to the length of the driving interlace

and the length of the shifting lane. At the same time, it needs to be set according to the traffic sign layout requirements and the driver's response time. Based on previous design experience, if adjacent interchanges are too close to each other, it is difficult to ensure that the expected spacing requirements are met, hence designers can combine them and create an interchange form for application. For example, designers can place correspondingly separated collection and distribution lanes next to the through-travel lanes of a compound interchange.

By cascading the exits and entrances, the purpose is to ensure that only a pair of entrances and exits remain in the main line's driving direction, reducing the problem of excessive traffic and scattered traffic that existed previously. Designers can use measures such as three-dimensional separation between ramps to reduce the interweaving phenomena of highway mainstream ramps in the intercommunication compound interchange form with high traffic volume to ensure driving safety. In addition, if the main route has exits and entrances, it is essential that the designer creates a warning effect by determining and perfecting the signal signs to avoid dangerous problems during the vehicle's driving process. When necessary, the designer can use the method of merging multiple exits in the interchange design to reduce the problem of information confusion, as long as the safety design standards are met[2].

2.2 Variable speed lane design

The variable speed lane can basically be regarded as an additional lane between the main line lane and the ramp. The main line's main function is to provide entrances and exits for vehicles entering and exiting the main line. Additional lanes for acceleration and deceleration are provided for the driving process by maintaining vehicle speed conditions that correspond to the ramp alignment. This section is prone to traffic accidents because the vehicles in this section need to change lanes or their vehicle speed.

To prevent traffic accidents at the position of the variable speed lane, it is recommended that the designer always adhere to the human-oriented and safety-oriented concept requirements, as well as scientifically calculate the shortest acceleration and deceleration length for vehicle driving safety under the premise of meeting the interchange's safety evaluation requirements. According to the calculation feedback results, measures such as placing deceleration belts in the deceleration lane are taken to encourage the vehicle to achieve the deceleration effect during the driving process[3].

2.3 Safety coordination design of ramp curve alignment index and vehicle operating speed

From an objective point of view, whether the alignment indicators of interchanges and the operating speed of vehicles reach a coordinated state of operation will often have a vital impact on the safety and quality of expressway interchanges. Based on previous safety design experience, in order to ensure that the ramp curve alignment index and the vehicle operating speed is always in a safe and coordinated state, designers need to conduct appropriate research and analysis on the geometric elements of the curve at different locations according to the speed performance of different parts of the ramp. It should be noted that the speed used by the driver during the driving process is mainly adjusted according to the road conditions, or the safe speed is appropriately determined according to their own conditions. Therefore, in terms of specific design, designers should follow the human-oriented concept and fully consider the intellectual needs of the driver. In the selection of ramp curve alignment indicators, the actual operating speed should be used as the standard to design a scientific and appropriate ramp curve.

2.4 Safety design analysis of ramp longitudinal slope

In general, a problem with the longitudinal sight distance between the exit position and the entrance position, or an extremely wide ramp longitudinal slope, is likely to jeopardize expressway driving safety. For example, when the vertical surface of the expressway shows a curved and variable slope section with a small vertical curve radius, the driver's line of sight may be affected by certain

obstructions and the problem of poor sight distance may occur. In view of this problem, the designer should focus on the safety design at the changing position of the longitudinal slope at the end of the ramp, whereby the designers can use a larger vertical curve radius to optimize the design effect[4].

At the same time, when the main lane under the freeway ramp appears as a curved ramp section, the designer should appropriately increase the vertical curve radius for safety design considerations in order to provide drivers with good visual conditions. In addition, the design of the ramp longitudinal slope should be as smooth as possible to avoid unnecessary reverse slope problems. Thus, there should be room for the design of the largest longitudinal slope, whereas for the minimum longitudinal slope design the longitudinal drainage requirements should be considered.

2.5 Superelevation safety design of ramp

For the safety design of expressway interchanges, the superelevation safety design of ramps can basically be regarded as an important factor affecting the safety of expressway interchanges. In the specific design process, the designer should appropriately determine the ramp's superelevation value based on the variable driving speed on the ramp. At the same time, in the ramp superelevation design process, the designer should take the initiative to set the superelevation design components according to the environmental conditions and traffic flow conditions of the project location. It should be noted that if the ramp joins from the outside of the superelevation section of the main line, the designer should set the superelevation gradient in the deceleration lane section to a reasonable level.

3 Other Suggestions

In order to further improve the safety of expressway interchange design, it is recommended that designers should set a scientific and appropriate interchange lane type according to the highway environment and surrounding topographic features. At the same time, to reduce driver tiredness, a certain amount of greenery should be planted within a certain range of the road. The road traffic control facilities should be fully equipped to prevent accidents for the safety of the drivers during driving. It should be noted that traffic control facilities such as traffic signals must be correct and clear, and signs must be placed in a conspicuous position. For weather conditions such as the rainy season, construction personnel should promptly remove water from the road surface to avoid accidents for the safety of the drivers. In addition, in the design of interchange ramps, designers should rationally design the ramp radius and linearity according to design requirements, to fundamentally improve the design level of the expressway interchanges.

4 Conclusion

In conclusion, it is recommended that designers should proactively focus on the safety design concept, and make overall planning and appropriate deployment for the safety design of expressway interchanges from multiple aspects, in order to reduce safety accidents on expressway interchanges. Simultaneously, take the initiative to execute relevant important components from the perspective of safety design and management. Furthermore, to avoid expressway interchange safety design effects failing to fulfil expectations, it is advised that designers should combine advanced design knowledge from both locally and internationally to change and optimize current deficiencies in the expressway interchange safety design in a timely manner. As a result, it has the potential to significantly improve the safety of highway operations in our country.

Disclosure statement

The author declares no conflict of interest.

References

[1] Zhou, T., Yu F., Zhang, X., Liu, M.Y(2019). The Location and Cause Analysis of Frequent Accidents of Expressway Horn-Shaped Interchange[J]. Highway Traffic Technology,35(01): 129-133+139.

[2] Yang, F.Y., Zhao, Y., Zhang, Y.F(2019). Analysis of Traffic Accident Characteristics of Expressway Interchanges[J]. Transportation Science and Technology,(02):107-110.

[3] Li, B.Q(2019). Research on the Main Points of the Safety Evaluation of Interchanges[J]. Building Materials and Decoration,(19):243-244.

[4] Sheng, X.F(2019). Analysis of the Main Points of the Safety Evaluation of Interchanges[J]. Green Environmental Protection Building Materials,(05): 100.

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Ecological Protection Design Strategy for Mountain Tourism Highway Slopes

Zhaoyu Wang*

China Merchants Chongqing Communications Technology Research & Design Institute Co., Ltd., Chongqing 400067, China

Abstract: Slope ecological protection technology is a form of slope protection with high ornamental and good economic value. At present, it is widely used in highways and urban streets' slope protection works. However, its use is not very common in mountain tourism highways; hence, it is necessary to implement strategies for mountain tourism highway slope ecological protection design to promote excellent development.

Keywords: Mountain tourism highway; Slope; Ecological protection; Design strategy

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Corresponding author: Zhaoyu Wang, wangzhaoyu@cmhk.com

1 Introduction

The highway slope ecological protection in China started relatively late. There are no consistent standards in their designs; however, extensive experiences have been accumulated. In comparison to developed countries, they are relatively in a backward stage, especially pertaining mountain tourism roads, whereby research works are not thorough enough. Hence, it is necessary to conduct in-depth research and implement reasonable strategies in order to improve the quality of highway slope ecological protection and eventually, enhance the quality of mountain tourism highway slope ecological protection works.

2 Principles of Ecology

2.1 Community succession and biodiversity

The biological community belongs to a system with features of movement and change. With time, species may disappear or invade the community. Stating simply, the community and environment develop or change in corresponding directions. The main indication of community succession is the qualitative change based on the composition of the community and species. In the biodiversity principle, the ecosystem has good balance and stability with a wide range of biological species. In the case whereby an increase or decrease of one population, another population will compensate or appear inhibited to ensure good organizational function of the system. In the design of slope ecological community population, community succession must be fully considered. The development process from a primary community to an advanced community would require reasonable and scientific control works while considering the guiding maintenance in case of adverse evolution or degeneration. In the slope ecosystem, suitable species should be kept abundant. If the population is too exclusive, it is not conducive to the maintenance of the ecosystem's stability and the anti-interference ability will decline naturally. On the other hand, if the population is too large, the competition within the system will be intense. This would result in the weakening of the self-organization ability; hence, the evolution process of the plant community would be a problem.[1]

2.2 Adaptability and limiting factors

The principle of adaptability is that different species need specific ecological factors in the

process of survival, growth, and reproduction. If the ecological factors are insufficient or excessive, a particular species will be limited in terms of these processes, or even forced out of the system. To be more precise, each species has a fixed range of ecological needs. Between the maximum and minimum range is the tolerance of each species, that is, the range of its adaptability.

The principle of limiting factor indicates that in the survival and reproduction of a species, basic substances must be obtained for support. A particular substance is the limiting factor when the usable amount of this substance is close to or has reached the critical value in a stable state. Hence, it is necessary to promote the regulatory capacity of the limiting factors to ensure the balance of species.

3 Slope Ecological Protection Technology

The ecological protection technology of slopes is based on the principle of ecology with the implementation of slope protection and land vegetation systems. In terms of the construction process, it can be divided into three components which are the design, plant construction, and management; while in terms of technology, it can also be divided into three components which are the cotton net planting belt, thick substrate spraying and continuous fiber reinforcement spraying.

3.1 Design technology

The design technology mainly includes two aspects: namely, vegetation design and soil design. The former uses a targeted plant species and the corresponding combination structure as its design core in regard to ecological principles. However, soil design requires effective problem-solving in terms of regulating soil nutrient, acid-base regulation, permeability improvement, and structure adjustment.

3.2 Planting techniques

Based on the differences in construction methods, the road vegetation construction technology can be divided into three types: artificial, mechanical, as well as artificial and mechanical composite technology. The artificial planting technology includes artificial transplanting and sowing, as well as turf paving while the mechanical construction technology includes spray seeding involving hydraulic, thick base material, guest soil, continuous fiber, and vegetation concrete. Lastly, the artificial and mechanical composite planting technology includes planting belt, geocell grass planting, three-dimensional geonet mat, rigid skeleton grass planting, concrete prefabricated skeleton grass planting, hexagonal concrete hollow block grass planting, and nutrition bag.[2]

3.3 Nutrition technology

There are three types of nutrition technology: namely, pruning technology, nutrient management technology, and water management technology.

3.4 Cotton net planting belt technology

Cotton net planting belt technology is suitable for different types of fills. Its raw material is made up of polyester fiber cotton net while the inner part is used for seed-planting and the corresponding medium ribbon complex. In construction, the planting belt is placed on the slope surface and covered with soil. The fiber net would prevent rainwater from washing off the slope surface; thus, limiting water evaporation. It also adjusts the ground temperature for conducive seed germination and growth until an organic whole constituting of roots, stems, leaves, and planting belt is formed on the slope surface. This is to achieve the effect of vegetation restoration and slope protection.

3.5 Thick matrix spray technology

Thick matrix spraying technology is a type of mechanical planting technology which is suitable for non-rock cutting slopes. The use of this technology is achieved by a special spray. Solid materials such as water retaining agent, microbial fertilizer, adhesive, plants substrate, seeds, and mycorrhizal fungi are sprayed onto the slope after anchoring the galvanized machine. This is to ensure

that the substrate not only protects the slope, but also provides nutrients for the growth of plants.[3]

3.6 Continuous fiber reinforced shotcrete technology

Continuous fiber reinforced shotcrete technology is usually used in the ecological protection of rock slopes. It requires a special machinery to spray both, continuous fibers, and sandy soils at the same time to form interweaving materials in creating a subbase with adequate thickness. The deformation resistance and adhesion on rock slopes allow it to be reasonably used as the base; then, applying the spray coating technology of thick matrix.

4 Ecological Protection Designs for Tourism Highway Slopes

4.1 Plant selections

In the design of biological slope protection, plants should be allocated based on their own niche principle in consideration of their growth characteristics and local geographical environment. In regard to the differences in time, space, nutrition, niche, and other aspects, plants should be reasonably selected and allocated. The niche of various species should be spread out as far as possible to avoid direct competition among populations. It is beneficial to improve the green coverage per unit area. For spatial allocation, plants such as shrubs, trees, grasslands, and so on can form three-dimensional configurations. The complement of different populations may bring about mutual benefits and helps in the coordination of grounds and undergrounds. For example, the shade tolerant shrubs and positive tree species, in addition to the upper tree species and the shrubs under the forest may be utilized to create a scientifically reasonable community structure. This would not only enhance the ecological environment but also, in view of its diversity, it is conducive in promoting the growth of plants.

In terms of species selection, the focus should be on biological protection and beautification by taking into account of suitable trees, local conditions, and maintaining ecological balance. The choice of native plants should be emphasized as they can adapt to different climates and soils. In addition to reducing workload as well as the cost of maintenance and management, it is also conducive to form a stable and growing ecological community, which may be used as a habitat for animals. Hence, this reinforces the ecological functions of the landscape itself. In regard that native plants can significantly reflect local characteristics, the diversity and ornamental value of the landscape would be improved; hence, avoiding the appearance of a uniformed landscape.

4.2 Cultural landscape designs

Highway landscapes have the characteristics of material forms, and their “shape” has always been the first impression for tourists. Generally speaking, “shape” only reflects the traffic functions; however, for highway landscapes, it should not only reflect that but the “meaning” as well. By integrating “shape” and “meaning,” highway landscapes have more cultural connotations and artistry. Hence, in the process of designing highway landscapes, the skillful application of cultural resources is required so that it may be reasonably displayed. This would deepen the cultural connotation of the landscape environment, in addition to playing an important role in inheriting regional cultures and improving spiritual enjoyment among tourists.

In the context of slope protection design work, the regional cultural expression methods include the following points:

(1) The reasonable use of local materials.

Species that show local characteristics as biological protection materials are selected.

(2) Simulation.

Slope modeling can simulate the local natural characteristics and architectural modeling, in order to display the distinctive regional characteristics and local culture.

(3) Refining.

Refining and sorting of cultural materials such as murals, sculptures, sketches, and other forms to represent national customs and human history should be emphasized, so that slope landscapes have more cultural connotations.

4.3 Flexible design

For highway constructions, each project has their own distinctive characteristics. Therefore, it is necessary to fully respect the differences of each project. Based on functional and safety conditions, various technical standards need to be implemented to ensure that the design schemes are consistent with the actual needs of each project. For example, if a slope is relatively gentle, it can be designed as a curved corner to enhance its beauty and demarcate a more harmonious form with its' surrounding environment.

5 Precautions for Slope Ecological Protection

At present, China is still in the initial stage of implementing the slope ecological protection technology. Firstly, it is necessary to understand the essence of slope ecological protection which is to integrate the slope ecological protection of highway engineering into nature to strengthen the harmony between them. This is conducive to the implementation of the scientific development concept of highway construction. Second, in addition to the application of highway engineering related technologies, slope ecological protection also requires ample knowledge about bioecology. Hence, relevant personnel need to be educated and trained to fully understand the corresponding ecology. Third, the development of slope ecological protection works requires higher construction costs; hence, social benefits need to be improved. To promote social benefits and ensure sustainable development of slope ecology, it is not wise to blindly save costs in the construction process as long-term benefits cannot be measured only in economic terms. Fourth, in the stage of scientific research and design, the design concept of the project should be fully defined. On this basis, construction objectives should be put forward, including investments, quality, construction period, and safety objectives. At the same time, ecological benefits should be emphasized. Fifth, the application of science and technology should be strengthened, ecological construction work should be combined with local situations, and appropriate technology in the form of special research should be selected as essential supports for the smooth development of projects. Lastly, meticulous management and construction work should be carried out while abiding strictly to technical standards and specifications. Based on the actual situation, technology should be innovated and flexibly implemented to promote the harmony and unity of highway engineering, the natural environment as well as personalization.[4]

6 Conclusion

In view of the development and construction of mountain tourism highways, the application of slope ecological protection technology is of great significance. It is important to recognize the unity and harmony between highway and nature. The application of ecological principles does not only provide scientific theoretical guidance for construction works, but it also helps to improve the construction quality. This is to ensure that highways would resonate with the natural environment as well as to bring about a personalized and sustainable development of highway engineering.

Disclosure statement

The author declares no conflict of interest.

References

[1] Wang, H(2020). Application of ecological protection technology in highway subgrade slope protection. Gansu science and technology, 49(5): 56-58, 45.

[2] Li, H., Liu, Z(2020). Highway slope ecological protection method and its common disease analysis. Engineering technology research, 5(15): 73-74.

[3] Du, J(2020). Application of spray seeding new technology in ecological protection of expressway slope. Transportation world, (27): 18-19.

[4] Li. Y(2020). Application of ecological protection technology in mountain highway slope protection. Heilongjiang Science and technology information, (16): 106-107.

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A Brief Analysis of the Influence of Mountain and Water Elements in Chinese Classical Gardens on the 18th Century British Natural Landscape Gardens

Xiaohui Yu*, Xiang Wang

Soochow University, Suzhou 215123, China

Abstract: In the 18th century, British gardens began to transform from a classical to a natural landscape style. During this period, they were influenced by the economy, local nature, as well as foreign cultures. The 18th century was the golden period of cultural exchange between China and the West which gave Britain the opportunity to absorb the cultures of Chinese classical gardens. British gardeners had used various elements of Chinese classical gardens as their point of reference which promoted the development of British natural landscape gardens.

Keywords: Garden; Mountain and water; Natural; Landscape; Aesthetics; Difference

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****Corresponding author:*** Yu Xiaohui, 445608244@qq.com

1 Introduction

The dawn of gardening in Britain was around 42 BC, which was during the reign of the Roman empire. The two forms of the Rome gardens, which were the colonnade garden (enclosed garden) and the garden villa (open garden) were models for the early British garden. In the Middle Ages, in order to facilitate missionaries to spread Christianity, monasteries were built in England. At that time, the society was in turmoil. However, the beautiful and comfortable environment inside those monasteries provided spiritual support and comfort for the people. In the 13th century after the war had subsided, the castle which was originally used for military defense gave up its closed and depressed manner and became an opened space for enjoyment. Subsequently, British gardens began to learn from other countries in Europe. Although the development of cultural landscape gardens in various countries had guided the development of Britain's own garden, the British landscape still lacked self-innovation. It always failed to form its own unique local style. The development of British natural landscapes changed the status of classical regular gardens which lasted for thousands of years and was a milestone in the development of gardens in Europe as well as the whole world.

2 Influencing Factors in the Transformation of British Natural Landscapes in the 18th Century

Firstly, the transformation of the native natural environment in Britain promoted the development of British natural landscapes. After the "Enclosure movement" in the United Kingdom, permanent pastures in the UK increased. In the 18th century, the UK took the lead in launching the Industrial Revolution to reform the cotton textile industry and stimulate the development of animal husbandry. Many pastures were then opened. The Industrial Revolution had used significant amount of coal resources, resulting in the emission of soot and pollutants which led to the deterioration of the ecological environment. People began to seek improvements in terms of their living conditions

and the protection of nature. In regard to that, the British Marine shipbuilding industry promoted large-scale afforestation campaigns. It was the lush meadows, dense forests and complete hilly lands that provided rich soils for the abundance of natural landscape. This unique landscape style also promoted the transformation of British portraitures into natural landscape paintings.

Secondly, the spread of "Enlightenment" philosophies encouraged the British people to pursue simple and natural styles. They were tired of the orderly and rigorous Le Nôtre style garden and turned to seek nature in its origin. This is also the primary reason for the transformation of British gardens into natural landscape styles. In the 14th century, the Renaissance in Italy advocated liberation of individuals while the enlightenment which advocated rationality started to lead people to freedom. In 18th century, landscape architects of Britain began showing interests in naturalism and believed that the artificial designs of the garden violated the ideal of indigenous nature.

Last but not least, British colonial expansion and maritime trade fueled the pursuit of Chinese goods. The bright and exquisite ceramics, as well as the painting scrolls were widely accepted by the Europeans. This provided opportunities for the Chinese and British scholars to communicate with each other; hence, paving the way for the spread of Chinese art in the UK. For example, Sir William Chambers, a British architect, frequently went to China on long voyages with his fleet and devoted himself in learning Chinese architectures, landscape architectures, and decorative arts in his spare time. He also introduced the Oriental Gardening Theory in which he argues that landscape architects should strive to diversify the natural elements in a landscape, and it should provoke emotions more than its natural primitive state.[1] He lashed out on the popular European classical landscape inclination at that time and accelerated the transformation of the European style of gardening. The patterns of all imported porcelain and lacquer ware were mainly Chinese decorative patterns. Although these images of Chinese nature and gardens were only fragmentations rather than continuity, they were concrete prototypes for the transformation of British gardens.

3 Development and Use of Aesthetic Concepts of Landscape Elements in Chinese and English Gardens

"Mountains" and "water" are terms used by Chinese people to describe the natural scenery. They are depictions of the natural landscape of China in Chinese landscape gardens. The art form of representing geographical landscapes is known as Chinese landscape paintings, which is introduced by the Wei, Jin, Southern, and Northern Dynasties. Since ancient times, these landscape paintings and gardens emphasized on mountains and water. The vertical peaks, horizontal fan-shaped plains, and water bodies are key inspirations in Chinese art.

China is a conventional farming nation. Agricultural civilizations which relied on natural environment are influenced by the early ancestors' worship of mountains and rivers. The primitive view of nature implied a sense of distance towards mountains and water. Chinese people used the concept of "transformation" to integrate beautiful mountains and clear water in their own gardens for casual viewing.

Chinese gardens emphasized on boundaries whereby walls are used to separate the garden. They are elements which cannot be disregarded in Chinese gardens. The area enclosed by the walls is to create an infinite sense of virtual and real space. It is the epitome of lofty mountains with many leaky and flowered windows. In addition to that, weathered limestone blocks are used to show the rockery. Chinese gardeners used distance and perspective scenes to create the effect of movement and different sceneries; hence, attaining a full view of the natural beauty. The waterscape in Chinese gardens is divided into static and dynamic ones. The static waterscape would stretch the source away or hide it, giving the illusion of the beauty of continuous water. Using the Humble Administrator Garden as an example, the central water source is hidden behind the small surging wave, and

the western water source is hidden in the south of the Pagoda Ying Pavilion. Further exploration is required as these two places are not the only way to appreciate the garden.[2] On the other hand, dynamic waterscape is composed of artificial water and natural water diversion. The water flows down a waterfall by using stacked rockery as a height advantage.

Western views are different from the Chinese' whereby the harmonious coexistence between man and nature is heavily influenced by "subject-oriented dualism." The emphasis is on individuals' independence and the rationalization of nature with scientific design thinking. The Europeans have the perception whereby "Man can conquer nature." During Louis XIV of France, the Le Nôtre style gardens became popular throughout Europe. During this time, gardens became a form of artistic expression for monarchs to pursue extravagance and power supremacy. The garden's layout was balanced, symmetrical and orderly while the relationship between buildings and the surrounding environment was isolated. The plants in the garden were artificially shaped, pruned and planted in a row with symmetrical style, which reflected the "rational beauty" everywhere. The embracement of the concept of Chinese garden imitation in the UK was incisively and vividly reflected. Eventually, it was popular to construct landscape gardens based on the painters' landscape paintings.[3]

William Temple was the first person to integrate Chinese garden cultures among the natural aesthetic scholars. He introduced the word "Sharawadgi," which referred to the pattern of Chinese garden lights and aesthetic feelings while emphasizing on natural harmony. However, Temple did not take heed and explore the real philosophical and artistic spirit.

Later, William Kent applied natural aesthetic concepts to the British garden design in which he unreservedly imitated nature. He revolted the lifeless linear design and the garden layout, which was symmetrical both, left and right. He started to halt the classical style by dismissing the garden road, street tree road and the same fountains which were sharp and angular. Although Kent broke the boundaries in the history of British landscape development, he was still influenced by the classical style. In 18th century, British landscape architectures were no longer constrained by rules of geometry. They were against the specific physical boundaries and began to display an idyllic natural scenery. Owing to the ha-ha ditch (designed by Charles Bridgman) which was a water conduit that also functioned as a fence, it removed all traces rule type, eliminated barriers on the line of sight, and expanded visual fields. Charles Bridgman took the large area of a gentle slope and the complete grassland as leading features of his landscape architecture. He created a consistent landscape with the surrounding natural landscape which deemed a sense of extensionality at that time.

In the early British classical gardens, water was usually in the form of fountains. Thereafter, British landscape architectures gradually developed and regarded water bodies as important landscape elements. British garden areas were huge, however, the terrains lacked height advantage to create dynamic waterscape and hills were only displayed through forms of rivers and lakes. Hence, water can only follow in the path of natural forms. Waterfronts were perfectly integrated with the boundary of hills or lawns to avoid artificial finicky and green plants were also freely scattered. The British landscape architecture was crude, lacked artistry, and expansion.

4 Similarities and Differences between Chinese and British Garden Cultural Exchanges

In the mid-18th century, elements of Chinese garden architectures appeared in British gardens. British architects used the decorations of Chinese garden architectures as simple imitations. During that time, their favorite landscape element was the "China pavilion." This was markedly demonstrated when Richard Bentley designed the triangle of China pavilion for Robert Walpole in Strawberry Fort. The doorway was partly Gothic while the interior decorations were of the Chinese style.[4] This was much simpler than imitating the overall philosophical spirit of Chinese gardens. Another example was when Chambers designed a "China-

English" garden called Qiu Garden for Kent. There was a Chinese style attic which was referred as "the home of Confucius," and not far away, was a 10-layer China Tower which was based on the glazed tower of the Gratitude Temple in Nanjing. According to ancient Chinese religion and philosophies, the number of layers should be based on the Yin and Yang whereby odd numbers would represent the Yang while even numbers would represent the Yin. In regard to that, the highest Yang number would be nine and the number of layers in a tower would usually take an odd number as it has auspicious meaning. Traditionally, Chinese people pursue "the unity of man and nature." They believed that if people lived in a place where the odd numbers of Yang spirits were abundant, they will live longer and healthier while the even numbers of Yin spirits may lead to disasters. Although Chambers' gardens have displayed a generalization of the Chinese gardens' spirits, there is a lack of profound interpretation and inevitable connection between the formal reproduction of Chinese gardens and its cultural roots.

The abstract representations of Chinese gardens were not accepted by some Western scholars, who believed that the representations of mountains were not realistic enough by using strange wind-rocks. In addition to that, the Danish geographer Malte-Brun, criticized the lack of imagination portrayed in Chinese gardens as he accused them of being "only accurate imitators of the image of nature."[5] Mr. Chen Congzhou had an interesting discussion in The Continuation of the Garden. He mentioned that Chinese ancient gardens were usually closed, however, with limited area, infinite space is created and the word 'ethereal' is the key to garden construction.[6] The traditions of Chinese art philosophies do not only represent or simulate natural objects, but they also explore the fundamental principles of the movement in the natural world.[7] Unfortunately, they were only used to be counterparts in the aesthetic taste of Britain's budding anti-classicism at that time.[8]

British gardeners utilized local aesthetic philosophies to integrate and reinterpret the artistic notions of Chinese gardens. The strong historical shadow, coupled with self-centered consciousness of the West in the British aesthetic sense, resulted with the used of Chinese classical gardens only as prototypes for British gardeners to learn from.

5 Conclusion

In the late 18th century, British gardeners scrambled to create naturalistic gardens, which led to the imitation of art in Chinese gardens. The assimilation of Chinese garden cultures accelerated the transformation of the English native garden style in Britain. Although the integration of Chinese gardens with English gardens formed unique and exotic environments, the inherent philosophies of Chinese garden cultures were misinterpreted. This is because only the surface images of Chinese gardens were accounted for. A saying which goes by "knowing the nature of the situation, but not knowing the reason" depicts these circumstances.

In 1845, British tax were abolished for greenhouse constructions. Along with it, there were many more plant species. The mark of the greenhouse period began whereby gardens started to be commercialized and natural scenery gardens in the UK developed based on "garden styles." Hence, the interest in the Chinese garden culture gradually diminished.

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References

[1] Zhu, J., Zhuo, D(2019). Sir William Chambers and Kew Gardens. Landscape Architecture, 26(03):36-41.

[2] Wang, Z(2020). The Virtual Reality of Gardens and the Virtual Reality of Paintings: Pictorial Expression in the Construction of Suzhou Classical Gardens in the Ming and Qing Dynasties. Decoration, (10): 102-104.

[3] Zhou, Y(2017). Research on Chen Congzhou's Landscape Aesthetic Thought of Jiangnan. Harbin Normal University, 96.

[4] Wang, Q(2010). The Influence of 18th Century Chinese Gardening on Europe. Shanghai Normal University, 26.
[5] Tuan, Y(2019). Love Complex. Zhicheng, Liu Su. Beijing: Commercial Printing House, 5: 194.
[6] Chen, C(2011). Zi Weng Shuo Yuan. Beijing Press, 2: 14.
[7] Wang, H(2019). The Law of Formal Beauty of the Interaction of "Virtue" and "Reality" in Chinese Landscape Culture. Journal of Hexi University, 35(04): 98-100.
[8] Geng, J., Zhou, W(2019). On the Genes and Elements of Chinese Gardens in the Theory and Practice of the "Nature" View of English Gardens. Chinese Landscape Architecture, 35(07): 131.

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The Three Levels of Education in Site Design Course of Architecture

Yuanyuan Shi*

Shandong University of Art & Design, Jinan 250014, China

Abstract: "Professional Guiding Standards for Advanced Education Architecture in University Undergraduate Students" (2013 edition) indicates that the education system of architecture should include a section on "environment and site." It should involve six learning components which are concepts of site and environment, site terrain classifications, environment of two tendencies, elements involved in the sites, elements of environmental impact, and site design.[1] As site design (drawing) has become a significant topic in the examination of registered architects, many domestic architecture colleges have set up site design courses as independent ones. After more than ten years of exploration and research in developing the education system of site design courses, teaching experiences and achievements have been acquired. Site design courses have been gradually integrated with general plan design, registered architect examination, and architectural programming. Teachers have specified relevant learning goals in the regular daily curriculum in addition to the basic and vocational education of architecture. In this way, the site design course would be more in line with the educational goals of architecture. This paper aims to analyze the education of site design courses in hope of developing the future architectural education.

Keywords: Site design; General plan; Architect registration examination; Architectural programming

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Corresponding author: Shi Yuanyuan, 160241@sdada.edu.cn

1 Introduction

Site design is a series of activities which is based on the current situation of groundworks, laws, and regulations in designing and organizing the use of different elements in the construction site to meet the requirements of a construction project.[2] In the development process of construction projects, site design involves the whole process of urban and rural planning, landscape designs, architectural designs, as well as engineering constructions. The site design course covers a wide range of activities and contents. Generally, it is related to the plan of a project, while more specifically, it is associated with the fine control of environmental surroundings. All the above mentioned are under the category of site design. For architects, site design is compulsory and is an essential professional skill. Research, analysis, and utilization of site conditions are often the source of inspiration for architectural design. Site design, which determines the direction of a design scheme is a breakthrough for successful architectural designs.

However, for a long time, no such course exists in China's education system for undergraduate students majoring in architecture. The content taught in the site design course is covered in architectural design. Its patterns rely on the architectural design scheme to be presented and expressed. With the expansion in education research and the complexity of architectural design projects, there is an urgency and necessity to learn relevant knowledge of site design specifically. Hence, at the beginning of this century, many architectural departments in China had the idea of setting up site design as an independent course. By establishing this course independently, the importance of site design is emphasized, the connection between site design and other professional courses is strengthened, and the integration of architecture and planning, landscape

and other related disciplines is enhanced. It helps students to establish a systematic knowledge structure while cultivating their abilities for overall organization, general thinking, and comprehensive designing. After more than ten years of exploration and practice, the education department in China have gradually gained achievements and experiences in terms of curriculum content, teaching methods, and effects. This paper takes into account of architectural design education and the prospects of future development in site design courses.

When China had initially developed the site design course, the systematic organization of its lessons was unclear. It is understood that site design courses are complicated. It involves a wide range of fields including topics like society, economy, culture, technology, aesthetics, and others. This raised questions in terms of establishing the structure of the theoretical framework of the course, balancing the relationship between theoretical knowledge and practice, as well as allocating reasonable learning hours. These questions need to be answered in a step-by-step practical teaching process.

The method to carry out site design work in China is based on a collection of effective design experiences which are obtained from previous practices as there are insufficient research. At present, the teaching materials that are used in colleges and universities for site design courses focus on explaining the basic concepts, constraints, work points, creative skills of site design, and to enumerate the design examples for analysis and commenting. If the arrangements of lessons are simply organized based on the contents in textbooks, it is inevitable that the students will just passively listen in the classroom. Hence, the students' understanding towards site design will be based only on textbook knowledge and it will be difficult for them to form actual learning experiences in designing. In addition to that, the topics of general layout, site design condition analysis, traffic organization, vertical layout, pipeline synthesis, greening and environmental landscape layout are divided into several chapters, which weakens the mutual constraints between the comprehensiveness of site design and various site elements. This is then quite different from the requirements in actual site design work.

It would be more efficient for students to learn with questions. By providing design topics for them, students will be the ones to analyze the situation of the basement, design the requirements of the task book, and attempt to seek solutions independently. This will encourage their enthusiasm in learning. However, the emphasis of site design varies, and different propositional methods convey different teaching directions. In the recent years, the educational practice of site design courses which is based on experience only has gradually moved to more scientific and professional development. This is in line with the advanced international teaching concept and architectural design concept.

2 First Level in the Education of Site Design Course – Integrating General Plan Design

For undergraduate students majoring in architecture, architectural design course is the core of the education plan in the whole education process. In architectural design, students usually neglect site factors. In short, they do not take note of environmental factors while devoting their time and energy to the design of architectural monomer. They neglect the full consideration and expression of the site, environment, and general plan while focusing on the organization of architectural functions, the composition of architectural forms, and the layout of architectural structures. This shows that they do not place importance to the design of architectural sites. Site design is a comprehensive subject which involves the analysis of fundamental construction case, site layout, traffic organization, vertical design, pipeline synthesis, environmental protection, landscape construction, analysis of economic conditions, and many more elements. It would be difficult to consider all those in carrying out the designing work. With limited class hours, students will not be able to grasp all these aspects. Hence, the time and energy devoted to site designs are minimal which affects the design depth of the site.

In architectural design courses, after the completion of the whole architectural design plan, students will integrate the outline of the building with the shape of the land. They would include the necessary elements like roads, parking, greening, and others around the building. They will then draw a general plan to meet the project's technical requirements. Students' willingness and understanding of site design are not profound. They assume that the ability to attract audience's attention is the best way to evaluate the success of a project. These attitudes lead to design inconsistency while site design simply becomes a drawing contest. When architectural students graduate and step into the workforce, these are reflected in their architectural design work, whereby the buildings and construction materials are exquisite in form, but the surroundings of site are simple and roughly done. These students are only able to propose planting of greeneries around the buildings which results in a disunified appearance of the city and living environment. It is acknowledged that some architectural design projects are problematic because of unreasonable site design and its effect on the layout of urban planning.

Initially when site design became an independent course, one of its purpose was for students to place importance to the design of a general plan. Through the learning of site design, students may have a comprehensive understanding of site design and its constraints, understand the constraints on each level, and familiarize with each concept and its contents. In this way, students may flexibly apply site design skills and methods to solve practical problems. The course adopts the propositional method of reviewing the general plan in architectural design. This helps students to use the knowledge of site design in dealing with the relationship between buildings and urban planning, appropriately arranging the entrance and exit of buildings, planning the traffic flow in the site, and trying to make as few mistakes as possible. Through this course, students will also be able to emphasize on the design of site environment and set up the consciousness of landscape design. Hence, the perception that a building project is not only a simple architectural ontology design, but also contains meticulous environmental design will be well understood. The contents of architectural design, planning, and landscape should be embodied in the general plan. They should also be rigorously, meticulously, and vividly expressed to conform to the complexity of general plan designs.

3 Second Level in the Education of Site Design Course – Integrating the Registered Architect Examination

By having an independent site design course, the students' ability of general plan design and expression may be improved. However, there are some issues to this. For example, students may regard site design as merely drawing a general plan while neglecting the constraints of the design specifications standards. They would also focus only on composition and formal language, as well as pursuing artistry and innovation. In addition to that, examples of design sites are usually virtual ones which are created by the educator's imagination. These examples generally portray surrounding environments which are simple and idealized. The complex constraints in actual projects are not considered which leads to the students' shortfall in solving practical problems. These problems are reflected in the architectural design curriculum which urge educators to continually contemplate about its curriculum.

With the development of site design courses, many more architectural colleges have been conducting them. The combination of architectural education with vocational education has been the objective in consideration of the professional future development of architectural students and the implementation of the registered architect system in China. Since 1994, China has conducted the first class registered architect examination. In this examination, site design (drawing) is one of the most important yet challenging topics. Architectural graduates who are determined to engage in the architectural career must face the reality that this examination is a necessity. In view of that, many architectural departments integrated

the registered architect examination site design projects into their courses. The introduction of the examination contents will guide students to be more pragmatic in regard to site design, master its specifications and techniques, as well as to adapt quickly to the professional work requirements of architectural designers in the future.

This kind of teaching arrangements enriches the curriculum structure of the general plan design in the early stage and helps to make the site design practical. For example, the challenges in site analysis are helpful for students to determine the scope of construction in a project base and to reasonably construct the layout of buildings in the general plan. In regard to site profile and terrain design, they are helpful for students to master the complexity of topographic map, promote the students' design ideas, and put forward a more local and regional architectural design scheme.[3] Learning and analyzing the challenges in the examination of registered architects may help students in regard to their professional skills. The integration of the teaching contents with reference inspection and on-site education may promote the students' perceptual understanding. Hence, by merging the design requirements, site drawings, and actual results, encourages students to form a sense of space and scale in the knowledge of site design.

Modern architectural design works are systematic industrial projects which involve many professionals. Architects and engineers of various specialties are required to cooperate and work together. The refinement and specialization of design have become increasingly prominent whereby site design has its own professional requirements and cooperation with other specialties. Hence, architects are required to have strong skills for site design, master the relevant professional skills, and to deal closely with other specialties which are responsible for structure development, equipment, and so on in order to smoothen the construction process. This is the reason why it is necessary to practice similar targeted topics in educational courses.

Of course, the site design course is not a training platform for the registered examination. Undergraduate students are not architectural design practitioners yet, so in the process of education, the conscious control of trivial and redundant specifications as well as complex engineering calculations need to be reconsidered. The focus should be on factors that will greatly influence the architectural design plan. The main goal of the course is to develop students' logical thinking which will benefit students in establishing the consciousness of site design and preserving their development space for more creative thinking. Site design does not only involve technical designs, but it also concerns the spirit, culture, and aesthetic aspects as well. These links are easily neglected in the teaching process. Therefore, emphasis should be on the integration of technology and artistry of site design to improve students' comprehensive qualities. The course should retain the corresponding lessons in regard to the registration examination so that students can master the necessary professional skills. In addition to that, people's behavior, psychology, and aesthetic requirements should also be emphasized to increase the humanistic care in relation to site design. In simple terms, the training of site design born out of the registration examination should not only be restricted to the requirements of the examination. Therefore, shaping this kind of site design education for sustainable development should be taken as a serious responsibility.

4 Third Level in the Education of Site Design Course – Integrating Architectural Planning

A construction project needs to go through several stages such as project establishment, design, and construction before it can be completed. Whether the results of the project will meet the usage requirements or the benefits of land development and utilization, it will take several years after completion to deliver a convincing answer. The construction market of China is fast and has large construction scales. In view of active development in the urban and rural areas, there is a tendency that people would exploit imprudently by completing the design work without enough consideration. For

example, in the process of construction, the development potential of the land is neglected, the benefit of the land usage is low, or the volume ratio is too high, and the intensity of land usage is beyond the reasonable range. There are times when buildings are developed only in consideration of convenience and the economic factor. This would result in a negative effect on the city's functions. In addition, with the development of urbanization that is moving into a new age, many development projects are no longer new projects only. In many cases, old buildings require transformation, and the environment of the existing buildings need to be upgraded. Hence, the subject of site design is gradually diversified. These issues are closely related to site design, but they are beyond the present scope of this subject.

Site design is the initial step in architectural design and is inextricably linked with architectural planning. To avoid purposeless development and resources wastage, architects should have the skills and consciousness in architectural planning. They should systematically evaluate the rationality of the project task book and provide professional suggestions in the construction process. The target scales, external and internal conditions, concepts of space, and other aspects of the building planning will affect and determine the results of site design. If site designs are not guided by architectural planning, there will be risk of deviations which leads to unwarranted projects being constructed. At present, the local and abroad architectural design industry have reached a consensus that the development of the industry should be based on architectural planning and guidance of architectural design. This leads to the assertion of corresponding requirements for architectural design education.

Although architecture is a technical carrier, it also carries the civilized achievements of human social development. Specifically, in terms of site design, previous teachings have focused on the "hardware" while neglecting the "software" of the site itself such as the spiritual as well as the local context of the place, aesthetic attributes, and so on. These are essential components of architectural planning which supplement the site design education deficiencies. It is an immemorial mission of contemporary architects to emphasize on local architectural traditions and cultural heritage by integrating site designs with local cultures. This is to retain the historical value of cities and villages, integrate local characteristics into new creation of architectural works, and nurture a sense of belonging.

All along, site design courses have been guiding students to plan and build reasonable projects according to the projects' foundation. Students have been taught to flexibly use terrain to design vivid buildings while considering the environmental design as the base. Emphasis has been placed on training the students' ability to analyze task books and to create beautiful landscape forms. However, with the rapid development of the construction industry today, the country and society view construction projects in a more rational manner and they are pursuing the concept of "applicable, economic, green, and beautiful" buildings. Therefore, while cultivating students' skills, the concept of Tao should also be introduced. The common goal of site design is to create high quality architectural works. To achieve that, it requires a broader perspective whereby architectural design should be taken into consideration more systematically. Site design is a very practical course and there is a need to introduce actual designing projects as training. It will be helpful for students to understand the construction requirements, complexity, and importance of site designs. The introduction of architectural planning into the site design course is an inevitable requirement of basic education in architectural design.

Site design is a relatively "new" course in the undergraduate architecture education system in China. The teaching experiences are limited to a certain degree whereby feedbacks are still needed so that the course can be better integrated into the professional architecture educational system. Site design is based on cultivating students' holistic way of thinking to establish the complementary relationship between the site, environment, architecture, city, and landscape. After years of

practice, the current site design courses are able to help students to be more skillful in general plan design, understand the relationship between site and architecture, and acknowledge the relevant requirements for the registered architect examination. Educators have also been introducing the concept of architectural planning in site design courses as well. In this way, students will be more equipped with a stronger sense of responsibility towards the society. They would not blatantly design a project, but would apply professional knowledge to establish more systematic, reasonable, and appropriate work in enhancing the comprehensive benefits and cultural heritage of buildings.

In relation to educational targets and development directions of site design courses, its contents can be further enriched. In addition to the necessary theoretical knowledge of site design, more practical topics should be introduced to guide students in experiencing the whole process of data collection, project planning, design task drawing, and site design especially in the early stage of the project. The students' perception that site design drawing is an isolated category needs to be changed. A visit to the completed construction project site should also be arranged if time allows. Opportunities through observation, random interviews, and other forms of self-experiences will provide a platform for students to note the advantages and disadvantages of project site designs. By integrating the theory, design drawings, and field experiences, they will be able to appreciate the work content of site designs and understand their important impacts. Other than that, students can be divided to form design groups, simulate the patterns in architectural design work, and brainstorm to solve problems pertaining site designs. In this way, they will gain adequate knowledge which covers a wide range of topics, hence, avoiding the omission of important points.

In line with the increasing complexity of contemporary building development projects, the registered architect examination is also adjusting accordingly. In complete construction projects, site design is essential, and its success or failure has great influence. There is a need for continual development of site design courses and constant improvement among its educators.

Disclosure statement

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References

[1] Wang, W(2018). Research on Teaching Reform of Site Design based on the Joint training Model of A+U+L three majors. A&C Theory Research, 12.

[2] Zeng, H., Xie, J(2018). Application-based "Site Design" Teaching Inquiry. Knowledge Library, 11.

[3] Yu, M., Zhang, N., Liu, R., Xu, D., Zhang, L., Li, Y., Han, W(2020). Research on Teaching Optimization of site Design course based on Applied Talent training. Education Modernization, 6.

[4] Li, W., Li, M(2019). Teaching Method and Thinking of "Site Design" Course in Architecture. Education and Teaching Forum, 8.

[5] Zhao, Y(2018). Teaching Reform and Reflections on "Site Design" Course in Architecture. New Curriculum Research, 2.

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[1] Yao Y., Xia B. Application of Phase Frequency Feature Group Delay Algorithm in Database Differential Access. Computer Simulation, 2014, 31(12): 238-241.

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[2] Gamelin F.X., Baquet G., Berthoin S., et al. Effect of high intensity intermittent training on heart rate variability in prepubescent children. European Journal of Applied Physiology, 2009, 105: 731–738.

Journal article (online) with one to three authors

[3] Jackson D., Firtko A., Edenborough M. Personal resilience as a strategy for surviving and thriving in the face of workplace adversity: a literature review. Journal of Advanced Nursing, 2009, 60(1): 1–9,

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[4] Hargreave M., Jensen A., Nielsen T.S.S., et al. Maternal use of fertility drugs and risk of cancer in children—A nationwide population-based cohort study in Denmark. International Journal of Cancer, 2015, 136(8): 1931–1939.

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[5] Schneider Z., Whitehead D., Elliott D. Nursing and midwifery research: methods and appraisal for evidence-based practice. 3rd edn. 2009, Elsevier Australia, Marrickville, NSW.

Book with more than three authors

[6] Davis M., Charles L., Curry M.J., et al. Challenging spatial norms. 2013, Routledge, London.

Chapter or Article in Book

[7] Knowles M.S. Independent study. In Using learning contracts. 1986, Jossey-Bass, San Francisco, 89–96.

Others

Proceedings of meetings and symposiums, conference papers

[8] Chang S.S., Liaw L. and Ruppenhofer J. (eds). Proceedings of the twenty-fifth annual meeting of the Berkeley Linguistics Society, February 12–15, 1999: general session and parasession on loan word phenomena. 2000, Berkeley Linguistics Society, Berkeley.

Conference proceedings (from electronic database)

[9] Bukowski R.M. Prognostic factors for survival in metastatic renal cell carcinoma: update 2008. Innovations and challenges in renal cancer: proceedings of the third Cambridge conference. Cancer, 2009, 115 (10): 2273, viewed 19 May 2009, Academic OneFile database.

Online Document with author names

[10] Este J., Warren C., Connor L., et al. Life in the clickstream: the future of journalism, Media Entertainment and Arts Alliance, 2008. viewed 27 May 2009, http://www.alliance.org.au/documents/foj_report_final.pdf

Online Document without author name

[11] Developing an argument n.d., viewed March 30 2009, http://web.princeton.edu/sites/writing

/Writing_Center/WCWritingResources.htm

Thesis/Dissertation

[12] Gale L. The relationship between leadership and employee empowerment for successful total quality management. 2000, University of Western Sydney.

Standard

[13] Standards Australia Online. Glass in buildings: selection and installation. AS 1288–2006. 2006, SAI Global database.

Government Report

[14] National Commission of Audit. Report to the Commonwealth Government, Australian Government Publishing Service, 1996, Canberra.

Government report (online)

[15] Department of Health and Ageing. Ageing and aged care in Australia, 2008, viewed 10 November 2008, http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing

No author

[16] Guide to agricultural meteorological practices. 2nd edn, Secretariat of the World Meteorological Organization, 2010, Geneva.

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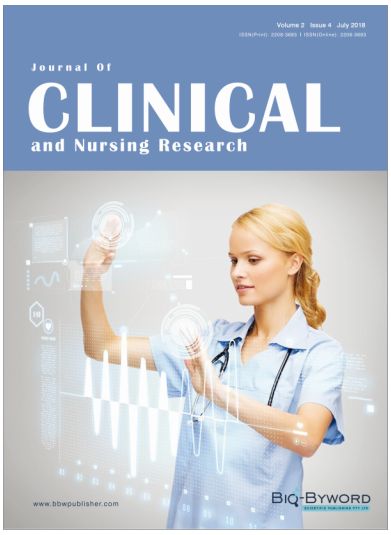

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