

Research on Design Principle and Practice of Workshop of South China Education History HIBL Base (Pingshi)

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ABSTRACT

Based on South China Education History (Pingshi) Hands-on Inquiry Based Learning (HIBL) base, through the research of south China education history, combing the wartime Pingshi area university planning and design method of comprehensive analysis of the town of Pingshi historical cultural background and geographical advantages, architectural design and five principles of historicity, regionality, education, security and moderation of the workshop mode of the HIBL base have been put forward. Taking plant workshop in Pingshi Old Street as an example, the practical of workshop model is analysed. The relevant design research on the functional mode of workshop has been improved, which provides reference significance for future HIBL base and rural construction under the background of inheriting excellent history and culture.

Keywords-*Hands-on Inquiry Based Learning (HIBL) base; Pingshi; workshop mode; south China education history; HIBL*

1. INTRODUCTION

Hands-on Inquiry Based Learning (HIBL) is a kind of after-school educational practice which is organized by the educational administrative department and the school, plans the HIBL routes and the HIBL projects in advance, and takes the form of students' collective travel. The excursion activity combines inquiry learning with travel experience, connects in-school education with out-of-school education, and innovates the form of practical education. It is the direction and content of education curriculum reform and also an important part of the teaching plan of school. Since 2013, the Ministry of Education, the Ministry of Culture, the National Tourism Administration and other relevant ministries and commissions have issued a series of policies related to HIBL, which have a positive incentive effect on HIBL and promote the system construction and overall development of HIBL.

In June 2019, with the efforts of the Professional Volunteer Committee of "planners, architects and engineers" (Three Professionals) in Guangdong Province, the provincial Institute of Cultural Relics and Archaeology, and local government departments, the

historical relics of national Sun Yat-sen University in Pingshi area of Lechang, Shaoguan city, during the Anti-Japanese period were discovered. The relevant research and protection work has been carried out rapidly. Under the unified deployment of the provincial government, "Strengthening the protection and utilization of cultural heritage" has been clearly proposed, and "South China Educational History HIBL Base" (SCEHHB) has been planned and built in Shaoguan, Qingyuan, Meizhou and Yunfu. However, a large number of historical relics in Pingshi town lack of reasonable protection, generating many damages and collapse. With the passage of time, this section of history is gradually forgotten, inheritance and carry forward this section of education history in Pingshi town is imminent, the planning and design of the HIBL base is urgent.

This work hopes to further sort out, protect and activate the history of south China education in the war of Resistance against Japanese aggression and promote the spirit of patriotism. By studying the activation mode of old buildings in Pingshi area, drawing lessons from the utilization mode of buildings during the Anti-Japanese War and combining with the innovation of workshop mode, this paper summarizes the transformation strategies of old buildings with historical background and

sorts out Pingshi experience, providing historical basis and practical reference for old buildings in HIBL bases facing similar situations.

2. BACKGROUND

2.1. South China Educational History

In October 1938, the war broke out in Guangzhou, and a group of colleges and universities in Guangdong province represented by National Sun Yat-sen University moved to Pingshi Town of Lechang, Shaoguan, Lianxian County of Qingyuan, Yunfu, Meizhou and other northern cities in Guangdong to avoid the war. They persisted in running schools on the battlefield until the end of the Anti-Japanese War. After the war, these colleges and universities gradually developed into important institutions of higher learning in South China. This large-scale relocation continued the flame of Education in South China and retained an important force for the rejuvenation of education, culture, science and technology of the Chinese nation.

Pingshi Town provided good shelter for the National Sun Yat-sen University during the Anti-Japanese War. In 1940, Sun Yat-sen University moved to northern Guangdong under the leadership of school president Xu Chongqing. The headquarters, research institutes, Prep school and other institutions are located in Pingshi Old Street under Jinji Mountain. The rest of the colleges are basically distributed in the villages with difficult conditions within a radius of 100 miles: Wuyangsi Village, Sanxingping Village, Xincun, Pingshi Old Street, Tieling, Tangkou Village, etc. At that time, Pingshi town became the concentration of teachers and students, which not only continued the culture of Sun Yat-sen University, but also became the root of Sun Yat-sen University, South China University of Technology, South China Agricultural University and South China Normal University in the future.

Pingshi town is a rare base for academic theory creation, in which a lot of achievements were still made in Architecture, Geography, Botany, Geology and other fields, making historic contributions to the academic research of new China four years later.

Constructing the educational history HIBL base in north and South China has become an important strategic measure to promote the development of culture, tourism and sports in Guangdong Province. The key problem to be solved is how to reflect the history and culture in the reconstruction design, innovate in the function mode and integrate the local historical tradition by taking the education history of South China as the background support and combining the relevant theories of the construction of the HIBL base and the local unique folk culture.

2.2. Buildings in wartime

The external environment was even worse during the war, so located in the remote mountainous area of northern Guangdong, Pingshi is extremely short of construction resources. Under special circumstances, in order to save money and time, Yu Binglie, professor of Engineering School of Sun Yat-sen University at that time, served as the chief planner and architect. In the design and construction of a large number of buildings, such as classrooms and dormitories, he learned to use common forms and building techniques of local dwellings, and made use of Chinese fir board, Chinese fir bark, pine wood, bamboo poles and other building materials according to local conditions. These practices reflect the experience and wisdom accumulated by local people for a long time.

For example: Stone and lime sand were used to be the ground foundation; The structure and maintenance components are made of wood; Wooden floor beams laid on the foundation; Wooden columns and wooden frame, triangular wooden truss structure were widely used; Using bamboo and a variety of binding technology; the wall to join the woven bamboo bars and brick and mortar plastering; attached the Chinese fir skin fish scale board to the wall; window sash for bamboo grating; Roof rafters directly tiled or fir (three layers)...While ensuring the safety of students in the school building, the emergency project was completed at a very low cost to meet the needs of material shortage and rapid construction, showing the unique exploration of emergency construction in the Rear area of China during the War of Resistance against Japanese Aggression.

On the whole, there were three types of ways of building the National Sun Yat-sen University during the Anti-Japanese War in Pingshi. The first type was the new school building, which carried out systematic planning and layout of functions and forms. The second type is the reconstruction and expansion, including make use of the original ancestral halls, temples, schools and other public houses, dwellings, etc., to transform temporarily as school buildings, and then gradually expand on this basis; The third is to rent local dwellings on the spot. These three methods (new construction, reconstruction and expansion and lease) are also the activation methods of old buildings in South China Educational History HIBL Base.

Although the current environment has been improved, there is no war and we have relative plenty of money and time. We can learn from the first generation of Chinese architects during the war while considering traditional architecture and local culture and customs, and refer to the practices of residential houses based on local conditions. The new HIBL base is not only to build the new research classroom, or to excavate the history and old site of the universities, but also to reconstruct the

classroom through a series of architectural projects for the memory and salute of Pingshi teacher. We can recall the educational spirit of South China by studying the great achievements and contributions of Pingshi teachers through the form of HIBL. It is a kind of methods to promote education spirit passed on from generation to generation that we build HIBL base in the old school site to restore its urban and rural fabric by studying the old methods, relying on the old Pingshi style and history.

2.3. Other background

Pingshi town, Shaoguan, which is in northern Guangdong has many high-quality cultural tourism resources such as railway culture, ancient post road culture, red revolution culture and educational culture. In addition to the history of education, the long-term revolutionary struggle in Pingshi left battlefield and traces of the revolutionary site of important revolutionary leaders, martyrs.

Geographically, Pingshi town is located in the junction area of Guangdong, Guangxi, Hunan and Jiangxi provinces. The Yile Ancient Road of Xijing Ancient Road passes through Pingshi. It is an important part of the ancient Courier Road in Southern Guangdong and a channel of foreign economic and cultural exchanges in Lingnan region in history. Because of this, Pingshi created a prosperous development of trade in history, and was one of the important distribution centers of materials for four provinces. At the same time, traffic location advantage and the war brought a large number of Hakka immigrants to Pingshi, of which the language and architectural expression form had been affected by the Hakka immigrant culture.

Pingshi town also retains the "Naozi (go to a fair)" folk custom, as well as Peanut Tofu, Chen Youji Chili Sauce, the Tanka Glutinous Rice Cake and other specialty food snacks. Local folk culture types are also abundant, which are reflected in traditional festival activities such as Lechang Flower-Drum Opera, Lechang YuGu Opera, Lechang Frog-Lion Dance. However, with the development of urbanization and the migration of population to cities, traditional folk performance and tool making are facing a survival crisis without inheritance.

The holding of HIBL activities is conducive to the revival of Pingshi area, which can combine the local unique historical and cultural, tourism resources, give full play to its historical and cultural advantages, build HIBL bases and carry out HIBL activities. It can also be combined with other activities carried out at the same time, such as Southern Guangdong Ancient Post Road Orienteering Competition and Ancient Post Road Children's Painting Competition, to activate the forgotten folk culture tradition, promote historical patriotism and promote rural revitalization.

Table 1. Project Background Advantages

Aspect	Reflection	Influence
Location	Located in the junction area of Guangdong, Guangxi, Hunan and Jiangxi provinces.	Convenient transportation & Cultural communication
Business history	Ruins of the old shops in Pingshi old street	Developed trade
Hakka culture	Hakka language	Influence of Hakka culture on architecture and cuisine
Folk culture	Traditional Intangible cultural Heritage & Characteristic cuisine	Intangible cultural heritage & Rich folk festivals
Education al history	Historic site of universities	Promote patriotism
Tourism resource	Jinji Mountain、Drifting	Rich tourism resources which are conducive to regional tourism
Other activities	Orienteering Competition & Ancient Post Road Children's Painting Competition	Supporting research activities bring rural revitalization

3. ACTIVATION PATTERNS

3.1. Workshop mode

Not only learning the material and form of the traditional buildings, but also the function of the HIBL classroom should be innovative. On this basis, the activation way of workshop mode is put forward. Workshop mode refers to the workshop experience-based HIBL mode, that is, based on the local culture and history, traditional folk customs. By designing different Spaces and importing the function and classroom form of workshops, combined with the theme of the exhibition hall, we can guide students' behavior. Besides, diversified expressions are adopted to convey local traditional culture connotation and enhance cultural appeal applied to modern technology.

In the form of workshops, HIBL education and popular science are carried out, which not only meet the

requirements of ordinary courses, but also provide places for HIBL scholars to experience and participate in hands-on activities. In the way similar to manual experience workshop and traditional culture experience hall, teaching content and knowledge are acquired in production and production scenes, so as to deepen the understanding of history and culture of researchers and achieve the effect of immersive educational experience.

Workshop experience-oriented HIBL Base is a building with the functions of villagers' research and scholars sharing, production and living, and culture. It not only has the significance of research, but also can promote the combination of agriculture, culture and tourism through the intervention of HIBL base, so as to activate the rural economy and culture and restore the memory of the site.

3.2. Principles of protection and utilization

Historical

Comprehend the relevant history of the Workshop In combination with the theme. The influence of historical elements should be considered in the design of theme venues and activity places, including corresponding teaching activities, workshops and experienced activities related to history, and HIBL classes. The experienced HIBL mainly includes: plant specimen making, model making and other activities. In terms of functional design, the relevant historical background is used as the design basis to study the regeneration of historical and cultural elements in the design of old buildings.

Regional

In the building materials and forms of the continuation of Pingshi, Shaoguan area of northern Guangdong traditional architectural style, learning from the practice of local dwellings. The traditional longhouse-style architecture, the layout form and street scale of buildings in northern Guangdong is basically adopted, continuing the style of old Pingshi. At the same time, local traditional red-sandstone, blue brick and other readily available materials were wildly used in the building materials.

Educational

The HIBL base breaks through the boundaries of traditional education, allowing students to step out of the classroom and come to places with historical and cultural heritage. And a variety of interactive ways of modern science and technology are added in the design of the HIBL classroom. Under the infiltration of the stereoscopic education environment, experiential learning brings fresh classroom experience to the students, and further activates the traditional folk art and the gradually forgotten history of education in northern Guangdong.

Safety

Students are the main users of HIBL bases. Thus, the safety should be taken into consideration first and the design specifications should conform to the standards of children while planning and designing of bases, HIBL classrooms and exhibition halls. HIBL with Workshop mode cannot avoid using tools, in the design of HIBL courses and tools should be fully considered in the safety of materials and production process, to avoid using dangerous tools. The display of dangerous items such as knives and scissors are also set up with strong security devices to avoid direct contact with students

In addition, the planning also includes the planning of public infrastructure such as public toilets and medical stations, which can meet the basic emergency management needs to a certain extent and have the ability to deal with emergencies.

Appropriate

In the protection of residential houses, we should not only emphasize the preservation of the original appearance, but also meet the increasing needs of people's life through necessary modernization. At the same time, excessive modernization and even commercial transformation should be avoided.

Fig.2 Principles of protection and utilization

Principles	Description
<i>Historical</i>	Functional display combined with history, refining and integrating historical and cultural elements
<i>Regional</i>	Continuation of traditional architectural style
<i>Educational</i>	Diversified classroom patterns
<i>Safety</i>	Safety assurance and incident handling
<i>Appropriate</i>	People-oriented, advancing with the times

4. PRACTICE OF SOUTH CHINA EDUCATION HISTORY HIBL BASE (PINGSHI) PROJECT

4.1. Overview

Pingshi Old Street (Gonghe Street) lengths 1.5 kilometres long from the south to the north is located in Pingshi town to the north of 4 km, close to the Wu River. Pingshi town is rich in water resources with abundant rainfall, adequate light, of subtropical monsoon climate. Affected by the river and wind direction, the dwellings along the street face the Wu River and are connected in parallel horizontally to form an array of strip row houses. Each house retains the form of a single long-house, which does not exist alone, but shares gables with each other. The main streets and lanes are parallel to the river, drawn

by the river to form a strip, and a number of docks were set along the river.

Pingshi Old Street located on the Xijing Ancient Road is an ancient market formed in the Qing Dynasty. It used to retain the original appearance of the ancient market and the two-storey wooden structure shops reserve the architectural style of the Ming and Qing dynasties. The red-sandstone slabs laid on the street surface have been green after years of baptism. The buildings are mostly covered with grey tiles and paved with blue brick, and the facade is decorated with streamlined guardrail, checkered wood windows, high walls and eaves. In the past, chamber of Commerce from provinces around gathered here, and it was the location of the headquarters, research institute, library and auditorium of National Sun Yat-sen University during the Anti-Japanese War. Due to the impact of the flood, most buildings of Pingshi Old Street was demolished, because of which ancient buildings no longer exist. The residential buildings have been vacant for many years and lack of maintenance is difficult to continue. Only the Guangtong Hall and several old shops that used to be the HIBL institute of the National Sun Yat-sen University remained.

4.2. overall planning

The design of Pingshi Old Street is based on the topographic map mapped in the past, dividing the scope of the old road and buildings. Red sandstone has been laid as the main walking road, in order to fully restore the atmosphere of the historical scene. In order to reproduce the original architectural texture of Pingshi Old Street, the wooden historical architecture frame was built on the relics site.

The overall plan sets up four workshop areas with traditional characteristics, including university workshop, traditional food workshop, traditional folk performance and intangible cultural heritage workshop area, interspersed with multi-functional exhibition hall, plant park, square and other tour nodes.

4.3. Architectural renovation design

Taking the University Workshop area of SCEHRB as an example, the planning and design fully respect the local history. The facade of the building is designed according to the existing situation and other local historical features, so as to restore the facade and pattern to the greatest extent, reproducing the original architectural texture of Pingshi old Street, and retaining the Pingshi style.

In order to display the history of the school and carry forward the HIBL culture, the Plant Workshop in the University Workshop area carries out HIBL activities in the form of hand-made plant specimen. The HIBL

activities based on the characteristics of Botany research and discipline, as well as Jiang Ying's background as the director, professor and botanist of the Department of Botany.

The restoration of the Plant Workshop follows the original, restoring the details of the original way the building was constructed. The log structure is followed, and the skylight on the roof is opened to highlight the display wall of plant specimens which is under the skylight. The overall volume is divided into two parts, combining the two adjacent buildings in a unified design. The backyard and the front hall are connected by the corridor and yard, and the single building is set up as a research classroom. To meet the teaching needs of 30 students, it is equipped with educational information facilities such as experimental facilities, production tool display and touch control all-in-one machine, as well as an independent toilet.

The herbarium taxidermy workshop and exhibition area of specimens and historical objects will be set up in the building. Through the process of making specimen by hand, students will have a deeper understanding and memory of Professor Jiang Ying and Botany. Besides, a variety of plants are planted in the backyard for making plant specimens. And a teahouse, a book bar and a screening room are set up in the building, which endows the small space with multiple possibilities in function.

5. CONCLUSION

This paper briefly summarizes the history of education in South China and the tactics of wartime architecture in Pingshi area. Based on the historical background of Pingshi and the characteristics of traditional folk culture, the research on the workshop model space of the HIBL base is to explore new possibilities on the activation strategy of the old buildings in the historical HIBL base.

Pingshi Old Street HIBL base create red education culture environment through the transformation design. Adding experiential learning content, so as to deepen the understanding of Pingshi regional culture by the placement of workshop functions. The design considers the five principles of history, regionalism, education, safety and appropriateness to restore the historical scene and extend the memory of the site.

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