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Effectiveness and Advancements of Heritage Revitalizations on Community Planning: Case Studies in Hong Kong

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Abstract: This research paper assesses the effectiveness of conducting heritage revitalization projects on improving community planning and identifies the advancements and revitalization trends of heritage revitalization in Hong Kong. The study proposes three indicators to judge the effectiveness of heritage revitalization, including attractive appearance and components, creative methods of building techniques and planning, and public acceptance. A case study is adopted to analyze the shortcomings and improvements of the effectiveness of heritage revitalization, along with a comprehensive literature review and statistics related to heritage revitalization in Hong Kong. The results indicated that revitalization is able to effectively modify the outlook of the community and even improve community planning in the future in terms of transportation services, supporting facilities, and living quality. Moreover, by considering the revitalized structure, modern elements and building rehabilitation strategies were included to increase its attractiveness to become emerging tourism spots for business activities. Heritage revitalization practices have been carried out in Hong Kong in the recent decade. The study embarks to identify and analyze the advancements of revitalization development and its revitalizing style reformation by means of the cases recently completed in Hong Kong, which brings insights to academics and policy makers of revitalization in community planning.

Keywords: heritage revitalization; community planning; effectiveness; Hong Kong



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1. Introduction

In recent years, both the Hong Kong government and non-governmental organizations (NGOs) have been working hard on conserving and revitalizing heritages. Referring to the structural concepts stated in the field of building engineering, buildings are generally made up of concrete together with reinforcement. Yet the quality of these components will eventually deteriorate, and hence affects the overall stability of the building. Therefore, it is necessary to carry out revitalization and maintenance works on old buildings, such as repainting and adding concrete covers to reconstruct the structure. Moreover, the heritages are worth revitalizing since their façade designs and interior components represent the historical value of the old Hong Kong culture under the colonization period. It is also vital to especially analyze the revitalization works of heritages and their associated improvements brought to the community concerned so that more effective strategies can be devised constructively for the concerted parties to consider.

According to the Commissioner for Heritage's Office (CHO) under the Development Bureau (DB) in Hong Kong, the government set up the "Revitalizing Historic Buildings Through Partnership Scheme" in 2008. This scheme encourages private non-profitable organizations (NPOs) to participate as an individual or a group in revitalizing heritage buildings with subsidies from the Hong Kong government and operating the revitalized

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buildings for a certain number of years to gain back revenue, which is similar to the operation of Public-Private-Partnership (PPP) in infrastructure construction. Apart from the incentives offered by the governmental departments, as stated by The Commissioner for Heritage's Office (2017) [1], a total of five phases with different revitalization works were completed in the past 11 years. At the same time, the Urban Renewal Authority (URA) has been introducing other upcoming revitalization projects, which indicated that building revitalization is gaining public recognition and popularity in Hong Kong. Besides the NPOs, NGOs, and the government, other stakeholders were involved in a heritage revitalization project as well, such as construction professionals who monitor construction tasks or redesign structures, third parties who conduct consultation work, and the public, including the residents living in those particular districts. For instance, residents believe that construction machinery and works are the major factors that cause air pollution in Hong Kong, reflecting that the public could express their opinions regarding the surrounding environment during construction [2].

The communities would be affected heavily by inadequate or saturated public facilities in the long term, especially in some districts with a population density higher than 20,000 people/km² [3]. Even though some studies have discussed the impact of heritage revitalization from several particular perspectives, few researchers considered how to judge the overall effectiveness of heritage revitalization in the community planning systematically. Consequently, the current main problem is the lack of a systematic and scientific way to evaluate the effectiveness of one heritage revitalization project to help the decision-making of revitalization. This study aims to assess the effectiveness of the reformation of the revitalization works and identify the significant influences of revitalized components on overall community planning from the viewpoints of different stakeholders. Three indicators of the effectiveness are proposed to ensure whether the heritage is revitalized successfully with contributions to the community. Then, the effectiveness of four Hong Kong heritage revitalization projects is analyzed based on three indicators. Shortcomings and advancements of heritage revitalizations are detected and summarized to show the appearance and components of revitalized heritage buildings, building techniques and planning ideas applied in the revitalization, and finally the promotion of public awareness towards revitalization projects in the cultural and historical sector of Hong Kong. This study provides quite a valuable approach to recognizing the actual effectiveness of heritage revitalization, which can help optimize the new revitalization projects before implementation.

2. Heritage Revitalization and Community Planning

2.1. Overseas Revitalization Experiences

Germany

In Germany, revitalization is considered an ordinary process for heritage buildings. Cultural heritage can be viewed as a particular asset of small and medium-sized cities, which often face stagnation or population decline and yet have significant stocks of historic buildings. "Urban Transformation Matrix" was developed by the government to revitalize the historic building stock protected under heritage preservation law [4]. Besides the basic revitalization activities, Germany has started integrating revitalization with conservation and landscape design. Zollverein Park was one typical project using the above strategy. A Comb Building, which was formerly part of a coking plant, was revitalized and has now become one of the preserved structures in the park [5]. The inner spaces of the building were reconstructed into studios and offices open to the public. Not only was the valuable structure rehabilitated and included as part of the design framework, the professional team also reassigned the usage into commercial parts and recreational rooms, implying that this case was able to integrate revitalized buildings into multiple usages that balanced every aspect, thereby improving community planning.

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(2) Japan

Kyoto is one of the oldest cities located in Japan. Many of its houses were vacated due to population loss and therefore were revitalized for reutilization [6]. However, it imposed stricter regulations on design standards while conducting revitalizations, such as to the house components and formation [7]. In order to maintain the overall style of the city, regulations also control the color usage of buildings, including the newly built and revitalized ones. Ronchi (2015) [8] stated that the building color greatly determined the appearance and the attitude of the public, with the support of Kyoto buildings, which have adopted mainly the same hue within the whole district to create a "color-harmonic" atmosphere. With the support of Chan (2019) [6] and the design standards, it was indicated that Kyoto has made use of revitalization activities to develop businesses and promote local cultures. Moreover, the pop culture (particularly manga, anime, and games) of Japan attracts great attention as a tourism resource. In past decades, the Japanese government has also taken advantage of pop culture to help revitalize historical heritage in the city through stages of fan-led projects and festivals led by the local community, tying in the local government with the game companies and the anime production companies, as well as through initiatives by volunteer groups and citizens, such as in Shiroishi city, Miyagi prefecture, in northern Japan [9].

(3) Singapore

Similar to Japan, Singapore had comparatively implemented a stricter regulation on revitalizing requirements and offered a unique style to the revitalized buildings. The reason for Singapore to make a higher standard is due to the balance between conservation and cultural interests with economic return [10] and limitations related to the surrounding areas of buildings [11]. Therefore, buildings located on the main road will be subject to stricter revitalizing regulations. Singapore Chinatown was one of the successful revitalization projects to show the unique theme, since this area was revitalized into a modernized Chinese-style theatre with adequate exhibition boards provided to the public [12]. It can be seen that Singapore has their own revitalization style and has been trying hard to avoid causing significant modifications to the surroundings.

(4) United Kingdom

Significant revitalization activities have also been carried out in the UK. It was estimated that the attitude and feedback from the visitors will be more positive if more activities were organized for participation inside the revitalized buildings [13,14]. Furthermore, regarding the technologies used to facilitate the attractiveness of the building structure, some government departments worldwide have been integrating crafts into 3D models in museums to perform classical reoccurrence even though the original element might be already seriously damaged [14].

(5) Lithuania

More evidence can be found in Lithuania, which has also been organizing revitalization projects so as to improve the overall community image. Dogan (2019) [15] believed that reuse is one of the possible solutions in revitalization and community promotion, and public attitude is considered one of the major factors that influenced the continuity and sustainable development of the structure. Hence, stakeholder responsibilities were well-organized and distributed to the corresponding government departments to handle, ensuring that the cultural heritage properties could be fully managed and preserved, such as in the Vilnius Old Town's case [16].

In terms of the above descriptions, Table 1 summarizes the main features of previous revitalizations in different countries. It is obvious that different countries have taken quite diverse actions to revitalize heritage buildings by taking into account their advantages and considering their unique features. For instance, due to the advanced pop culture in Japan, more elements of pop culture have been adopted in the process of heritage revitalization in Japan; owing to the requirement of urban planning, heritage buildings located in key

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roads and areas have to follow limitations on their appearances and styles in Japan and Singapore. These overseas experiences of heritage revitalization inspire the revitalization of heritage buildings in Hong Kong.

Table 1. The comparison of overseas rev	vitalizations from	different countries.
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Country	Main Feature of Revitalization	Example	
Germany	a. Stagnation or population decline;b. Integration with landscape design.	Zollverein Park	
Japan	a. Strict regulations on design standards of revitalizations;b. Taking advantage pop culture of Japan.	Itonowa in the Shimabara district of Kyoto Shiroishi city, Miyagi prefecture	
Singapore	a. Strict revitalizing regulations;b. Offered a unique style to the revitalized buildings.	Singapore Chinatown	
United Kingdom	a. Paid attention to visitors' feedback;b. Care about preservation and recreation of craft.	Open-air museums	
Lithuania	a. Reuse solution; b. Public attitude.	Vilnius Old Town	

2.2. Literature Review

Revitalization means giving new life, strength, and vitality to an area [17]. Urban revitalization generally implies physical and social, cultural, and economic dimensions [18]. Urban revitalization is quite essential to balancing rapid urban development by conserving urban identity, culture, and traditions [19]. Apart from residential and commercial buildings, heritage buildings are necessary to be revitalized to promote culture, instead of being neglected or demolished. There is a relationship between heritage revitalization and community planning when the objectives and performance of different heritage revitalization projects are considered by previous studies. According to the University of Pennsylvania (2013) [20], urban planning is defined as a process to improve the development of a city and fulfill several social requirements, for example, quality of life and sustainability through regulations or interventions. Moreover, heritage revitalization is defined as the reorganization of an existing city structure due to economic and social declination, consisting of urban environment and quality improvement concepts [21]. From the above definitions, it is believed that conducting a well-planned revitalization project can improve the condition of the heritage; meanwhile, the community would be benefitted socially and economically by attracting more people to come, improving the urban planning and sustainability of the district.

A project can be considered as "successful" when it fulfills the following categories, including meeting clients' expectations, being completed within budget and finished on time, forming good relationships with different partnerships, and others [22]. In heritage revitalization, an unsuccessful project might cause huge money wastage and nondescription in its exterior appearance, while a successful one is able to benefit the society by bringing sustainable revenue and promoting the cultural and artistic sectors. In some districts, with the inadequacy of public facilities and spaces, the revitalization process can mitigate high usage and even improve the planning effectiveness by creating bonding beyond economically contributing to the community. The increment of usable public space brought by heritage revitalization is believed to be a good indicator of successful planning [19].

Furthermore, revitalizing heritage buildings also creates more job opportunities for local citizens. A single revitalization project involves a lot of positions and stakeholders, such as professionals, workers, and consulting departments, who are required to carry out the revitalization work and related monitoring [23]. For instance, in New York, these projects could bring around 60 to 80 jobs [24], which is beneficial to the workers. After revitalization, stores stationed in the building and employees deployed to manage the buildings would be job vacancies for various sectors. Most importantly, the revitalization projects can make significant contributions to the local economy and community planning.

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The revitalization activities overseas revealed that the revitalized heritage buildings are able to provide an area for the local community to start businesses and for entertainment, while non-local visitors can make purchases, which is beneficial for economic development. Enhancing mobility and the transportation system contributes to the economy through revitalizations [25].

Meanwhile, heritage revitalization may bring some negative influences. The increasing property prices of neighboring residential units is one of the negative influences of heritage revitalization. Property prices are found to fluctuate once revitalized projects are carried out nearby, pushing the prices too high to be affordable by local citizens [26]. The new elements included in revitalized heritage would upgrade the surroundings, leading to the "neighborhood upgrading" and "value enhancement" phenomena, which might increase price of nearby residential buildings and worsen the housing problem in Hong Kong. Apart from the effects on property prices, uncertainty towards the expected outcomes after revitalization may also increase. For example, the Police Married Quarters (PMQ) could not reach the expected outcomes, and the tenants left the revitalized building due to high rent [27]. From the geographical point of view, PMQ is located at the mid-levels in the Central District of Hong Kong, where the rent was unacceptably high after revitalization projects, yet the number of visitors was not as high as expected. Thus, the local designers and art store owners who could not afford the rent chose to relocate their stores to attics in other old buildings. It is widely accepted that the number of visitors was mainly determined by the convenience and accessibility to the revitalized buildings. The PMQ case suggests that even though the heritage building itself has been successfully revitalized, its usage may not be able to meet the expected outcomes.

As a consequence, the phenomenon of "gentrification" might be emerged in the active revitalization processes. The "gentrification" is defined as the movement of middle- and high-standard families to some urban districts or areas, thereby continuously driving out the low-income families [28]. This phenomenon is one of the consequences caused by increasing property value. Due to the increase in rents, local shops leave the district, and higher-class families and stores would thus station near to the revitalized building, which forms the vicious cycle where property prices would be driven up by the stores in the revitalized building, causing changes in family classes and levels in those old districts, such as the increase of wealthy families in the Bay Area District in California after the revitalization [29].

In summary, heritage revitalization is a crucial action in urban areas, and many countries or regions have carried out several revitalization projects in practice. However, it should be noticed that positive and negative impacts are possible to be brought by the heritage revitalization. It is essential to judge the overall effectiveness of one heritage revitalization project with the consideration of its both positive and negative impacts, but few studies have focused on it. Therefore, this study tries to propose a way to systematically assess the effectiveness of heritage revitalization in community planning and then identify the reformation and advancements of current projects from the case study in Hong Kong.

3. Research Methodology

As mentioned above, the main objective of this study is to evaluate the effectiveness of heritage revitalization systematically. According to the definition of effectiveness, the features of heritage revitalization were retrieved from existing literature. Then, three indicators of effectiveness were summarized based on features based on experts' opinions about heritage revitalization and community planning. Finally, first-hand and second-hand data for the three indicators were adopted to assess the effectiveness of heritage revitalization in community planning.

In order to explore if heritage revitalization is effective in improving community planning, it is essential to confirm the definition of the effectiveness of heritage revitalization. Since the term of "effectiveness" is broad in interpretations, the effectiveness of heritage revitalization should be defined and assessed by considering special features of heritage

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and functions of revitalization. In practice, the Development Bureau (2017) [24] has stated an effective building revitalization project as fulfilling public acceptance, maximizing the utilization of the unique features of the building, and being beneficial to the local economy. Moreover, some previous studies also mentioned effective revitalizations in the domains of interior and exterior design, with the outcomes related to the public occupancy rate and the impacts brought by revitalizations [30]. In order to evaluate scientifically and systematically, the features and contents associated with the effectiveness of heritage revitalization were extracted from the relevant literature. Because these detailed contents cannot be used in the evaluation directly, expert interviews were conducted to help conclude and confirm the critical indicators from the contents with quite a high creditability and representativeness. For instance, Yung and Chan (2011) [31] discussed encouraging public participation in heritage revitalization, and Cheung and Chan (2012) [32] mentioned that the public is quite sensitive to commercial elements in revitalization, so public acceptance is identified as one indicator of effective heritage revitalization. Therefore, three indicators were identified, including the building appearance and components, planning techniques, and public acceptance. The sources of indicators are also listed in Table 2.

	Description	Source
pearance and components	Are the appearance and components of heritage buildings attractive after the revitalization?	[32,33]
ding techniques and planning methods	Are there any creative building techniques or planning methods proposed and applied in the heritage revitalization?	[32,33]

Table 2. The assessment of the effectiveness of heritage revitalization in community planning.

The performance of heritage revitalization projects in the effectiveness would be evaluated by the above three indicators. Multi-source data are required to conduct the effectiveness evaluation, containing first-hand and second-hand data of heritage revitalization projects. The first-hand data include the official information about projects and information collected from site visits, and the second-hand data refer to the information collected, reported, or processed by others, such as the articles, reports, books, news, and statistics. The findings can be obtained by analyzing the first-hand and second-hand data with three indicators, to ensure whether building revitalization is effective to improve community planning. The research framework of the study is illustrated in Figure 1.

Can the local citizens accept the revitalized heritage building?

[31,32,34]

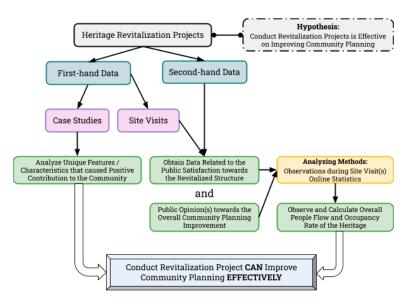


Figure 1. Flow chart of the study.

Aspect

Attractive app

Creative build

Public acceptance

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4. Cases Studies in Hong Kong

Since the sovereignty of British colonial government in 1841, Hong Kong had little interest in heritage until 1997 [31]. Heritage revitalization was not on the government agenda and receive enough public concern. Subsequently, this situation has been improved and heritage buildings raised more attention. Some heritage movements have mobilized in Hong Kong between 2004 and 2006, such as the movement to save the Central Star Ferry Pier. As an administrative response to the heritage movements, the Hong Kong government launched "Revitalizing Historic Buildings through Partnership Scheme". Under this scheme, heritage revitalization projects are funded by the Hong Kong government, eliminating the problems and difficulties related to funding [32]. Considering the date of completion, Hong Kong revitalization projects for Tai Kwun, Police Married Quarters, Mei Ho House, and The Mills were selected, which were unlike previously revitalized buildings such as the Blue House that created controversies to the community [35]. The basic information of the four cases is listed in Table 3.

Project Name	Tai Kwun	PMQ	Mei Ho House	The Mills
Original use	Central police station compound	Central school; former Hollywood road police married quarters	Public housing	Nan Fung Cotton Mills
Current use	Centre for heritage and arts.	Creative industries landmark	Museum; youth hotel	Centre for heritage, arts and textile; fabrica; shopfloor.
Built time	Mid-19th century	1862	1954	1954
Revitalization time	2011–2018	2012–2014	2011–2013	2014–2018
Area	16 buildings	6013 m ²	6750 m ²	24,500 m ²
Cost	HKD 3.8 billion	HKD 0.577 billion	HKD 0.22 billion	HKD 0.7 billion

Table 3. The basic data information of Hong Kong heritage revitalization projects.

(1) Tai Kwun

Tai Kwun could be considered as one of the most successful and well-known revitalized projects in Hong Kong. Before the revitalization, it was a historical central police station compound, consisting of the former Central Police Station, Magistracy, and Prison [36]. This project completed revitalization in 2018, taking the costs of 8 years and around HKD 3.8 billion [37]. As for the community impact, the interviewees elaborated that "Tai Kwun" has provided education of history, architecture, and art to the general public; added new elements to the neighborhood; "become an iconic tourism attraction in Hong Kong"; and enabled the neighborhood to turn into a "dynamic community" [34].

(2) Police Married Quarters

The Police Married Quarters (PMQ) was originally a married-police dormitory before its revitalization. According to Legislative Council (2011) [38], the revitalization cost of PMQ was about HKD 577.1 million, and the revitalization process lasted for around 4 years. After the revitalization project in 2014, PMQ became a multi-exhibition center with local stores on different floors. In order to increase the attractiveness of the building interior, a total of 130 design studios and 1000 m² exhibition areas are offered to the public and promote creative industries.

(3) Mei Ho House

Initially, Mei Ho House was one of the blocks of the old Shek Kip Mei Estate. HKD 209.5 million was invested in conducting the revitalization project. This project began in 2010, lasting for 3 years [39]. In 2009, that Hong Kong Youth Hostels Association (HKYHA) was selected by the Advisory Committee on Revitalization of Historic Buildings (ACRHB) as the service provider for the Mei Ho House [32]. Now it is a hostel together with a small exhibition center showing the history of Mei Ho House and the former Shek Kip Mei Estate.

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Mei Ho House marks the history of early public housing in Hong Kong [32]. Furthermore, the revitalized Mei Ho House contains historical and architectural elements and spots, recalling the memories of local residents, introducing the history to tenants that are living in this hostel and also benefitting the economy and community.

(4) The Mills

The Mills was a yarn mill before conducting revitalization. Now the Mills is a revitalized building that opened to the public for multi-use in 2018. According to In (2018) [40], the cost of this revitalization project was around HKD 700 million, and the revitalization processes lasted for 4 years. Other than strengthening the structural stability, the revitalization adopted more art paintings for wall decoration, and local boutiques and stores were stationed to commemorate the art and textile development and history [41].

Above is a brief introduction of four cases. Furthermore, the basic revitalization contents of four cases are concluded according to three indicators of building appearances and components, building technologies and planning, and public acceptance, as shown in Table 4. According to Table 4, the basic introduction and project conditions of four cases were analyzed and integrated into three domains, including appearances and components, building technologies, and additional contributions. Regarding the domain of "appearances and components", the exterior appearances of all cases were overall preserved with minor repaints and repairs. For instance, the unique building shape was kept, and the materials used for repair were similar. Moreover, some special interior elements were also kept inside the building after the revitalization. Apart from the building appearance, the revitalized building cases added new technologies and functional spaces, such as the 3D visualization system and exhibition areas so as to increase attractiveness and maintain the building stability and greenery areas designed for greening the revitalized building. Considering additional contributions to community planning, every revitalized building case has provided spaces for local cultural, art, and design development, for example, constructing an art center, placing art portraits, etc. The summary of four cases reveals that heritage revitalization projects have similarities and also their own uniqueness.



Figure 2. Tai Kwun sightseeing tour and exhibition.

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Figure 3. Old mailboxes kept in PMQ.



Figure 4. Lots of glass walls installed for more natural sunlight.

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Table 4. Summar	y of revitalization	contents of study	cases (Photos	attached as A	Appendix A).
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Aspect	Appearances and Components	Building Technologies and Planning	Contributions
Tai Kwun	1. The building was conserved overall (Pseudo Conservation) a. Rooftop structure was maintained (Photo A). b. External Wall was repainted (Photo B). c. Two new buildings were constructed, i.e., JC Cube and JC Contemporary. 2. Staircases were reinforced. 3. Cultural drawings were preserved.	1. 3D Visualization was introduced in the building interior: for facilitating the quality of the exhibition (Photo C).	1. Information boards were posted. 2. Photo-taking Booths were set up (Photo D). 3. Round trips and exhibitions were promoted and open to the public Indicated in Figure 2. 4. Stores selling traditional Chinese products and Restaurants are stationed: For art and cultural development [42].
Police Married Quarters	 The building was conserved overall (Pseudo Conservation). Representable former elements were conserved and exhibited. For example, the mailboxes indicated in Figure 3. New art paintings were drawn on building elements (Photo E). 	 A rooftop garden was constructed (Photo F). A new multi-functional hall was constructed. For example, the Qube. 	 Stores selling products by local designers. The store "Taste Library" was stationed: For promoting the local culture. Design Portraits were found (Photo G).
Mei Ho House	1. The building was conserved overall (Pseudo Conservation). - H-shape Housing type was maintained (Photo H). 2. External Wall was repainted.	 Solar panels were installed on the rooftop. Curtain walls were installed (Photo I). 	Mei Ho House museum was constructed (Photo J): For introducing history of Shek Kip Mei.
The Mills	 The building was conserved overall (Pseudo Conservation). Former components were used for decoration. Logo words were retained with mosaic tiles (Photo K). 	 Lots of glass walls were installed: For more natural sunlight, as indicated in Figure 4. Glass link bridge was constructed: For connecting two blocks A rooftop garden was constructed (Photo L). Columns were strengthened. 	 Information boards were posted. Photo-taking booths were set up. An art center was constructed (Photo M). Workshops related to art and textile are held.

5. Findings and Discussions

Based on the basic information of the four cases elaborated above, the effectiveness of these heritage revitalization projects can be assessed and analyzed by three indicators. This section discusses the effectiveness to community planning, containing advancements of the appearance and components, improvements of building techniques and planning, and public acceptance. The relationships among these three aspects and the effectiveness of heritage revitalization projects are illustrated in Figure 5.

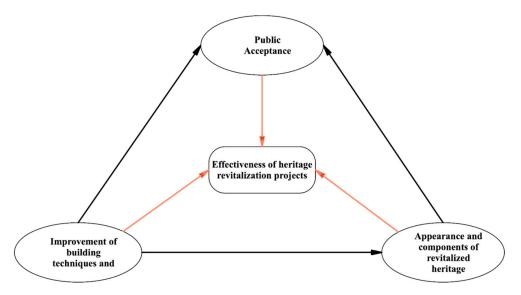


Figure 5. The influence relationship among three aspects.

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5.1. Appearance and Components

(1) Side-Effects in Keeping Appearances

From the case study analysis, we can obtain a revitalizing method to tackle public doubts on community planning by keeping original building appearances. Most building structures of Hong Kong heritage revitalization projects were revitalized within the past 7 years by adopting a similar revitalizing method. Observed from the information integrated from case studies, this revitalizing method means that former components inside the building were demolished, but the exterior facades were usually kept as their original appearance. This could be explained by the fact that the Hong Kong government and responsible organizations have adopted the "Pseudo Conservation" strategy to revitalize buildings, which is a building-revitalizing type conserving the external wall and the appearance of the existing building while altering the interior components and content [43].

In the early 2000s, due to the lack of experience, short-term planning, and insufficient consideration of revitalization methods, revitalized heritage buildings still had little actual usage. So, even after a large sum of money had been invested and a long period of revitalization planning had been spent, these heritage buildings did not show obvious effects. One typical example is the Orange, Yellow and Green Houses in Wan Chai, which was considered a controversial revitalization case in the mid-2000s, since citizens worried about the demolition of featured interior structures, celling, stairs and destroying the local social network. Another case is the Old Wan Chai Post Office, which was revitalized into an Environmental Resource Centre in 1993. However, it did not contribute much to society in terms of economic gain and public acceptance. Yet the project gained fame but created much opposition from the local residents [44]. Thus, it can be reflected that the revitalized buildings under the "Pseudo Conservation" strategy are not always effective. The revitalization methods must be improved and further changed to not only keep building exterior appearances but also to care about the components and content inside the building and respect the original culture and lifestyles in the heritage buildings. Then, the criticism from the public about the contribution and collective interests brought about by the revitalized project can decrease, which could be considered major progress, as evidenced by the case analyses in Table 4.

(2) New Utilization of the Revitalized Building Components

As mentioned above, the Hong Kong government usually adopted "Pseudo Conservation" to preserve the exterior appearance of the building previously. However, this approach has triggered concern from the public, who believed that only the exterior is preserved but not its components nor content. The elements related to history have not been retained, somehow violating the purpose of revitalization. Therefore, innovative elements have been created to act as decorations inside the building to take into account its history. From the case studies of The Mills and Tai Kwun, the former components have been transformed into new elements, such as mailboxes and staircases, which creates a fusion and vintage culture as a new revitalizing way to develop the local cultural sector. Since the former elements of projects of The Mills and PMQ were still in good condition, these elements have been included as ornaments to garnish the interior, such as the old fire bucket in The Mills, which was hung next to the new instruction block so that there can be a presence of former components. Furthermore, since Hong Kong was colonized before 1997, buildings constructed before had the "East and West" construction style, which the above heritage also included [45]. When the revitalization projects were carried out and new elements were added, it might create an "Ancient and Modern" atmosphere regarding its heritage appearance, which could memorably impress the public.

Therefore, the preservation of former elements should be encouraged. As listed in Table 4, mailboxes in PMQ and cultural drawings in Tai Kwun are good examples of the preservation of former components. These preservations can retain some of the initial historical appearances to balance the new structure, remain their own uniqueness, let

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people appreciate their historical value, and also fulfill the requirement of the revitalization policies at the same time [46].

5.2. Improvement of Building Techniques and Planning

(1) Advancement of Adopted Building Technologies

The analysis of Hong Kong cases reveals the advancement of building technologies adopted by revitalized buildings. Introducing new building technologies into revitalization projects can not only improve overall interior and exterior appearances and stability but also improve overall public appreciation and recognition [47], such as 3D viewing technologies to improve the overall visualization. Take the case of The Mills as an example. The revitalization of the logo in the heritage building takes full advantage of this opportunity to adopt specific building technologies to tackle the stability problem. As shown in Table 4, the heritage waiting for acquisition would be vacated for a certain period of time. Therefore, those vacated structures could be temporarily renovated and maintained with the minimum basic technologies [48], such as the basic building rectification procedures such as fixing the water leakage problem and strengthening the concrete by adding extra steel members to extend the lifetime and upgrade the quality standard of the revitalized building. Furthermore, columns in The Mills were specially refurbished and strengthened with structural steel members; meanwhile, the old green stains on the revitalized component were preserved to create the vintage style intentionally. Moreover, some basic building technologies can be applied to heritage buildings undergoing temporary renovations.

(2) New Planning in Building Revitalization

By analyzing the case studies, there was a similarity where exhibiting and shopping areas were planned and included in all revitalized buildings. These planning ideas could help promote cultural and historical development especially. Generally speaking, art and design are not the main industries subsidized by the Hong Kong government. The development for this industry to grow is rather narrow, and some of the exhibition areas may even cost more than HKD 10,000 per day [49]. Due to the high rental price in Hong Kong, exploring space for exhibitions becomes a significant problem in the industry. Therefore, before the opening up of the exhibition centers available in the revitalized buildings, creative products are quite hard to be exhibited in formal venues other than The Hong Kong Visual Arts Centre. It is good news that different kinds of leaflets are also provided at the entrance of the revitalized buildings for promotional and business purposes. The promotional leaflets from Tai Kwun and The Mills and the information from the related official websites state that the revitalized building space can offer great platforms for different industries to promote and exhibit their progress and latest development [50]. Therefore, the promotion of the art and design industries is believed to be one of the paramount objectives of conducting revitalization projects [41].

However, although it is commonplace for a revitalized heritage to be arranged and included as venues for exhibitions or art activities, the theme and nature of activities are somehow different from place to place. Based on the official websites and promotions of activities, different revitalized buildings are mainly responsible for different promotional themes drawn according to the building use before the revitalization [50]. Take The Mills and Tai Kwun as examples. The Mills was originally a yarn mill, which was related to the textile and clothing sector, while Tai Kwun was a former prison and police station, which was more related to the historical and cultural industry. As a result, exhibitions and tours are arranged in Tai Kwun to let visitors become more familiarized with the history and operations of the old prison, whereas in The Mills, workshops were held to show the art of textile and pattern of clothing time-to-time, which is able to draw collective memories of the general public [51]. It is thereby implied that activities, which are different and theme-based, usually need to take place in the related revitalized buildings so as to let the public understand more about the building history meanwhile promoting more cultural elements.

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5.3. Public Acceptance

The press in Hong Kong has published statistics to report on the number of visits to the revitalized heritage buildings as a measure of popularity and attractiveness of the heritage. The revitalized heritage project of "Tai Kwun" has attracted 2.9 million visitors a year [52], but the highest flow of people of the Hong Kong Museum of History was only 1.238 million in 2018–2019 [53]. It is surprisingly interesting to note that the number of people visiting museums was much lower than that of Tai Kwun, even though the former one is specifically designed for such kinds of art activities. Such revitalized heritage buildings become a new type of tourist attraction welcomed by visitors who constantly made positive comments on the building appearance and contents that impressed them most [54]. It is proved that the revitalized heritage buildings have the potential to be well supported by the public.

Another concern is to keep the popularity of the revitalized heritage building. Promotions of newly completed revitalization projects could be commonly seen in different social media channels. "Visiting Revitalized Buildings" has been going viral recently, as citizens are willing to visit and take pictures of the building and its content in order to "Check-in" and obtain "Likes" in their social media accounts. However, this trend has been doubted due to the persistency issue and that visits may not be long-lasting. For instance, Green House in Wan Chai was revitalized in 2013. Nearly 35% of the residents have not visited this project, and 65% of the interviewees could recognize the structure but could not prove they had visited the revitalized building [55]. It indicates that revitalized heritage may not receive a long-lasting spotlight as this trend might be replaced by other pop-ups in the future, resulting in only short-term contributions that could not improve community planning in the long run. As quoted from statistics performed by the LCSD (2020) [56], Dr Sun Yat-sen Museum, a heritage that completed revitalization in 2006, decreased in visitors from 92,000 in 2017 to 56,000 in 2020, showing that there might be other factors affecting its attractiveness, such as accessibility. The role of accessibility in effective community planning has been analyzed in case studies. Since Mei Ho House and PMQ were completely revitalized in 2013 and 2014, respectively, the considerations during the planning might not be mature as nowadays. There was no direct transportation to two projects nearby, so visitors need to walk for around 15 to 20 min, reducing visitors' willingness and interest. The later projects of Tai Kwun and The Mills arranged facilities to connect with attractions. The most famous facility is the Central to Mid-levels Escalator. Although an additional exit from the Central to Mid-levels Escalator and Walkway System was created for Tai Kwun, which is located in the mid-level area in Central District, this facility significantly reduces the inconvenience to the visitors regarding accessibility to the revitalized heritage buildings. The issue of accessibility to the revitalized buildings has been improved in recent years. Since the major aim of revitalizing the heritage buildings is to attract more people to visit and boost the local economy, the public transportation system and infrastructure subsequently should be included in the whole planning considerations to ameliorate the overall district planning [57]. Moreover, due to the convenience to access the revitalized buildings, the public would be more willing to visit the revitalized buildings, helping relieve their doubts from the public towards the persistency issue [58].

5.4. Implications

The analysis of case studies reveals findings and similarities among different cases in aspects of the three indicators. For instance, the exterior façade has preserved and maintained its original appearance in all cases, four revitalized heritages have all included new and high-technological equipment in order to facilitate the overall attractiveness, and each project has added elements that were used for promoting the cultural sector, such as the local design stores in PMQ. According to the first-hand case study materials and second-hand resources collected in this study, it is anticipated that the revitalized heritages can improve the building interior look by adding advanced visualization tools, creating fame and recognition among the public, attracting more visitors to the particular district, and, finally, bringing positive returns to the community. These revitalization cases were

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recognized by the public and can be regarded as successful realizations. The heritage revitalization projects are proved to benefit Hong Kong community planning.

Furthermore, some valuable implications can be obtained from positive and negative effects of actual study cases. Before determining the revitalization schemes, the original culture, lifestyle, spirit, and other aspects of heritage buildings should be analyzed and ensured at first. The revitalization should not destroy the culture and lifestyles of heritage, but respect and follow these to develop appropriate revitalization contents. Furthermore, during the planning and revitalizing stages in the future, innovative building technology elements are recommended to adopt to modernize the old, revitalized structures and facilitate the transformation process. In the planning stage, adopting advanced technologies can improve the overall design and performance of the revitalized buildings by enhancing the accuracy of integrated components [59]. Heritage Information Management (HIM) is also recommended to be introduced to store heritage information to boost the understanding of historic buildings. For example, the project of Lady Hotung Welfare Centre made use of the 3D photogrammetry system and laser scanning to conduct preliminary planning, helping to reduce measurement errors and estimating the amount of revitalization materials more accurately. Apart from the technical involvement, more financial support is required as well. In order to plan and conduct a successful and attractive revitalized project, a large sum of money was required to spend on attractive and innovative spots. For instance, after revitalization, Tai Kwun installed modern machinery to convey more detailed messages to the visitors, such as the scaled 3D model of the whole structure, which was costly for installation and operation. Adequate capital is necessary for further equipment maintenance and equipment repair. Last but not least, public acceptance is a critical factor to keep the popularity of revitalized heritages among citizens and visitors. It is not enough that only the physical building of the heritage obtains recognition. After the construction stage, the operation, publicity, and improvement of accessibility are important as well to keep attracting people to visit the revitalized heritage.

6. Conclusions

Due to aging problems and the utilization of the vacated heritage, building revitalization works require being conducted frequently with the help and supervision of the Urban Renewal Authority [60]. Since these revitalization works have certain influences on the community planning of the area, an appropriate way to evaluate the effectiveness of these revitalization works is pretty necessary to guide and improve the detailed revitalization contents. However, previous research seldom paid attention to a systematic effectiveness evaluation for heritage revitalization. Consequently, this study focuses on how heritage revitalization projects improve community planning and develops an evaluation method for the effectiveness of heritage revitalization projects. In order to judge if conducting heritage revitalization projects is effective in improving community planning, indicators of the effectiveness of heritage revitalization projects are proposed, including attractive appearance and components, creative building techniques and planning, and public acceptance. Four Hong Kong heritage realization projects, including Mei Ho House, PMQ, Tai Kwun, and The Mills, were chosen as the study cases because of their uniqueness and revitalizing style. Four cases of heritage revitalization projects in Hong Kong were evaluated through three aspects. The positive and negative impacts of different heritage revitalization cases on community planning were analyzed.

However, this study still has some limitations. First of all, the proposed effectiveness evaluation is a qualitative method for heritage revitalization projects from three aspects, so the heritage revitalization projects can only be assessed qualitatively. Even though the qualitative evaluation is able to explore the effectiveness of heritage revitalization, it is hard to ensure the degree of effectiveness for community planning. Moreover, the assessment of public acceptance of heritage revitalization mainly relies on the number of visitors. However, considering the political and social situation after 2019 in Hong Kong, it is not very fair to assess the popularity of specific heritage sites based on their number of visitors

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as the pandemic of COVID-19 has forced the sites to be closed for months. The pandemic also affected their planning and marketing strategies, especially those initially targeting inbound foreign tourists. Consequently, the following research will try to develop integrate quantitative measurements with objective indicators for the effectiveness of the heritage revitalization with the consideration of diverse, unforeseen circumstances.

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Appendix A





Photo A Photo B

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Photo C



Photo D



Photo E Photo F

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Photo G



Photo I



Photo H



Photo J

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Photo K Photo L



Photo M

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