Conversation on Saving Historical Communities: A Participatory Renewal and Preservation Platform

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Abstract. What if stakeholders, architects, and developers/bureaucrats could be in a conversation about preservation? By comparing two preservation case studies in Hong Kong and mainland China, and their different results, based on the different levels of democratic involvement and collaboration, the problems of preserving community heritage in mainland China are obvious: lack of authority, financial support, knowledge of preservation, and requests for development. Residents, students, and citizens want to preserve the history and living environment of the community, but bureaucrats want to demolish entire communities and rebuild for economic development. Architects do not often have enough input and rarely collaborate with each other, while preservationists try to save every piece of historical heritage. Thus, a platform is proposed here, to bring together voices from all the relevant participants, to promote democratic communication between politicians and ordinary people, to create multiple architectural proposals for development reference based on crowdsourced materials. Furthermore, to establish an experienceable digital world, archived from the evidence uploaded by stakeholders of heritages marked by bureaucrats for demolition. In the end, win or lose, the stakeholders will have a digital archive and exploring tool of the (former) building.

1. Introduction
This paper explores two cases of the preservation process in Hong Kong and mainland China during the same period. The comparison between the successful public campaign to preserve Wing Lee Street, and the eventual failure to preserve the original site of the Agricultural and Industrial Bank of China, suggests a hypothesis regarding the significance of democracy and multimedia intervention when a historical community needs to be preserved. In both cases, digital tools were rarely used. In the latter case, following the demolition, nothing was left except some photos and videos recorded by volunteers, and even in the first case, if the street is eventually demolished, all the heritage will disappear too.

Therefore, a digital platform able to archive heritage multimedia and collect data and voices from all stakeholders is proposed to not only promote the level of democratic participation, but also build a digital archive of the heritage, which is available to be experienced virtually. The proposed location of the site in the Jingyu District, Harbin, Henglongjiang Province, northeast China, has some timeline similarities with the communities’ establishment and redevelopment plans in the two previously mentioned cases. The platform reveals and publishes the development intentions of bureaucrats to all stakeholders, and provides them with an urgency to act to preserve specific heritage. The crowdsourced data and opinions will then, in turn, inform the bureaucrats of the willingness for preservation or demolition. During the process, professionals such as architects can benefit from this crowdsourced data and share their design power with both the public and bureaucrats. Thus, the separation and opacity caused by the hierarchical difference
between bureaucrats, the public, and professionals can be eliminated. Simultaneously, a digital archive will be established, regardless of preservation or demolition.

The objective of this paper is to propose a new democratic mode of participation in the preservation process, and a new way of preserving based on the latest technology. Analysis, according to the two different political environments in Hong Kong and mainland China, indicates the significant role that democracy plays in a community preservation project. Based on the hypothesis generated from the analysis, this paper suggests a possible method of democratically intervening in the current isolated and exclusive decision-making process regarding the redevelopment plans of community heritage, while also digitally preserving that heritage regardless of the final decision.

2. Methodologies and Technologies

2.1. Crowdsourcing

“Crowdsourcing, by its very name, encourages a comparison to outsourcing.”[1] The definition of the term is based on the key word, “crowd,” highlighting the multi-returning source collected from a single distributed task. From when “crowdsourcing” was first mentioned, by Jeff Howe in 2006, until today, the huge potential of crowdsourcing is well developed. The most common type of crowdsourcing is to use an online platform to share ideas, thoughts, and opinions, eliminating the gap between hierarchies, and directly and effectively returning data to the task publisher. Using this trend, it seems to “appear that the powerful democratic and socializing forces of communications media will eventually have an impact” on the decision-making process.[2]

2.2. Photogrammetry Modeling

Photogrammetry modeling can convert massive, overlaid photographs of an object into a 3D mesh model. Unlike a regular digital model of a set of 2D drawings, this method is much easier and less expensive to record complex site information. With excellent data collection, very useful geographical and texture information can be established as the photogrammetry model is built (Figure 1). One of the essential features of this technology is “multiplicity,”[3] i.e. the model generated by photos taken at different times “represent[s] a life of the building in many versions, over time, and in varying conditions of season, weather, and lighting.”[3] In this case, there are many historical buildings on the site. Many of these buildings are half demolished or damaged. Most of them have interesting but complicated textures. Furthermore, over time, the condition at the site is continuously changing. Thus, one way of collecting site information is photogrammetry modeling. The other benefit of using this technology is that it is easy to use, and a camera phone can easily capture intricate site information.

![Figure 1. Comparison of a photogrammetric model and a geometric model, indicating more information captured using photogrammetric model.](image)
2.3. Game Engine
A game engine is a software framework designed to create and develop video games.[4] The outcome of a game engine, a game, is usually defined as an agency of entertainment or fun. The features a game has, such as participation, rules, and goals, can be also applied to a tool-like game that is designed for more than simply fun. The game in this case is “a means for creative expression, instruments for conceptual thinking, or tools for social change.”[5] Thus, to accommodate complex needs, a multifunctional crowdsourcing platform that could collect media, such as photogrammetric models, images, videos, audios, and comments, is created using the Unity game engine.

2.4. Virtual Reality
Virtual reality (VR) is “used to describe a three-dimensional, computer generated environment which can be explored and interacted with by a person. That person becomes part of this virtual world or is immersed within this environment and while there, is able to manipulate objects or perform a series of actions.”[6] Virtual reality is an immersive method of experiencing a virtual world that is difficult to reach physically. In this case, the advantages of VR, especially the possibility of showing geolocated multilayers of crowdsourced information in a virtual world, are highly significant. It is an excellent way to represent the history of an old or demolished building. The combination of photogrammetry, game engine, and VR could create a comprehensive experience for debating and exploring the community.

2.5. Persona Analysis
To make the platform more reasonable and real, a persona analysis is implemented. Persona is a sociological term that means “a fictional character created to represent a user type that might use a site, brand, or product in a similar way.”[7] Users are divided into eight categories: “Bureaucrats” have the power to make decisions about whether to preserve or demolish a site or building; “Architects” are the most professional users, and generally provide advice to other stakeholders about whether to preserve or demolish; “Citizens” have concerns about the city and spend at least some time in the community; “Visitors” do not have strong ideas about preserving or demolishing, most just wish to experience the original life scene; “Students” at the university in the city accept new technology quickly, thus are able to handle the photogrammetry modeling easily and quickly to use it to record the buildings on site; “Preservationists” want to preserve as much as possible, which might not be accepted by the bureaucrats, but preservationists can provide professional evaluations of a historical building; “Residents” know the community the best. Their comments and uploads will significantly affect other stakeholders’ opinions; “Community service people” work in the community, unlike resident and citizens, they can provide another perspective. The democratic process happens between these characters, and the results stem from the conversation they have. This democratic process could ultimately affect decision-making in a political context such as China.

3. Intervention of Democracy in the Preservation Process: A Case Comparison of Hong Kong and Mainland China
3.1. Preservation of Wing Lee Street, Hong Kong, China
The difficult process from prospective commercial redevelopment to the preservation of Wing Lee Street reveals the public democracy involved in the decision-making process of the redevelopment plan.

Wing Lee Street was built in the 1920s, was destroyed in World War II, and rebuilt in the 1950s. Wing Lee Street is not only a historical street, but also represents the early 1920s Hong Kong architectural style. Tenement houses and platforms are the two typical symbols of this period’s architectural style. The ground floor of tenement houses is often commercially used as shops, with the upper parts being residential. The maintenance structures of most of the tenement houses are built with gray bricks, and the roof is made of wood and tiles. There are 12 tenement houses on Wing Lee Street. Platform is another feature of the early 1920s Hong Kong architectural style. Because of the topography of Hong Kong, mountains limit the land use. Therefore, many buildings were built on the hillside, usually on a huge platform that provides the space
for gathering and other, various social activities that promote neighborhood relationships. The 12 tenement houses are built on platforms, and represent the unique appearance of 1950s-1960s Hong Kong.

In 1998, however, Wing Lee Street was listed to be demolished by the Hong Kong Government because of its only 40-year history. At that time, Wing Lee Street was not a publication industry center, as it was before, it had become a district with old and poor quality buildings inhabited by citizens attached to the area, who had lived there for many years.

3.1.1. The Timeline of Preservation. The chronological process of Wing Lee Street, from listed for demolition to preservation, is shown as below [8]:

1998 Wing Lee Street area included in the development scheme plan (DSP) of Staunton Street and Wing Lee Street (H19 Project), and marked for demolition and redevelopment;

2003.3 Sheung Wan Staunton Street / Wing Lee Street DSP sent to Town Planning Board (TPB) to receive approval;

2003.12.29 Urban Renewal Authority (URA) visited families in the redevelopment area;

2006.11.02 Staunton Street / Wing Lee Street H19 project announced by URA;

2007. URA began to reclaim the land and, according to the redevelopment plan, Wing Lee Street to be built into a 24-story high-rise, including a club and swimming pool. Then TPB modified the H19 DSP accordingly;

2007.09 URA revisited the elders in Wing Lee Street area just before the Mid-Autumn festival;

2007.10 The modified H19 DSP approved by the Chief Executive of Hong Kong Special Administrative Region and Hong Kong Executive Council;

2007.11 H19 DSP F scheme approved by TPB;

2007.12 URA held a community workshop, collecting the voices, opinions, and expectations of the public to the various schemes of H19 DSP;

2008 URA announced the new plan: retaining two tenement houses on Wing Lee Street and its connected street, the original 24-story high-rise was turned into a 6-story tenement house style building;

2008.3 URA submitted the revised DSP blueprint to TPB, which included five tenement houses in the Staunton Street / Wing Lee Street area;

2008.03.06 URA sent suggestions to the property acquisition of 71 property owners in the Staunton Street / Wing Lee Street area;

2008.11 URA decided to push the H19 project by strengthening its preservation aspect, matching the Government policy of revitalizing Former Hollywood Road Police Married Quarters;

2010.2 Echoes of the Rainbow, a film mainly set in Wing Lee Street, reflecting the lifestyle of Hong Kong in the 1960s, wins the Crystal Bear award for the Best Feature Film in the “Generation Kplus” section of the 60th Berlin Film Festival 2010 [9] [https://www.timetoast.com/timelines/54388]

2010.3 The public focused on Wing Lee Street again because of Echoes of the Rainbow;

2010.3.9 URA announced the plan will still be executed;

2010.3.14 Central & Western Concern Group held the “Yellow Belt Action”, collecting citizens’ written wills on a yellow belt of their willingness to preserve Wing Lee Street, and tied them all over Wing Lee Street;

2010.3.16 URA announced that Sheung Wan / Wing Lee Street would be preserved instead of demolished, and be rebuilt.
3.1.2. Public Intervention: The Ultimate Triumph of Democracy. The difficult process of the ten-year preservation contest between bureaucrats (government) and the public (stakeholders such as citizens, locals etc.) came to the uneasy conclusion of a victory for democratic intervention.

In this case, the actions of the bureaucrats were straightforward, with their intention to maximize the profit of the redevelopment scheme. This profit strategy conflicted with the public interests of other stakeholders, such as citizens, residents, preservationists etc. The basic democratic system of Hong Kong allows different voices to be easily heard, and different types of media played a significant role in drawing the bureaucrats’ attention also. From 2007, because of the endeavor and persistence of the public, up to half the properties on Wing Lee Street were regained by 2010. Furthermore, following the release of *Echoes of the Rainbow*, an increasing number of public forces became involved. Soon, the self-organized public organization, “Central & Western Concern Group,” which consists of people from many different fields and areas, voluntarily led the activities of “Yellow Belt Action,” encouraged the public to write down their names if they wished to see the setting the movie, representing typical 1960s Hong Kong life, preserved rather than redeveloped. Only two days later, Wing Lee Street was removed from the demolition list of the redevelopment plan. Because of the level of democracy involved in the process of preserving Wing Lee Street, this case was successful. The Hong Kong Government listened to the democratic petition from the public, and accepted it.

3.2. Demolition of Agricultural and Industrial Bank of China’s Original Site, Tianjin, China

Jiefang North Road, in Tianjin City, mainland China, was built as a financial street in the British and French concession in the 1920s. Many commercial banks and financial organizations, representing various architectural styles, were built on the street, including the Agricultural and Industrial Bank of China. It is a two-story brick and wood structure built in a Western style. The design was simple and elegant, with a flat roof and a cement plaster finished outer eave. This bank experienced the development of the concession in Tianjin, and represented the architectural upheaval and design methodology of that time, and helped promote the development of modern architecture in China. Furthermore, prior to its demolition, the structure, exterior, and interior of the building were well maintained. Therefore, in the second and third archaeological investigation, the bank building was listed as immovable cultural heritage. Despite being under the protection of the “Law of the People’s Republic of China on Protection of Cultural Relics” and two other local preservation regulations, as well as being subject to many democratic appeals and protests by preservationists, citizens, volunteers, etc., the bank was ultimately demolished.

3.2.1 The Timeline of Demolition. The chronological process of the Agricultural and Industrial Bank of China deconstruction is shown below: [10]

2006.09.29 The 70th mayor’s office conference of Tianjin Municipal Government reviewed the “Comprehensive Planning of Tianjin Modern Financial Service Area” and “Financial District Planning of Jiefang North Road”;

2006.12.30 The 76th mayor’s office conference of Tianjin Municipal Government confirmed its choice of the “Jiefang North Road scheme” as the location in which to develop a financial area. The Agricultural and Industrial Bank of China’s original site was included in this;

2008.01.05 Heping District Government signed a contract with Tianjin Finance Chengkaifa Limited Company to finish the soil leveling and demolition work on site before the end of 2010;

2008.08.07 The Financial City project was listed as one of 20 major projects in the service industry, and targeted to accelerate construction;
2008.02.11 Tianjin Municipal Government announced, “Opinions on the Implementation of the Development of Urban Economy in the Central City,” clearly indicating its desire to develop Heping District as a financial center, business center, and commercial center of the city;

2009.06 The new version of “Tianjin Spatial Development Strategic Planning” proposed the idea of forming an international standard financial center based on fully respecting the tradition of the historical street;

2009.09.23 Because of a leak from the metro beneath the DD Hotel, which was listed as immovable heritage marked by the Government, the DD Hotel wall fractured and was demolished the next day;

2010.01.17 Members of the Committee of the Chinese People's Political Consultative Conference suggested accelerating the slow development of the financial city;

2010.09.10 A volunteer team found that three historical buildings on Jiefang North Road, including the Agricultural and Industrial Bank, were being demolished. A volunteer reported the situation to Bureau of Urban Planning of Tianjin Municipality (BUPTM) and asked them to halt the unauthorized demolition;

2010.09.11 Under the efforts of the Planning Department and the District Government, the demolition was temporarily stopped. “Cultural Heritage Preservation Volunteer Forum – Memory of Tianjin” reported the demolition, which drew much attention on the web;

2010.09.19 The Agricultural and Industrial Bank of China original site was suddenly completely demolished. The volunteer went to BUPTM again and found that they were not aware of this sudden demolition, making this action a puzzle. Following several discussions with other related departments, the volunteer found that the classification of immovable heritage of the Agricultural and Industrial Bank of China original site had been lifted.

3.2.2. The Over Powerful Entangled Bureaucracy: The Loss of Lack of Democratic Intervention. In summary, the Agricultural and Industrial Bank of China original site was given immovable cultural heritage status, but still it was demolished, despite the many efforts of the public. Throughout the entire process of the development and demolition, it was clear that the Government did not know any condition on that site and the related departments did not communicate with each other. When compares this case with the Wing Lee Street case, the Government did not consult the public about their opinions. Bureaucrats or developers made every decision and plan. Not until very late in the demolition process did volunteers combine to try to preserve the building. Furthermore, in the Wing Lee Street case, more public forces were involved, including social media, a movie, and organized petitions. In this case of the bank, however, only a few volunteers’ simple activities were registered during the process. The vulnerability of the law and regulations, created by miscommunication between related departments, reveals the lack of public supervision on such projects. Due to the inadequate intervention of the public, and the over powerful bureaucracy and capital, the Agricultural and Industrial Bank of China original site was eventually demolished.

3.3. The Balance Between Autocracy and Democracy in the Context of Mainland China
The two cases outlined above happened in the same period of history but in different political contexts. In Hong Kong, because of its more democratic political system, democracy is easier to be involved in, and the public can intervene in the preservation process. In mainland China, however, because of its more centralized political system, democracy is usually not easy to implement, and the public is always isolated and lacking effective communication. Thus, a proposal for constructing a comprehensive platform to strengthen the democracy and involvement of the public, as well as digitally preserving historical heritage, especially community heritage, is being put forth.
4. Proposal: A Crowdsourcing Platform – User Interaction, Data Collection, and Exploration

Based on the previous analysis, a crowdsourcing platform is proposed. In China, bureaucrats are always influential when it comes to architectural projects. They initiate the entire process through identifying (tagging) buildings and areas they believe should be demolished, forcing the various stakeholders to support or oppose the demolition of a building block by uploading digital evidence, such as photo-scanned models, images, videos, and audio within a certain period. Designers can then begin to design the tagged building blocks based on the materials crowdsourced from stakeholders. All users can discuss and debate any ideas and pieces of evidence via the platform prior to the due date. When the due date arrives, bureaucrats will be able to see how strongly people want to demolish or preserve the building or site. The bureaucrats will consider the stakeholders’ will, and make the final decision. But, whether the site is demolished or preserved, all the crowdsourced materials will be digitally archived and reorganized so they can be experienced by people from three different perspectives: birds-eye view, street view, and VR, creating a comprehensive relationship between preservation and all the people involved.

4.1. Step One: Tagging (Figure 2)

The first step is to initiate the platform, via Government, by setting up a basic photogrammetric model of the current community. Bureaucrats can tag one specific building block for potential demolition (Figure 3). The reasons and the dates for the demolition need to be written down to allow other participants to either support preservation, and upload relevant evidence, or prefer demolition. This limited time adds urgency, encouraging stakeholders to participate and act immediately. Thus, a faster process of decision-making can be achieved.

4.2. Step Two: Crowdsourcing (Figure 4)

Following the initiation, other participants, such as architects, residents, citizens etc. can join the process. Users can review the model of the district, and all the tagged building blocks, with the reasons for demolition. Different groups of users can navigate themselves through the interface (Figure 5). Professionals such as architects can “customize” the designs of the selected building blocks, providing appropriate designs that preserve the original building to some degree, such as adaptive reuse (Figure 6). Their design proposals will then be one of the “prefabs” that all the user groups can test, reviewing the effect of applying the scheme on site, then choosing like or dislike based on their review. All user groups can choose “play,” to adjust the designs schemes in “prefabs,” or choose to refurbish. This “design” and “play” function builds bridges between bureaucrats, professionals, and the ordinary public.

Another option on this interface is to directly express the user’s opinion regarding preserving or demolishing by selecting “preserve” or “demolish” (Figure 5). Every selection will be recorded as statistical reference data representing the trend of preserving or demolishing. Once “preserve” is selected, another interface appears, and users can upload evidence in various ways, such as photogrammetric models, images, videos (Figure 7), audio, and evaluations. Under each category of evidence, users can discuss the uploaded evidence and their opinions regarding preservation and demolition. Here, the social aspect of this platform
enables the intervention of democracy. The material gathered here can be input to design schemes and influence decision-making. An undecided user could browse the collected data, which may help them decide.

**Figure 4.** Flow from step 2 to step 3

**Figure 5.** Initial interface for all user groups

**Figure 6.** Customize interface for architects

**Figure 7.** Evidence upload interface of video

### 4.3. Step Three: Decision (Figure 8)

When the final day of the set period comes, a decision will be made. Because of the political environment in mainland China, although the final decision may be exclusively made by bureaucrats, other stakeholders are well informed, having been involved in the process by expressing their own ideas and opinions. Based on the number of supporters of either “preserve” or “demolish,” the uploaded evidence, and the design schemes, the bureaucrats will make the final decision (Figure 9).

**Figure 8.** Flow from step 3 to step 4

**Figure 9.** Final decision-making interface

### 4.4. Step Four: Explore (Figure 10)

No matter what decision is taken by the bureaucrats, the uploaded evidence and discussions will be digitally archived. The fourth function of this platform is to help people experience the digital heritage uploaded by
participants. All user groups can experience the digital heritage from three perspectives: birds-eye view, street view, and VR.

The advantage of a birds-eye view is to have a better understanding of the larger scale and entire area. Users could switch between modes to view normal 3D geometric models, with or without texture, and compare them with the photogrammetric model. The uploaded photogrammetric model with embedded geo-location information is highlighted, and could be viewed from a closer distance if needed. Once street view is activated, the user can control their view in the scene. The most significant function is that once the user’s geo-location in virtual space matches the geo-location of where participants uploaded their evidence, that piece of evidence appears before the user. If there is more than one piece of evidence, the user could browse the information related to the specific location, being informed by multilayered media (Figure 11).

![Three explore modes](image1)

**Figure 10.** Three explore modes

![Street view interface and geo-related events](image2)

**Figure 11.** Street view interface and geo-related events

The VR view (demo version) was built using Unity, with HTC Vive (Figure 12). It is a simple example of how multiple layers of information could be implemented. It also informs the user what the experience of immersively exploring the crowdsourced digital archive would be like. The demo begins with a real view of the entire site, with a function allowing the rotation of the camera to view different angles. The user could then bring up the menu and choose to view a detailed model, or continue in street view (Figure 13). The photogrammetric model is supposed to be uploaded by stakeholders, and could be placed in its original position. When on the street, the user can walk or fast teleport to a certain point. When the user walks to certain specific spots, related media, uploaded by stakeholders, will appear, including models, images, videos, and audio. The user could choose to view the multiple and massive crowdsourced memory of the place. If a site is preserved, then the scheme will appear in this virtual world. The memories of the place still appear as the user walks through the new space, reminding the user of the original space.

![Viewing in VR mode](image3)

**Figure 12.** Viewing in VR mode

![VR-mode interface with geo-related events](image4)

**Figure 13.** VR-mode interface with geo-related events

Throughout this platform, the democratic process is embedded in the system. Ultimately, win or lose, the stakeholders will have a digital archive and exploring tool of the former buildings.
5. Example of Possible Scenarios

5.1. Scenario “Demolish”
Following the 90-day deadline, although many people chose to preserve, and uploaded much evidence and many reasons why they believed the site should be preserved, the bureaucrats still demolished it, disregarding the majority’s will. Subsequently, the digital materials are archived on the platform, and people can view and experience the site even after its demolition. The democratic process ceased at the point of decision-making, but survived in the collected, valuable historical information, preserving the site digitally.

5.2. Scenario “Preserve”
After the 90 days have passed, more people chose to preserve the site. Initially, some of the bureaucrats wanted to demolish the site, but others noticed there was a way to preserve the building by making minor changes. So, one of the bureaucrats proposed an adaptive reuse scheme to avoid complete demolition. The others accepted this, and the building is largely “preserved,” and the collected material is still available for people to explore what changes were made to the original building.

6. Conclusion
In China, in the preservation process—particularly regarding historical communities—bureaucrats and developers always have the absolute power to make the final decision concerning preservation or demolition. The mechanism of this platform can, however, bring the relevant people together to engage in a “conversation.” Therefore, the original, exclusive decision-making process becomes negotiable and democratic. It is possible for professionals, ordinary people, and bureaucrats to meet and discuss the issues. Furthermore, compared with a single result made by bureaucrats and developers, the degree of freedom and flexibility of this platform can generate many alternative scenarios. Good or bad, the “conversation” involves all relevant stakeholders and embeds democracy into the process of preserving the community.

During the process, evidence for preservation or demolition, and architectural schemes are crowdsourced. No matter the final decision, these digital archives provide an important historical record for the community. Combining the crowdsourced data and VR is a powerful and reliable method of creating an immersive experience of what is either lost or at risk. The advantage of multimedia and multilayered information in the virtual world is that it can encompass users’ experiences of inhabiting a much more comprehensive space compared with the physical world. Thus, community heritage can be permanently preserved and experienced in the digital world.

Ultimately, following a democratic conversation of a preservation process, whether a site is preserved or demolished, the community heritage remains digitally preserved.

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