ARCHITECTURE FOR THE WELLBEING OF HOMELESS YOUTH: RESEARCH BY DESIGN PROJECT, PIONEERING BUSKERS

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INTRODUCTION

Architecture has a role to play in housing provision for homelessness people, and any assistance needs to consider not only their housing but also their well-being. Currently, design practices with architect's involvement have yielded impressive results via community participation, however, few studies have discussed the relationships between community participation, architectural design and well-being of the homeless. This paper focuses on the community and housing design methods of architect-led self-built housing assistance projects. This research examines how modular, incremental and self-build design strategies can be employed by architects in the design of communities for homeless youth to benefit the wellbeing of the residents, by testing these strategies on the design project: 'Pioneering Buskers'[1]. The research analyses design opportunities through learning from the literature and existing case studies.

Research context

Plasdwr is a real new development with 7000 homes on the edge of Cardiff. Inspired by Howard's garden city, the developers aim to create a world-class sustainable community, approved by Welsh Government Planning Inspectorate and began construction in 2017[2].

'Pioneering Buskers' (pre-design phase) [3], my master's project, was inspired by my observations of the talent of homeless buskers in Cardiff city centre. Learning from the literature and case studies, the design was updated and analysed. This research by design project aims to suggest a new possibility of housing opportunities and social activities for homeless people via street talent activities and architect-led self-built communities in the context of new district developments. This provides the potential for homeless youth to be actively involved in shaping the new development of Plasdwr. With consideration of the project 'Pioneering Buskers', the research question for this research is: What kind of community design with modular, self-built and incremental features can benefit the wellbeing and the development of homeless youth?

Needs of homeless youth

Young homeless people between the ages of 16 and 24 are one of the most vulnerable groups and account for nearly half of the homeless population[4]. According to Gaetz[5], the main reasons for this are a) high rates of psychosis; b) drug or alcohol addiction; c) crime; d) lack of education and employment support; e) experiences of physical, sexual or emotional abuse; f) social exclusion.

It is pointed out that housing is essential for assistance to the homeless, but resettlement alone is not enough[6]. Other supports are required such as treatment (physical and psychological), employment support and social network establishment. Support needs to be flexible and personal to prevent re-homelessness and promote further social integration. Research on 'Housing First' projects show that resettling homeless people with respecting their preference for 'home' and providing rehabilitation-oriented medical services will establish stable housing and effectively promote community integration. Research also suggests that social network connections are enhanced while addiction issues are decreased in projects based on the Housing First model [7]. In such projects, the research scopes were expanded from housing to community, and some community-based projects such as the 'Community First! Village' was considered to derive more on neighbourhood[8]. Some scholars put forward that the relief of homeless people should focus on improving their well-being, which can be improved by social participation [9]. In fact, this concept has been used by charities for many years with significant results. Habitat for Humanity has grouped different stakeholders including businesses, local charities, and residents together to build decent, affordable housing[10]. The success of these projects bears out their views. However, most housing priority projects prefer to emphasise resettlement rather than community integration. Therefore, the research scope of this research was focussed on the community aspects.

Design of housing for the homeless

Architectural design should be innovative and practical to meet the needs of homeless people[11]. Current housing assistance can be roughly divided into a, New-constructed housing which includes: 1, general; 2, modular; 3, self-built; 4, Incremental; and b, Renovation. Architect Peter Barber's retroactive housing project (Holmes Road Studios) for the homeless in London has been praised by promoting community engagement via shared gardens [12]. The YMCA projects in London and Seattle have adopted modular designs to provide quality housing for homeless youth at low cost within a short construction period[13]. Self-built housing has been widely used in housing assistance programs for homeless people and has helped many homeless people obtain their homes [14]. In projects of homeless ex-services self-built community in Bristol and Valleys Scheme in Wales, participants have gained good neighbourhood relationships and improved physical and mental health [15]. Wikihouse is a combination of modularity and self-building, with an open-source modular building system that uses laser cutting and human-only assembly[16], which has been applied by some scholars to the research on alleviating housing crisis and homelessness[17]. Incremental housing is considered as an affordable housing solution for vulnerable groups, providing only the primary living spaces at first but also spare space for expansion for residents' development [18]. The concept of incremental housing such as the 'Half-houses' in Zimbabwe is therefore used in tackling the problem of slums and benefiting the cohesion of the community [19].

How can residents reach their wellbeing via participation?

Community participation is influential in the formation of community cohesion. Joint construction process of the community will help promote community integration [20]. In the Valleys scheme, Hutson and Jones point out[21] that through construction, the homeless youth gain confidence, and learning together with peers can help build their social networks. The homeless groups' wellbeing is crucial for their integration and development after their settlement. In this regard, interaction between users' development and the development of a sense of community are the key points [22].

Wellbeing in the community

It is pointed out that homeless people's sense of identities is linked with their wellbeing [23], which is

closely associated with their sense of belonging. Residents' experience in community space helps to build their self-cognition and self-identities in the community environment [24]. 'Home' is a way for people to express their identity and understand themselves; residents form their unique identity by interacting and this mutual connections can create a sense of 'home'[25]. The open space between buildings is the place where residents form the sense of belonging in the community. They experience interactions with their neighbours and further form a sense of belonging in the daily communal activities and overlapping daily tracks of different residents[26]. It is claimed that the residents' opportunity to build space themselves in the community is significantly meaningful for community development and the wellbeing of residents [27]. Their attachment to the community spurs them to participate in building the community, and their participation will facilitate social cohesion of the community in return. Through collective action, conflicts can be minimized and social capital can be accumulated, the sense of identity built[28]. Simplifying these complex relationships reveals that (see Figure 1) in the ideal conditions, motivation, participation, and community development would form a positive cycle, while empowerment and place attachment are drivers for the process.

Young people can benefit from cooperation in the construction of their own home [29]. In the Valleys scheme project, most homeless youths have built excellent relationships with the residents nearby. 'Community architect' shows that the fruitful cooperation between designers and residents can also promote social cohesion [30].
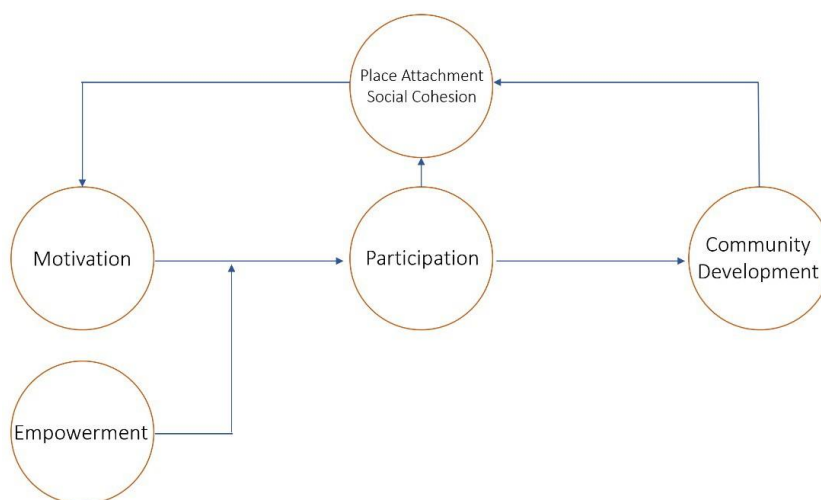

Figure 1 . Simplified relationship between participation, place attachment and community development

METHODOLOGY

The methodology for this research covers:

- A literature review that identified the situation and needs of homeless youth in the UK and some other regions; the latest theories on the homeless assistance and design of homeless housing; analysis of the benefits of participation and communal interaction for place attachment, their required empowerment to the residents and the brought impacts to their wellbeing.
- Since this research is based on the concept of participatory design, inspired by Systems Oriented Design[31], the design is regarded as an activity (the first person perspective). Adopting the method of Action Research[32], three case studies related to the research question were selected to explore the relationship between practice and theory based on the results of observation, and critical reflection is conducted to extract beneficial design strategies which were adapted to local

specificity of the project.

- These strategies found by observation and analysis[33] were applied to the design project 'Pioneer Buskers' (post-design)[34] to innovate[35] and find the most suitable design methods[36]. The relative impacts were analysed for testing those innovative methods and conclusions made.

CASE STUDIES

Fieldwork

The field investigation of each case study was conducted in the form of walking, observation, sketching, photo or video recording, and semi-structured interviews.

The main contents of the investigation include:

Spatial Experience Diversity (Housing, Spaces and Activities)

These were obtained through observation, recorded by photographs and sketches. Residents' attachment to the community was influenced by the unique experience of each resident, which is mainly inspired by the diversity of landscapes, routes, architectural forms and spatial transitions [37]. Additionally, the ways residents behave in community spaces reflect their needs, their understanding of community space, and the way they build their sense of identity[38].

Participation

- Structure and Participation (Process, Stakeholders involvement)

This part of the content was obtained through online and semi-structured interviews, observation and sketches. The ladder of participation[39] (see Figure 4) was used to classify the levels of participation in the case studies and the analysis of improved design. In this research, 'Tokenism' can be understood as housing designed by architects and then communicated to the residents, whereas houses designed and constructed through cooperation between residents and designers, is regarded as 'Citizen Control'.

- Personality

These were obtained via semi-structured interviews with residents and by comparing the personalisation of living spaces between photos of original as-built homes, and photos of the homes after some years of occupation. The personalisation of the living space is a reflection of builders' personality and lifestyle and a measure to build self-recognition[40].

Analysis and evaluation

After the on-site investigation, the data obtained was analysed as follows:

Experience analysis

Residents' attachment to the community is influenced by the unique experience of each resident, which is mainly inspired by the diversity of landscapes, routes, architectural forms and spatial transitions[41]. Additionally, the behaviour of residents in the community space reflects their needs, understanding of the community spaces and the way they establish a sense of identity. Similarly, the personalisation of the living space also reflects the users' personality and lifestyle which is also a measure to build self-recognition[42]. Therefore, the analysis includes:

- Housing Design: how diverse was the housing? have they adapted to the preferences of residents in their occupancy?
- Spaces and Activities: how varied were the community spaces and the observed activities?

Participation analysis

•   Structural and construction method analysis

This analysis includes structural design, construction method, steps and types of equipment for evaluating the ease of construction and expected building quality due to the variety of residents' background and ability[43].

•   Assess the level of participation via the 'Ladder of Participation'. The case studies' analysis looks into the involvement and cooperation of different stakeholders within the design and build process.

Learning from the case studies

The following diagrams relate to the case studies' various parameters based on observations and collected data. All case studies used the same analysis approach explained above (see Figure 2).
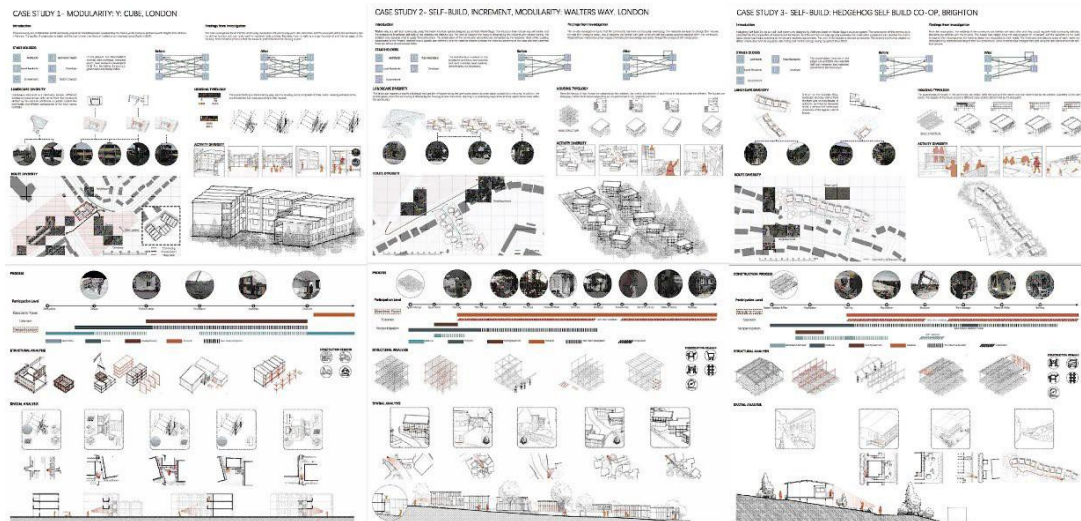

Figure 2. Overview of case analysis

Housing

Y:CUBE fails to provide residents with the right to personalised housing due to its form (see 'Y:CUBE Community' in Figure 3). Housing designs that respond to individual preferences, development and the fruits of labour are more conducive to forming strong place attachments, especially Walters Way, where houses have been altered incrementally by residents over time and the community appears more dynamic as a result (see Figure 3).
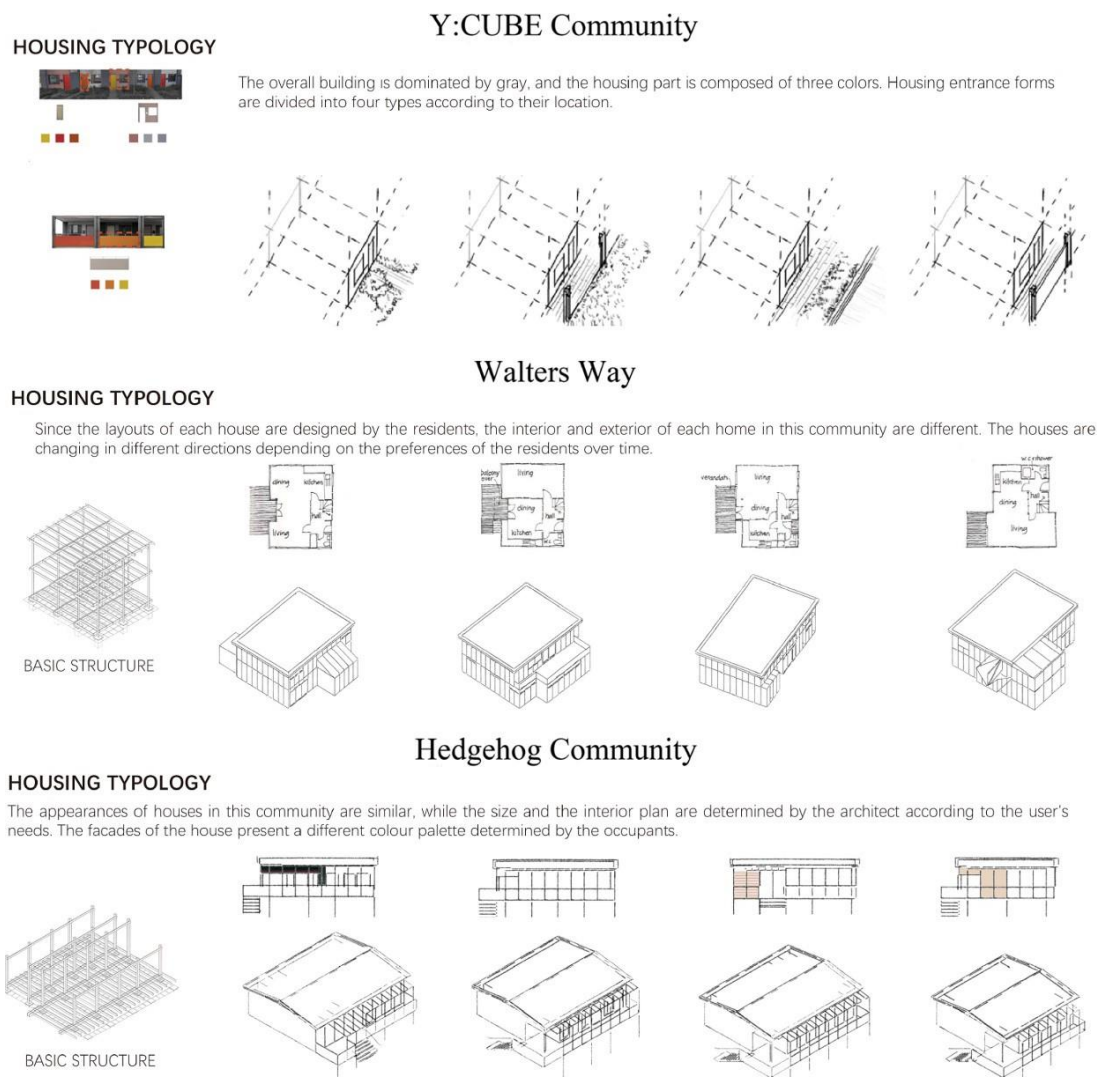

Figure 3. Comparison of housing analysis

Spaces and activities

The spatial designs of Walters Way and Hedgehog Community offer greater privacy and diversity than Y: CUBE (see Figure 4), which enhance the possibility and frequency of interaction among residents and activities, potentially helping not only to strengthen neighbourhood relationships but also to build more profound place attachment.
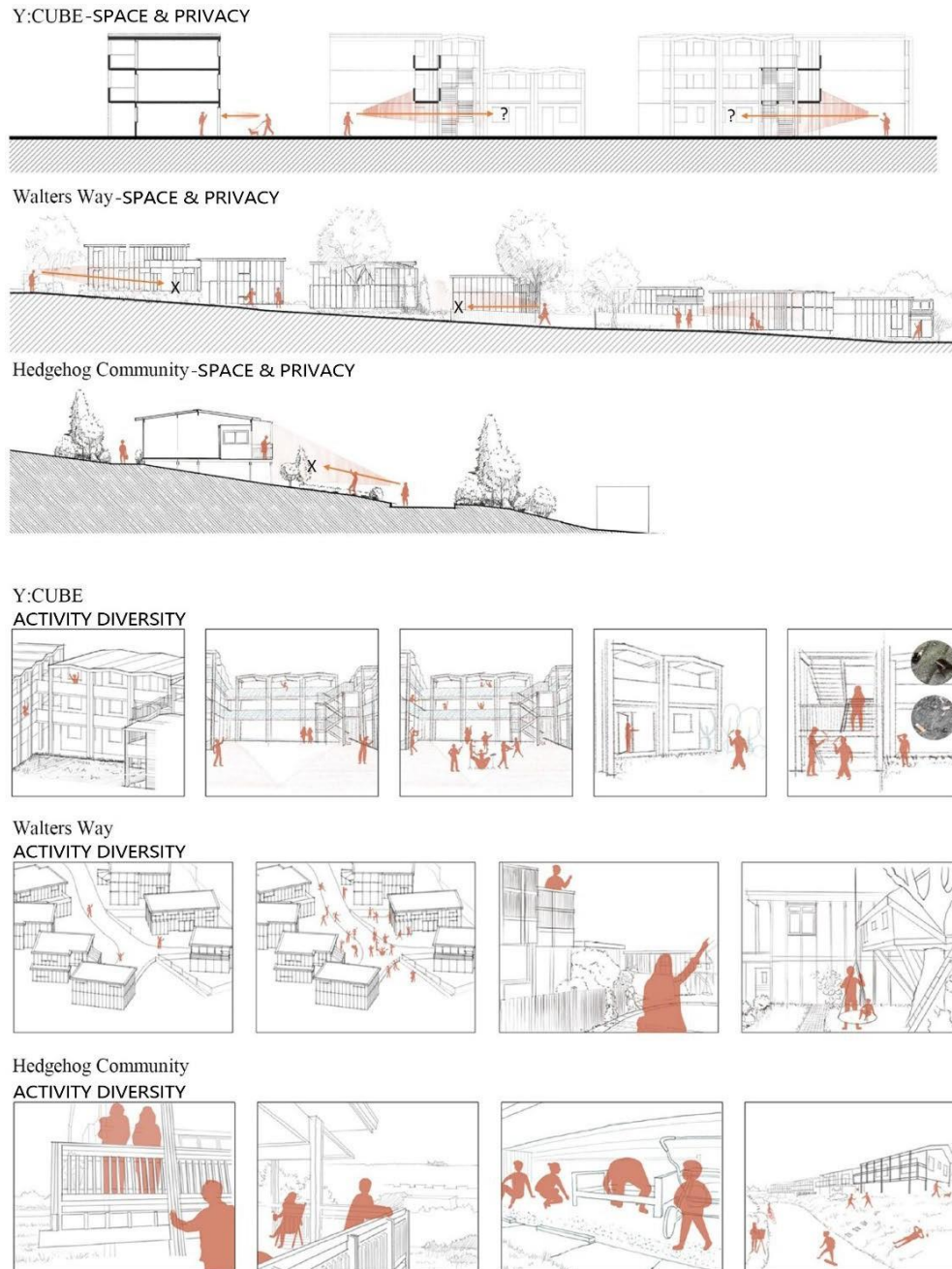
Figure 4. Comparison of spaces and activities analysis

Structural and construction analysis

Y:CUBE adopts a prefabricated multi-storey design, providing high-quality housing for low cost in a short time, but it has high requirements for equipment and technical staff (see Figure 5). The communities based on Segal self-built system are easy to build by cooperation with lower equipment requirements, but the construction period is longer.
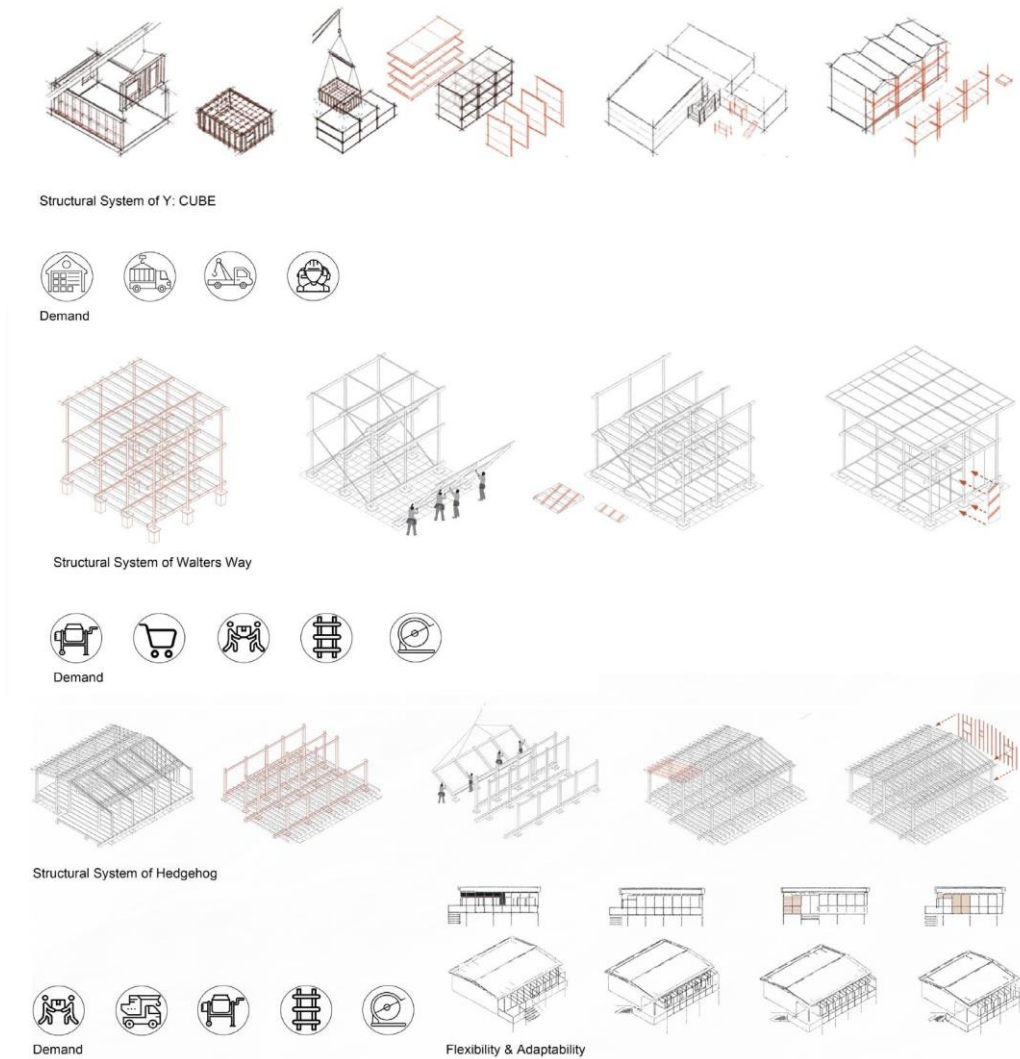
Structural System of Y: CUBE

Demand

Structural System of Walters Way

Demand

Structural System of Hedgehog

Demand

Flexibility & Adaptability

Figure 5. Comparison of structural systems

Participation and process

Y: CUBE is a prefabricated rental community with a lack of flexibility and variability, residents cannot participate in the construction. Walters Way and Hedgehog based on Segal self-built system are more flexible for residents to participate in the design, construction and increment (see Figure 6); the empowerment of residents brings a strong sense of belonging and identity to the residents via the process, forming a deep place attachment.
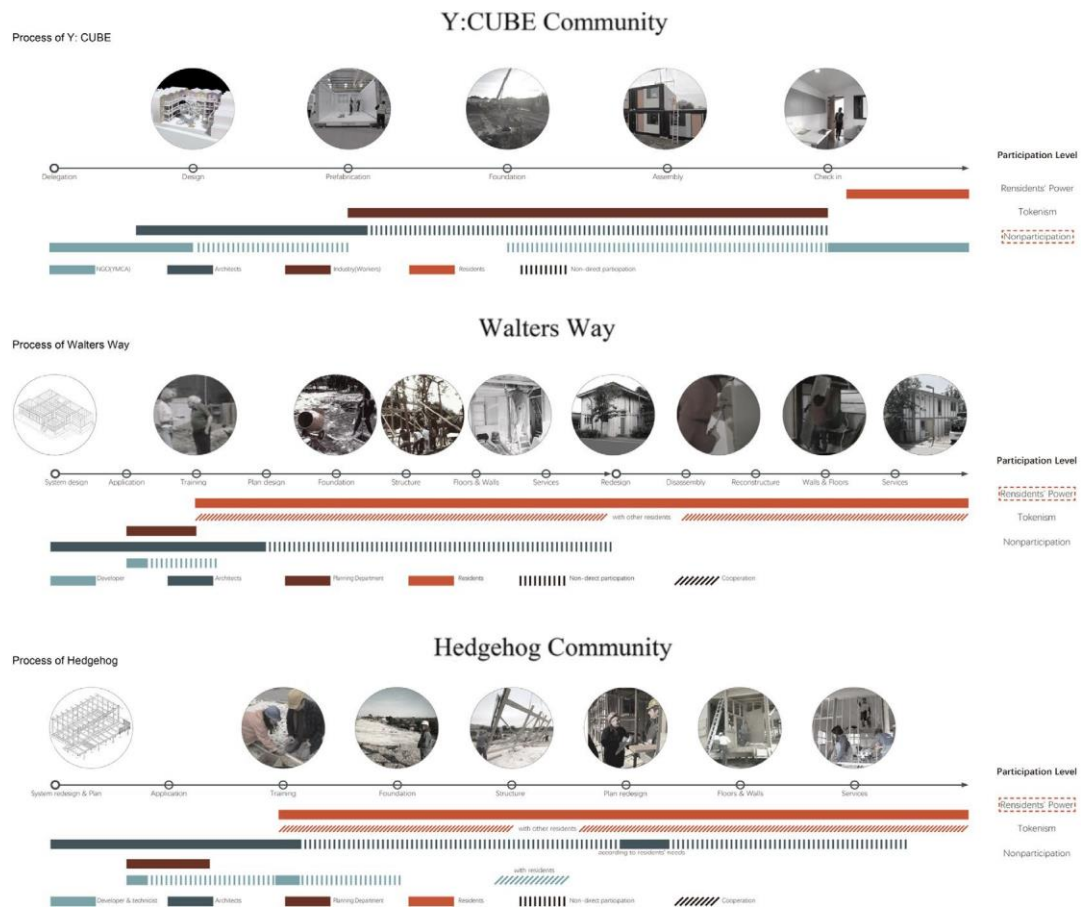
Figure 6. Comparison of community participation analysis

DEVELOPING THE PIONEERING BUSKERS INITIAL DESIGN FURTHER

Design methods application (tests)

According to the case studies, this research attempted to combine modular prefabricated assembly structures and improved Segal Self-built system to meet the needs of temporary housing with a short build period, replacing the incremental timber frame structure design in the original design (see Figure 7).

Multiple-layer co-housing would be more in line with their economic situation according to British NGO's surveys of homeless people, supplemented with corresponding services and self-built training. Diversified basic housing plans with incremental rules are designed for responding to residents' preferences, adopting a more robust main structure to ensure building quality. In addition to enclosing an atrium garden, the buildings incorporate vertical gardens that can be planted by residents. Space experiences similar to independent courtyards are made by the rhythm of building blocks, replacing the community semi-open landscape design with no internal planted garden in the 'Pioneering buskers'. Visual barriers at the required locations are set to ensure the privacy of community activities. The result of the design strategies application is shown in the Figure 7.
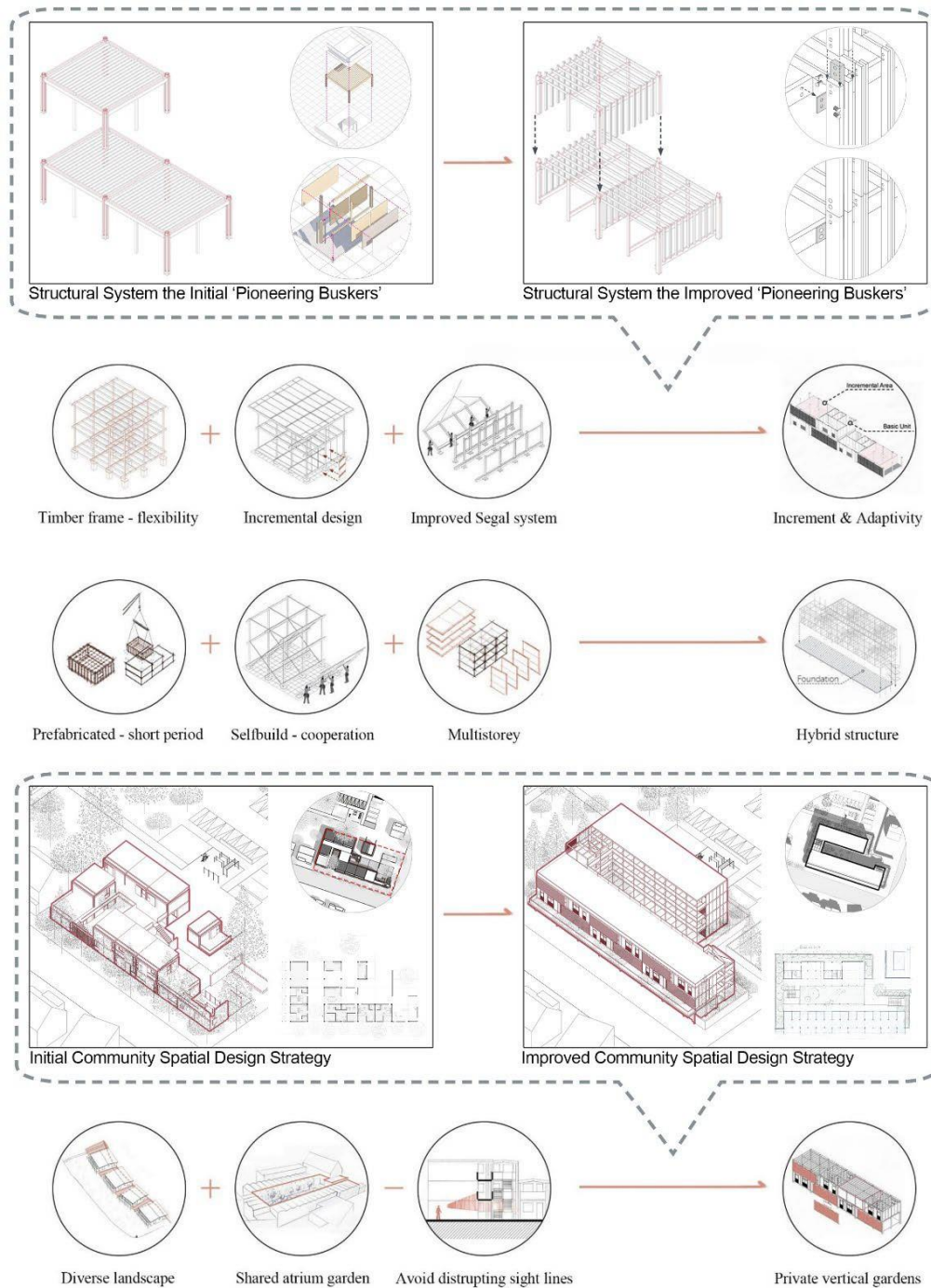
Structural System the Initial 'Pioneering Buskers'

Structural System the Improved 'Pioneering Buskers'

Timber frame - flexibility

Incremental design

Improved Segal system

Increment & Adaptivity

Prefabricated - short period

Selfbuild - cooperation

Multistorey

Hybrid structure

Initial Community Spatial Design Strategy

Improved Community Spatial Design Strategy

Diverse landscape

Shared atrium garden

Avoid distrupting sight lines

Private vertical gardens

Figure 7. Improved design strategies

Housing

In the improved design, the plans were designed in a new way due to the change in the structural system. There are a variety of basic housing forms for residents, incremental spaces are set to match the development and preferences of residents (see Housing Analysis in Figure 8). With the help of users' occupancy, the houses will "grow" into unique houses over time. Housing design with Segal Self-build system would respond to individual preferences and the fruits of labour would be more conducive to forming strong place attachments and energise the community.

Spaces and activities

Open communal spaces in the investigated communities do not seem to promote spontaneous activities within the community, but the spaces with privacy and diversity do. The new design improves the diversity of community space experience by providing spaces managed by the residents and housing diversity. Internal community activity spaces with privacy are made for encouraging community activities (see Figure 8), thereby helping to form their place attachment.
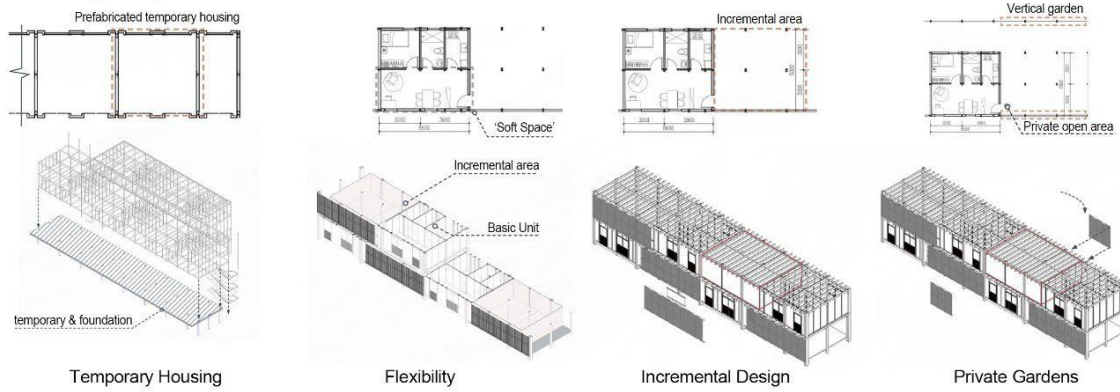
Structure and construction

The structure of the improved design is prefabricated at ground level, providing rapid temporary accommodation. The rest of the structure system is the improved Segal self-built system which allows a slower pace of development, with a high participation level and flexibility (see the part: Structural Analysis of Figure 20), which is found to be beneficial for residents to acquire deep place attachment and neighbourhood ties in the investigated cases. When the homeless settle in the community, they will be trained in the prefabricated rooms on the ground floor, which will then later be rented as street-side commercial units. The Incremental area of each of the upper and lower floors is staggered, therefore, the incremental area is constructed after the finishing of the basic housing part under the guidance of architects. It reduces the difficulty of increment and guarantees the structure of the building by architects' early participation. The limited incremental area would be better for the residents to carry out various incremental constructions.
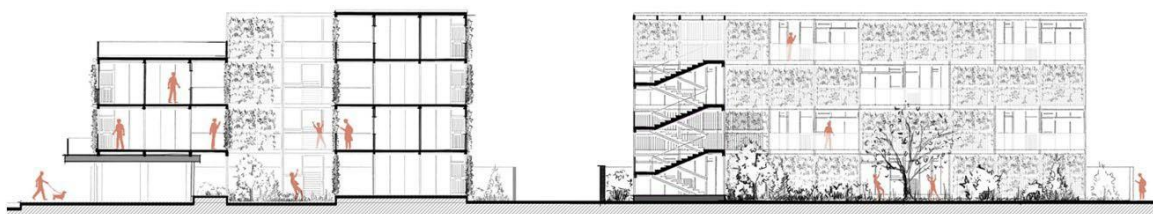
Participation and process

The improved design is high participation as 'Citizen Power'. The construction of New Design includes a prefabricated assembly similar to the Y: CUBE, and a self-built with incremental section. The results were encouraging (see the final part of Figure 8): the prefabricated temporary housing not only gives users an emotional base before they cooperate but also facilitates the participation of more social groups. As for their cooperation in incremental changes, the completed structure gives users more cooperative options. The concept of incremental housing also allows their development to synchronise with community development [44]. In addition to enabling the housing to match the development of residents, the adoption of incremental features could also change the value of housing (increase in living space), and the circulation of housing in the market could avoid community stigmatisation.
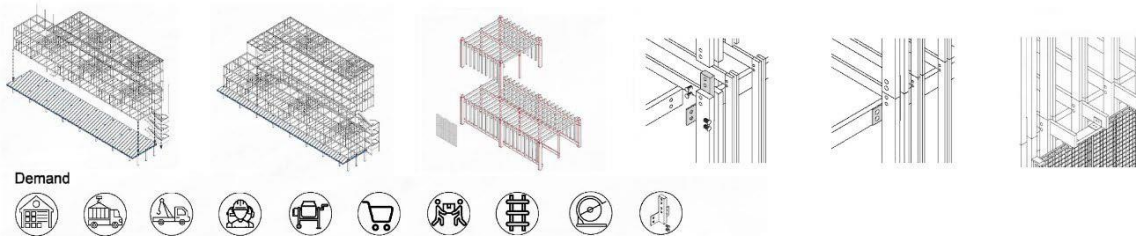
The City and Complexity – Life, Design and Commerce in the Built Environment

Housing Analysis

Temporary Housing   Flexibility   Incremental Design   Private Gardens

Spaces - Activities Analysis

Structural Analysis
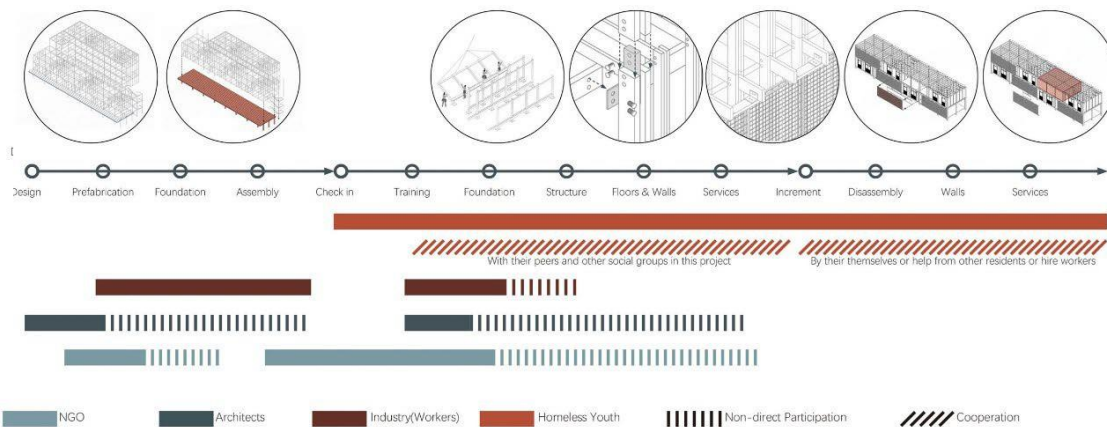

Process Analysis

Figure 8. Analysis of improved 'Pioneering Buskers'

CONCLUSION

From the results of the application of design strategies (see Figure 9) and analysis above, this research shows the potential to bring positive impacts to the well-being of residents and help them develop their

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community via empowering them and strengthening their place attachment in community design within the context of new district developments.

In summary, the wellbeing of homeless youth should be put on top of the agenda, and the establishment of place attachment, empowerment of residents and the involvement of architects in collaborative design with residents ought to be valued in the self-build housing assistance projects for homeless youth.

Conclusion of design strategies that can benefit residents' wellbeing:

a) Community landscape design that includes participation in gardens in the Walters Way and Hedgehog communities not only increased community activity but also enhanced neighbourhood relationships;

b) Self-built houses based on Segal self-built method can increase the diversity of houses and thus choices for residents because of the flexibility and construction ease of this timber frame structural system. Furthermore, in the improvements explored in this design research, this structural system has shown greatest potential (see Figure 8);

c) The landscape space within the community should be private and diversified with reasonable transitions with the residential spaces since the external disturbing sight lights and the monotonous landscape in the case of Y:CUBE have reduced the possibility and frequency of community activities (see Figure 10 and Figure 11).

Figure 9. Vision of the improved 'Pioneering Buskers'

Self-build housing assistance projects should first consider the empowerment brought by structural design of the house and design strategies. The combination of the prefabricated structure and the timber frame structure can provide a stable environment for self-built training. Based on this hybrid structure, an architect-led participatory design strategy with collaboration between homeless youth and other stakeholders can not only guarantee the quality of the building but also enhance the homeless youth's connection with the community and other social groups, benefiting their wellbeing.

Due to time constraints, the sample of this research is insufficient (only two of the investigate respondents per project), the contradictions within the user group are uncertain, which may bring hidden dangers to the products of their cooperative labour, housing. Future research should focus more on homeless youth, as the focus of assistance programs, and more case studies should be involved.

ACKNOWLEDGEMENT

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