

Architecture for All - Part II

Architecture for All: A Participatory Design Approach

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Abstract

The paper aims to explain the concept of "inclusive design" through a case study of community participation in Hong Kong. Increasing number of progressive designers are shifting their focus to user-centred design, which means emphasizing softer, more human aspects of emotional engagement, lifestyle and aspiration in design. There is an increase of user participation in design processes. The paper demonstrates how local citizens have become actively involved in an urban redevelopment program to achieve re-housing to a location near their current estate, and to formulate and express their comments and suggestions for a more appropriate future living environment. Through a series of research tools and workshops, these citizens participated in understanding and commenting on the design of their future estate. This project shows the process of knowledge transfer through participation, which intends to promote inclusive architectural design for all.

Introduction

Designers from IDEO, one of the world's leading design consultancies, describes their design process as inclusive in that it promotes the needs of a diverse set of users. In doing so, they employ many design research methods to understand users' experience in their divergent phase. They draw inspiration from interaction with users. Later they will identify the best ideas through prototyping. This is how they integrate the concept of inclusive design into their design process. There is no classification of "inclusive" and "mainstream" for each project and the inclusivity is all about the process. They conclude, "Inclusive design is not just about access too information about functional loss or to people with disabilities, though clearly that is important. It arises from a design process that is, in itself, inclusive." (Contort and Pullin, 2003). From their experience, inclusive design can be defined as a process-oriented concept. It is about how designers include potential users in the process of designing products, services or environments.

User-centred design

Should the designer act as an authority and treat users as subject for analysis or can there be a collaborative process that can lead to new design output? Lefebvre's distinction between concrete and abstract space is appropriated to answer these questions. In the 1970s, the French philosopher Henri Lefebvre introduced the concepts of "concrete space" and "abstract space" to explain a disturbing urban problem: "the extraordinary passivity of the people most directly involved, those who are affected by projects, influenced by strategies" (Lefebvre, 1970). Concrete Space (CS) is the space in which we live and experience.

Abstract Space (AS) is the space of vision and geometry, used by architects/designers to interpret cities, and projected back onto our lived environment in their designs. Typical designers will work in the abstract space in which they are trained and do not interact with people in the concrete space. The CS and AS overlap more in user-centred than designer-centred design. (Fig. 1). There is different level of user involvement and engagement of user-centred designers to work in concrete space. Inclusive Design, universal design, collective design and participatory design are all examples of user-centred design concepts. Fig. 2 shows the different modes of relations between abstract and concrete space that characterise different user-centred design. Design participation is the common ground for all user-centred design ideologies with different implications and methods.

Relationship between designers and users

Any design process involves a division of roles, responsibilities and knowledge amongst the various stakeholders in the project, such as the designer, the client, government authorities and the eventual users. Designing is a process of communication, negotiation and decision-making amongst these stakeholders. At the core of this process is an attempt to determine what type of products, systems or environment would be appropriate, achievable and amenable to the end users, for the use for which it is intended. The corollary to this is the devising of spatial, organisational and material strategies for giving built form to fulfil these criteria. As such, the environmental design process is always, at least ostensibly, centred on a dialogue between the designer and the user of the space.

Of course, this dialogue is never a direct and unmediated conversation, except in the rare case of an individual architect designing a space for the personal use of a wealthy client. More typically, the user is represented in the process as a speculative projection by those who commission the project, whether it be a corporation creating a space for its workers, a housing developer building residences based on his analysis of the market or a socialist government constructing spaces to engender living patterns seen as appropriate to the social forms implicit in its political ideology. It is with these self-appointed mediators that the architect or environmental designer will have direct contact, and it is these intermediaries' model of the user for which the design will be conceived.

Inclusive Design and Universal Design

Over the past twenty five years or more, ideas have been developing around the desirability for products, services and environments to better match the needs of those previously excluded or denied access by inappropriate design (Bicknell & McQuiston, 1977). Designers, from a variety of disciplines, have

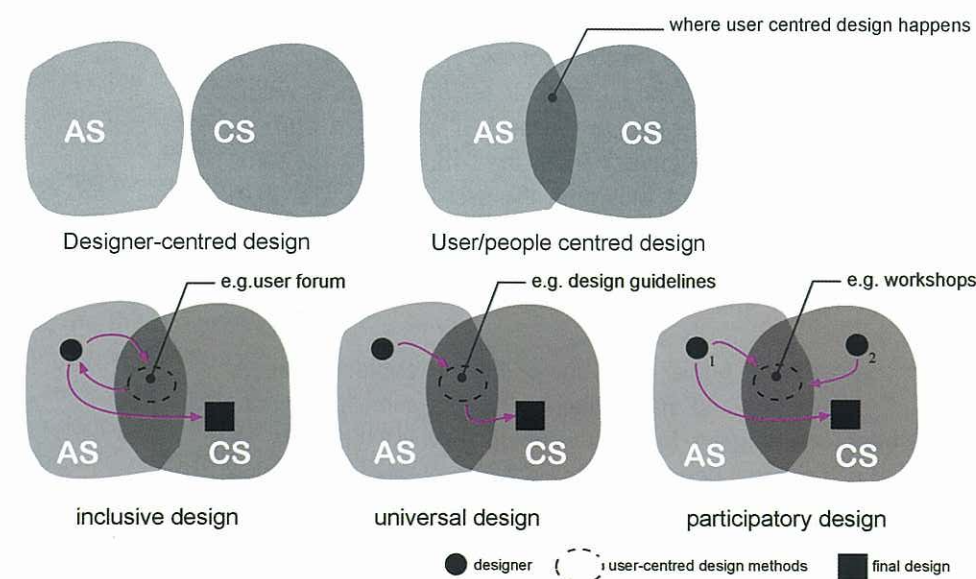


Fig. 1. User-centred design and designer-centred design

Fig. 2. Different user-centred designs

been instrumental in developing these ideas, which have evolved differently depending on local and individual circumstances. For example, in the USA, the work of designer Ron Mace and others led to the concept of "Universal Design" (Ostroff, 2001). These ideas have been influential in Japan, Australia and elsewhere (Kose, 1998). In Europe, a range of initiatives has been supported by the European Commission and national research funding bodies, which has led to the concept of "Design for All", similar in principle to Universal Design but prompted by European aspirations for social inclusion within the context of cultural diversity.

The UK experience

In the UK, there has been a parallel development of the concept of "inclusive design" (Coleman, 1994), led by both the design and disability communities. The focus of Inclusive Design in the UK content is on encouraging and supporting businesses in a rapidly changing market place to respond to needs highlighted by social and demographic change. In this context, inclusive design is seen as a progressive, goal-orientated process an aspect of business strategy and design practice - rather than a genre of design or a performance measure, which is what distinguishes inclusive design from the more prescriptive approaches of Universal Design and Design for All. The UK Disability Discrimination Act (DDA), which came into effect in 2000, is likely to play a significant part in the move towards inclusive design and there is significant political, academic and professional support for this development. The Department of Trade and Industry (DTI) Foresight exercise and in particular its Ageing Population Panel has identified inclusive design as a key mechanism, and this has been taken up by the EQUAL (ExtendQuality Life) cross-council research programme (DTI Foresight 2000).

Delivering on this aspiration requires information and guidance for key decision makers, design managers and design practitioners, and this is now an important goal for the UK Design Council which is also a partner in the EQUAL-funded "i-design" research programme. This was set up as a direct response to the articulated needs of design managers from leading UK companies at a meeting of the Design Management group of the Chartered Society of Designers, held at the Design Council in London in July, 1998. A key objective of i-design is to establish what the barriers are to the uptake of inclusive design, and as part of this three-year programme a conference "Include 2001" was held at the Royal College of Art, London (RCA) and hosted by the Helen Hamlyn Research Centre. The conference brought together an international group of 150 design researchers, design managers and practitioners from a variety of design specialisms, along with representatives of both large companies and small and medium sized businesses.

Participatory Design in Architectural Design

These intermediaries play an important role in enabling the design process. The vast majority of environments are designed for a class of users rather than for a particular set of people. It would be inappropriate for the individual whims of those who happen to be the first or current users to be used to justify a space that will be inimical to the long-term viability of the structure. At the same time, though, it is clear that the data on which assumptions regarding the user are based is often incomplete and fallible, based on broad ideological pre-conceptions or market data to which the client has access. The facilitator in a participatory design process supplements this information with a class of information that is largely inaccessible to the self-appointed intermediaries.

Participatory design need not involve an usurpation of power from any of the stakeholders. Rather, it should be seen as a way of facilitating the gathering and dissemination of information throughout the design process that is associated with appreciable gains for all stakeholders. Whilst the users are typically depicted as the main beneficiaries of participatory design, the developer, corporation or housing authority reduces the risk of uninformed speculation leading to un-rentable properties, ineffective working environments or costly and disruptive alteration work. The architect gains a valuable and reliable source of design data and directives.

The Case: User Participation in a Community Housing Project

The Lower Ngau Tau Kok Estate (LNTK) is one of the oldest public housing estates in Hong Kong. (Fig. 3). The estate, built in 1967, comprises about 4,500 households, with a combined population of 11,000. Over 30% of the residents are elderly, living either alone or as couples. The values of this locality lie in the social networks among the residents, who are distinguished by activeness and passion, a strong sense of community and articulate views about their needs and demands.

Under the Comprehensive Redevelopment Program of the Hong Kong Housing Authority, the LNTK estate was to be demolished by 2004 and residents displaced to different newly built subsidised public housing estates elsewhere in Hong Kong. After two years of negotiation with different governmental departments, many protests, residents meetings and self-motivated surveys, the residents achieved their first success: a resolution that the whole community will be moved together to a nearby reception estate rather than a site distant from their current home.

How the participatory design process met the social process?

After choosing the site of their future estate, the residents wanted to know more about the design of their future homes. It is at this point that they felt the need for the advice of a design professional. Lee, a trained architectural designer, then joined the team and worked intensively with social workers and residential group members to define the problem and find the solution together. Working as a design researcher, Lee assumed the role of a catalyst who designed a participatory design process for this ongoing social process. Her approach was an empathic one and her intention to work with the users, not for them. (Fig. 4).



Fig. 3. The Lower Ngau Tau Kok Estate (LNTK)

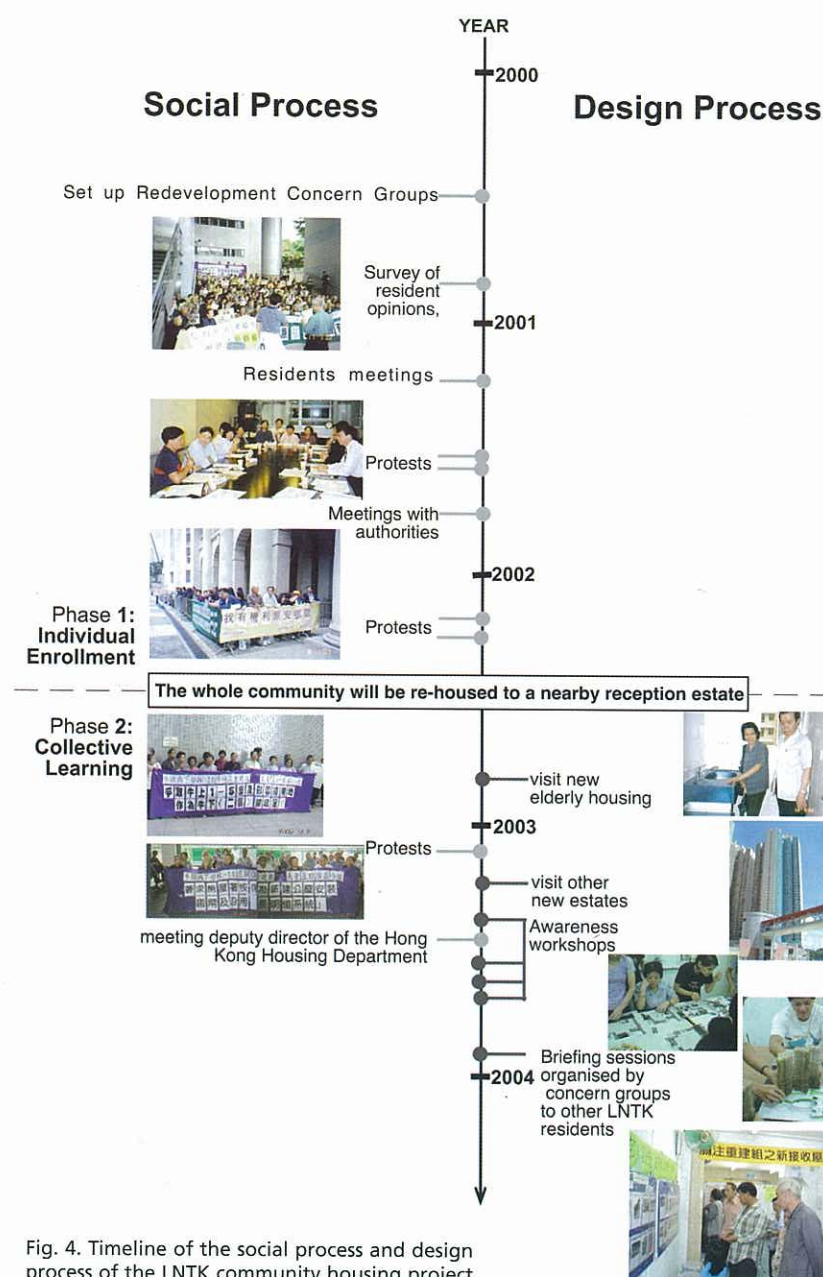


Fig. 4. Timeline of the social process and design process of the LNTK community housing project

What were the issues?

According to the resolution, all the residents will move as a whole community and remain in the local area. However, it is hard for the residents to imagine how their lives will change in the new designed housing estate. Most of the LNTK residents have lived at this estate since it was built in the 1960s. This was in the middle of the phase of public housing construction spanning from the 1950s to the 1970s, when "the greatest need was to provide a large number of rental housing units with basic facilities to accommodate those cleared from squatter areas, those left homeless by fires, and those with low incomes". (Yeung Y. M. and Wong T. K. Y., 2004)

Over the past forty years, the residents have tried to adjust their lives within a fixed physical environment, built to the Hong Kong 1960s public housing standard. A single room with no partitions, with average 14-27m² unit floor area for families with 4-8 people, in single slab blocks with central corridor access and 32-58 units at each level in 8-15 storeys. Due to the improved space standard and quality of design, their future estate will have various standard units to suit different sizes of households, between 17 to 52m² ranging from a one-person unit to 3-bedroom unit. (Fig. 5 and 6).

The Tools: Community Workshops

"The ability to not just know, but also to empathize with the user comes only at the deepest levels of their expression. Special tools are needed to access the deeper levels of user expression. By accessing people's feelings, dreams and imaginations, we can establish resonance with him." (Sanders, 2002). The "special tools" are called the "make tools", which are focused on what people make, i.e. what they create from the toolkits we provide for them to use in expressing their thoughts, feelings and dreams. The "make tools" are the advance level of the "say tools" and the 'do tools' which allow people to voice their views and understand they are doing but are not projective.

Each workshop employed a series of "make tools" to enable users to understand the design situation and evaluate the design brief through collective creation sessions. Different levels of abstraction of spatial design were tackled through different

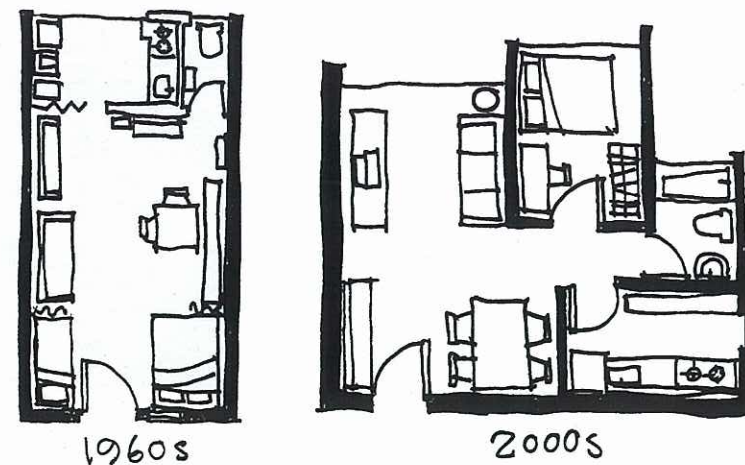


Fig. 5. Hong Kong public housing flat design - typical 4-person flat in 1960s and two-bedroom flat in 2000s.



Fig. 6. Hong Kong public housing layout design - the LNTK estate designed in 1967 and the new LNTK estate designed in 2004.

tools. From two-dimensional to three-dimensional and different scales of representation, a common ground was created to map their thoughts and ideas from perspectives. They worked at three different levels: as individuals, in research narrative groups, and as a whole entity as a representative of the estate.

The main purpose of the project is to help the residents to relate their daily life experience to architects' abstract depictions of space, such as drawings and models. Since their future estate has not yet been built, all information is still in the abstract space (AS). It is important for the residents to understand the authorised representation modes in order to participate in a discussion of the future design. A series of "awareness workshops" for the community were developed to initiate a representative group of current residents of the LNTK estate into the language of design to an extent that enables them to get involved in the design process of their future estate. The workshop took the form of a self-learning exercise in reading abstract architectural drawings.

What can designers offer?

The workshops employed a series of game-like tools/probes called "empowerment games" to enable participants to understand the complicated architectural design process by association with their everyday life experience. Different scales of urban living problems were tackled through different games. Association was the main method employed. The aim of these community workshops was to help the resident group members to envision the housing design and construction process. Understanding of design is transferred from designer to resident group members and, through them, to other residents through such new experiences.

Game 1 (Fig. 7) aimed at enabling participants to anticipate problems and opportunities in their future home by associating their perception of positive and negative environmental factors in several newly built housing estates in Hong Kong with issues that may possibly play a role in the design of their own future homes. The aim of this first simple awareness workshop was to provoke participants' interest in the workshops. The result was that participants were actively involved in the process and many useful dialogues on environmental issues were developed. A discussion about the design of the rubbish collection system is an example of an interesting dialogue from this game. Participants generally identified the proposed system as a good design, but also identified opportunities for improvement. One of the suggestions was to change the opening mechanism from a hand-operated one to a pedal operated one, to solve the problem of the dirty handle, which might encourage the use of the system.

In awareness workshop 2, participants arranged icons representing the furniture and items of their day-to-day life within a plan of their future flat. These individual flats were then placed within the context of the overall layout of their future building block. This is Game 2 (Fig. 8), which allowed participants to gain an understanding of the relationship of their private space to the communal space and overall building ensemble, as well as encouraging projection of the patterns of their daily existence into the space of their future flats, leading to insights about spatial division and organisation.

In the beginning, participants were confused about the concept of two-dimensional floor plans and they did not have a clear idea of the relation of

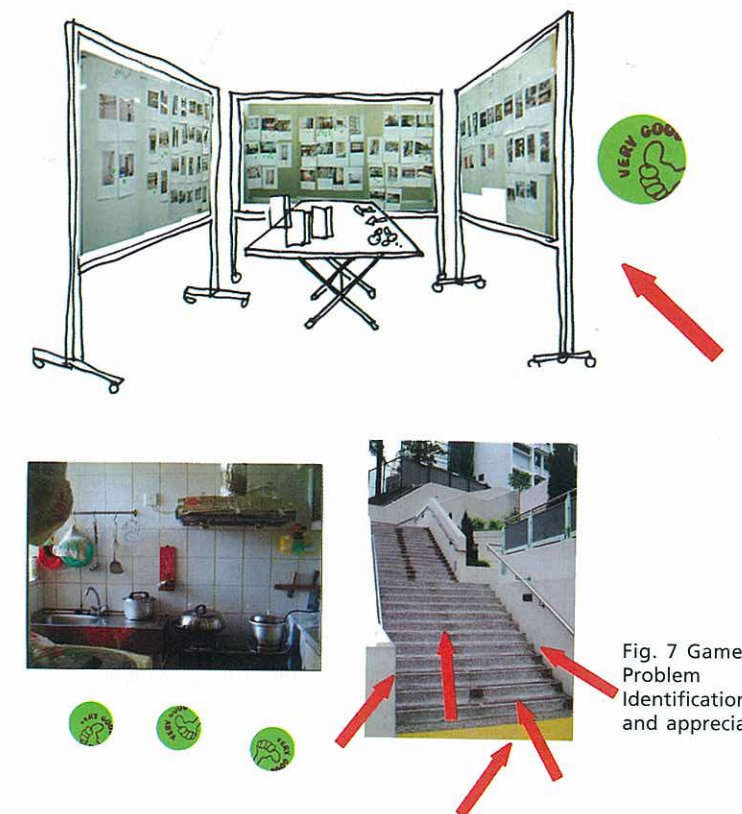
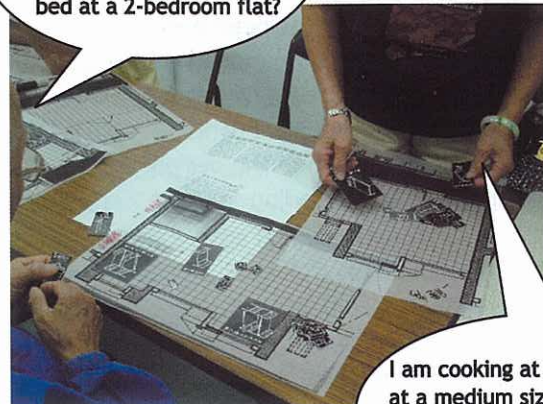


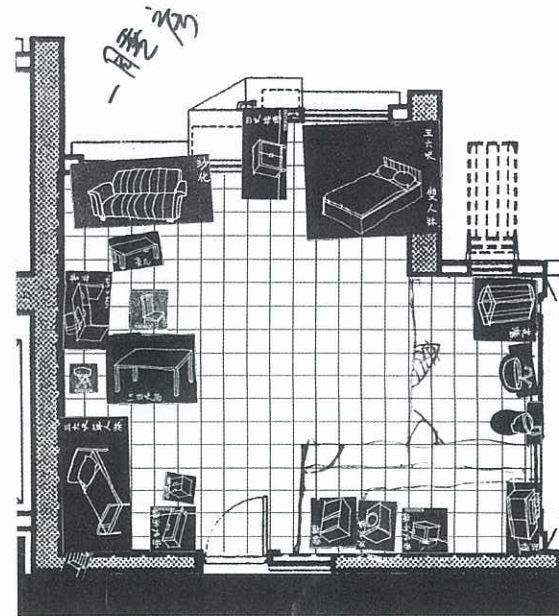
Fig. 7 Game 1: Problem Identification and appreciation

I am sleeping at the lower deck with my wife at a small size LNTK flat. Where will be my double bed at a 2-bedroom flat?



I am cooking at my small pantry at a medium size LNTK flat. How big do I need for my new kitchen?

Fig. 8. Game 2: Usage Association



plan scale to actual scale. Then they started to associate the cartooned icons with their mental maps of their existing homes. After many collective conversations, all participants overcame these problems and the game became a useful tool for them to design their future home. Many creative spatial use scenarios were developed with the help of Game 2.

Awareness workshop 3 tackled the most complicated issue of the project - the overall design of the estate. It is very difficult for ordinary people to associate the tremendous scale of an entire estate with their daily experience based on plans alone. Therefore, Game 3 (Fig. 9) was designed based on a conceptualised construction process. The intention is to give participants an understanding of the constructive logic of their future estate. Another aim was to create a chance for participants to experience the transformation from two-dimensional architectural blueprint to three-dimensional conceptual model.

This collective learning experience encouraged more conversations about the overall planning. Through this conceptualised process, the main aim of Games 2 and 3 was to give the future users a conceptual understanding of the design of their future Housing Authority estate.

What are the effects?

Through this new experience, knowledge of design was transferred from designer to resident group members and to other residents through a series of induction sessions. As one of the collaborators of the project, Hong Kong sociologist Dr. Ku (2004) concluded: "The project is one of the pioneers in Hong Kong's housing development, which has opened the channel for the local groups to voice their view on the urban planning and renewal process of the living environment, as well as their housing



Fig. 9. Game 3: "Build our estate together"

preference. The findings of these projects have also enriched our greater understanding of the need of the underclass citizens and uncovered the problem of the government's planning and housing policy."

Housing and Community Participation

Worldwide examples of modern standardised mass housing are generally recognised as having a common ancestor in Le Corbusier's built and unbuilt housing projects of the early 20th century. Not just the organisational typologies of the buildings, but also the way in which the stakeholders collaborate in realising these projects, is firmly grounded in socialist ideals. The realisation of these projects implies a strong central authority with the ability to commandeer large plots of land and dictate a way of living to large groups of people, as well as an architect (or architects collective) of sufficient size and regimentation to oversee projects of such a scale. Thus, this mode of housing was most widespread in 20th century communist societies and in low-income government housing projects in America and Europe: contexts in which governments had both the wherewithal to carry out such large-scale social experiments and the responsibility to house masses of people who were in no position to determine their own living conditions. Jacobs (1961) has attributed the famous and spectacular failure of this strategy of housing in the West to the faulty premises upon which it was conceived, grounded not in scientific evidence or observation but in dogma and expedience. After their demolition, a good number of failed mass-housing projects in Europe and America were, or are being, replaced with a low-rise urban fabric similar to that which was cleared to make way for these projects in the first place.

Without resorting to trite generalisations about the respective value given to individuality and communality in Eastern and Western cultures, one should be very careful in generalising this experience in Western countries to indict the continued proliferation of mass housing in Hong Kong. In the United States and British context, there is a high level of correlation between dense living quarters and poverty, and thus with crime. This is not the case in Hong Kong, where most of the middle class lives in conditions that would be considered extremely crowded in other parts of the world. The huge differential of individuality and variety of living spaces between middle-class (often detached or semi-detached) and low-income (standardized) housing in the West does not find its counterpart in Hong Kong, where standardized floor plans and layouts apply to housing across the city at all income levels. Hyper-density and mass-standardization are responses to the fundamental economic and sociological facts of Hong Kong, which apply throughout the city to a wide range of income groups, rather than wilfully imposed measures, as in the West. The real challenge of Hong Kong participatory design for public housing is not to vilify a housing typology out of hand and revert to the typology that had preceded it, but rather to achieve a way of ensuring an informed evolution of the type through a more effective dissemination of information and action throughout the design process. This could lead to a greater differentiation of mass housing types, based on greater understanding of varying needs based of demographic groups, or at least to a better-informed breed of standardization.

Conclusion

The LNTK community participation project has just been the beginning of a long-term process. The participatory design process is influenced by the relationship between designers and users. After the users have been empowered, the next step is to involve the designers of the future housing estate in the participatory process. One of the next steps is to conduct a valuable opportunity for a comparative study of the same situation and issue with different stakeholders. Whereas the workshops discussed in this paper were organised by the users and a design researcher without the involvement of the architects, the future community workshops should be organised by the architects with the collaboration of active users, design researcher and other stakeholders.

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References

- Bontoft, M. and Pullin, G. (2003). "What is an inclusive design process?", in: *Inclusive Design - Design for the whole population*, London: Springer-Verlag.
- Bicknell, J. and McQuiston, L. (Eds.) (1977). "Design for Need: the social contribution of design", conference proceedings, London: Pergamon Press & Royal College of Art.
- Cassim, J. (Ed.) (2001). "Innovate 1: how 4 design teams faced the user challenge", June, *The Helen Hamlyn Research Centre*, London: UK, p.6.
- Coleman, R. (2001). *Living longer: the new context for design*, Design Council, London, p.12 & 23.
- Coleman, R. (1994). "The Case for Inclusive Design - an overview", in Proceedings of the 12 Triennial Congress, International Ergonomics Association and Human Factors Association of Canada, Toronto.
- Chu, S. F., Lee, Y. K., Ku, H. B. and Jachna, T. (2004). "Empowerment Games: Community participation and sustainable public housing development in the social context of Hong Kong", in the proceedings of the International Housing Conference, the Hong Kong Housing Authority, February, 2004.
- DTI Foresight, (2000). "The Age Shift - priorities for action", report of the Foresight Ageing Population Panel, London, Department of Trade & Industry.
- Jacobs, J. (1961). *The Death and Life of Great American Cities*, USA: Vintage.
- Kose, S. (1998). "Universal Design: Myths, beliefs and realities", in the proceedings of the International Workshop on Universal Design, Building Research Institute & Japan International Science and Technology Exchange Centre, Japan, pp. 24-1-25.
- Lee, Y. K. and Jachna, T. (2004). "Empowerment Games: Empathic Design Probes for User Participation in Community Housing", in the proceedings of the Participatory Design Conference (PDC 2004), Toronto, Canada, 27-31 July.
- Lee, Y. K. and Jachna, T. (2004). "Empowerment Games: Participatory Design exercises for sustainable public housing development in the social context of Hong Kong", in the proceedings of the Design for 21st Century Conference, Rio, Brazil, 7-12 Dec.
- Lee, Yanki (2004). "Design for communities or with them?", in book *SPARK! Project: Design for Communities*, Finland: University of Art and Design Helsinki.
- Lefebvre, H. (2003). *The Urban Revolution*, USA: The University of Minnesota Press.
- Luck, R., Haenlein, H. and Bright, K. (2001). "Project Briefing for Inclusive Universal Design Process", in Preiser, W. and Ostroff, E. (Eds.), *Universal Design Handbook*, McGraw Hill, New York, pp. 44.1-44.9.
- Morrow, R. (2001). "Universal Design as a Critical Tool in Design Education", in Preiser, W. and Ostroff, E. (Eds.), *Universal Design Handbook*, McGraw Hill, New York, pp. 54.1-54.16.
- Ostroff, E. (2001). "Universal Design: the new paradigm", in Preiser, W. and Ostroff, E. (Eds.), *Universal Design Handbook*, McGraw-Hill, New York, pp. 1.3-1.12.
- Reynolds, I., et al. (2001). "Towards a design solution: perspectives from our review panel", in *Living longer: the new context for design*, Design Council, London, UK, insert.
- Sanders, E. B. -N. (2002). "From user-centred to participatory design approaches", in *Design and the Social Sciences: Making Connections*, London: Taylor & Francis.
- Sandhu, J. (2001). "An Integrated Approach to Universal Design" in Preiser, W. and Ostroff, E. (Eds.), *Universal Design Handbook*, McGraw Hill, New York, pp. 3.1-3.14.
- Steinfeld, E. (1998). "Universal Design as Innovation", in the Proceedings of Designing for the 21st Century, An International Conference on Universal Design of Information, Products, and Environments, Hofstra University, New York, p. 121.
- Welsh, P. (Ed.) (1995). *Strategies for Teaching Universal Design*, Boston Massachusetts, USA: Adaptive Environments, p. 259.
- Yeung, Y. M. and Wong, T. K. (2004). *Fifty Years of Public Housing in Hong Kong - A Golden Jubilee Review and Appraisal*, Hong Kong: The Chinese University Press.

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