FOSTERING CREATIVE CITIZENS IN CHINA THROUGH CO-DESIGN AND PUBLIC MAKERSPACES

creative makerspace

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INTRODUCTION

1.1. INTRODUCTION TO THE PROJECT

This project aimed to develop a novel and inclusive means of fostering creative citizens in China in a bottom-up manner through strategic use of co-design and public makerspaces. Previous studies showed that good use of design could make a significant impact on the creation of social value including individual behaviour changes and societal engagement. Thus, this project also considered how best design could be used to create greater engagement with citizens to generate societal impact. The emphasis was on offering multipurpose spaces where creative activities could take place, rather than providing high-tech fabrication tools. The project was a collaboration of two universities (Brunel University London and Tongji University) and practitioners.

1.2. PROJECT SUMMARY

This project aims to develop a combination of design interventions, public makerspaces and online design resources as a means of fostering creative citizens in China in an inclusive and bottom-up manner. This could be a winning formula for developing a prototype of a community creative hub that can help promote creative thinking among Chinese citizens, and deliver societal and economic impacts. The project has 5 objectives:

OBJECTIVES	ACTIVITIES
1. To identify key requirements of public makerspaces and community creative hubs in China, as well as main drivers and potential barriers.	• Interviews with key stakeholders in China • Co-design workshops (in the UK and China)
2. To seek insights from best practices of physical and virtual creative communities	• Literature review • Case studies and field trips
3. To develop visions and initial specifications for public makerspace that will be hosted in the community neighbourhood centre in Yangpu District.	• Public engagement events • Creation of design intervention toolkits (e.g. storytelling, skill sharing and asset mapping)
4. To make a strategic framework for building up a creative hub in a long term.	• List of key lessons learned • Strategic framework with guidelines
5. To disseminate knowledge to wider communities	• International conference papers • Journal paper (publication in progress) • Project website and WeChat channel

1.3. OVERVIEW OF KEY ACTIVITIES & TIMELINE

1.4. KEY STATS

36 interviewees

22 people in China took part in the interviews
14 people took part in the case studies in the UK

17 people took part in the field trips

13 Chinese delegates in the fieldtrip to the UK
4 UK delegates in the fieldtrip to China

146 participants in 6 workshops:

13 Chinese participants in 1st workshop in the UK, 06/2019
20 Chinese participants in 2nd workshop in China, 06/2019
31 international participants in the 3rd workshop in the UK, 10/2019
26 Chinese participants in 4th workshop in China, 12/2020
50 Chinese participants in 5th workshop in China, 03/2021
6 Chinese participants in 6th workshop in China, 06/2021

5 collaborative organisations

3 in the UK: The Glass-House Community Led Design, Tangerine and Engine Service Design
2 in China: College of Design and Innovation, Tongji University and DESIS Tongji

1.5. MAIN LESSONS LEARNED FROM EXISTING PRACTICE

1.5.1. Case Studies

Seven case studies were conducted in the UK. The chosen cases included both small-and-medium-sized community-based organisations, and large-scale well-established ones. Although not all organisations described themselves as makerspaces, they all provide making facilities for people and support them in engaging with creative activities. It is found that these makerspaces could help people appreciate their creativity and gain confidence to engage with creative activities, which is the first step toward fostering creative citizens. Two types of **empowerment** occurred in this kind of space. Makerspaces could empower people **to make** and **through making**. While the former help people develop confidence to engage with creative activities, the latter is about how the outcomes of making (e.g. artefacts) may benefit people beyond those who directly engage with makerspaces (e.g. users of these outputs). Seven cases are as following:

01 The Remakery is a community-based makerspace focusing on a niche group. Its core value can be summarised as *'to spark the environmentally conscious lifestyle through making'* and to generate the conversation about (re)making.




02 The She Shed Association is a not-for-profit organisation set up to support older women who are vulnerable to loneliness and social isolation, often due to the loss of close friends and families.



03 The Camden Town Shed is the first UK shed started by its users in 2011. The concept was based on the Men's Shed Movement in Australia. The main target audiences are older men and women who are vulnerable to loneliness and social isolation.

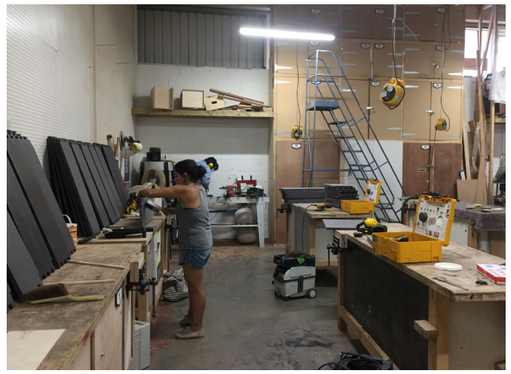


04 The Building BloQs is a makerspace for professional makers, which can be broadly categorised into two groups: freelance professionals and small companies. It provides spaces and means for making (e.g. workbenches, machines, tools, materials and storage spaces) for paid members.



05 The Goodlife Centre is an independently funded workshop designed to help *'people who would like to make something'* by providing them with knowledge and skills in making

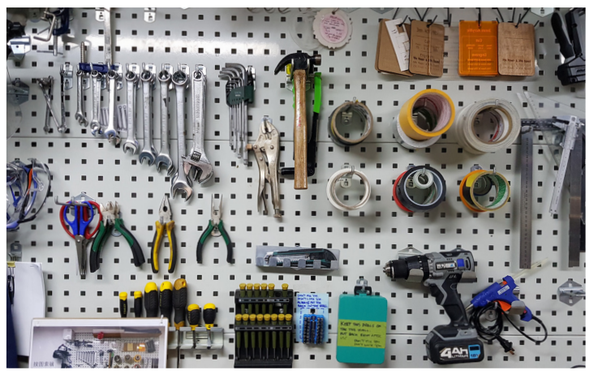
06 The Blackhorse Workshop is founded by creative practitioners with a mission of becoming *'a socially pioneering world class centre for making'*. It currently focuses on woodwork and metalwork, but also offers other services, e.g. leatherwork.



07 The Library of Things works in partnership with Crystal Palace Transition Town & Upper Norwood Library Hub to help people get access to things they need. This is a place where people (mostly local residents) can borrow useful items (e.g. drills and carpet cleaners) at affordable prices and learn how to use them.

1.5.2. UK Field Trips

14 early-career Chinese researchers from Tongji University took part in the UK field trips and visited two makerspaces, the Goodlife Centre and the Remakery, in London. They were invited to an open discussion to share their insights as well as identity similarities and differences between makerspaces in both countries. It was observed that grassroots makerspaces were not common in China. Although community-based makerspaces in the UK might have originally been developed with government support, they normally worked as independent organisations with full autonomy. For instance, the Remakery combined the features of a community centre and a hackerspace. It supported social entrepreneurs and promoted social engagements among residents. Another key finding is that the UK makerspaces see themselves as a ***platform***. Their focus has been shifted from ***making artefacts*** to ***enabling people*** to achieve their personal/ business goals.



1.5.3. Shanghai Field Trips

4 researchers from the UK visited 3 community centres in Yangpu District (namely Miyun Road Community Neighbourhood Centre; Hongkou District Quyand Road Neighbour Public Legal Services Counter; and Fuxin Road Community Neighbourhood Centre) and 3 makerspaces (Xin Che Jian, Tongji Fablab O and Shaji Village).

The field studies confirmed that existing community neighbourhood centres have strong potential to become community creative hubs. Firstly, they are strategically located in the middle of the communities. Secondly, they attract a wide range of users from the local areas. Activities during the daytime are often designed for older people, while those in the evening are suitable both families and working professionals. Moreover, the centres are well-supported by the local governments. Most activities are often organised by staff. The centres also support self-organised activities (e.g. a painting group) by providing spaces and displaying artwork. Many centres are part of the same service provision organisation and connected to each other via an online platform.

The visit of three makerspaces revealed that community-based makerspaces are still rare in China, as most makerspaces either target creative professionals, entrepreneurs or students. For example, Xin Che Jian is a commercial co-working establishment where professional makers and start-up entrepreneurs could rent spaces to produce their work. It acts as a platform to help creative professionals/entrepreneurs launch their businesses. Another case is the FablabO that designed to train STEM subjects (e.g. coding) to secondary schools students. It provides various courses for secondary school students as well as helps schools set up their own Fablabs. The Shaji Village model focuses on a combination of creative entrepreneurs and e-commerce.

1.6. OVERVIEW OF RESOURCES CREATED

- **Publications:**
  - Paper to IASDR Conference
  - Paper to ICDC Conference
  - JDR Journal (Accepted)
  - The Design Journal (under revision)
  - IJDCI Journal (under revision)
  - Spaces for Connection: Fostering Creative Citizens through Makerspaces in China (Sophia de Sousa)

- **Talks and Presentations**
  - Presentation to IASDR Conference (Dr Xi Chen)
  - Presentation to ICDC Conference (Dr Xi Chen)
  - Keynote speech and Project poster to Gwangju Design Biennale (Dr Youngok Choi)
  - Presentation to Online Symposium: Street markets as spaces of encounter, laboratories of social creativity and alternative pathways of eco-socially sustainable prosperity? (Dr Busayawan Lam & Sophia de Sousa)
  - Public Speaking at Brunel University London (Dr Busayawan Lam)
  - Presentation at Association of Collaborative Design Conversation Lab (Sophia de Sousa)

- **Co-design workshop tools:**
  - Design by Consensus Makerspaces Facilitation Guide, The Glass-House Community Led Design
  - Asset-Mapping tool for co-designing creative hub in Shanghai

- **Online resources:**
  - Project website: https://www.creativemakerspace.org/
  - Project webpage in Brunel University London's website: https://www.brunel.ac.uk/research/Projects/Fostering-creative-citizens-through-co-design-and-public-makerspaces
  - WeChat channel: MakerspaceCN

02
CO-DESIGN ACTIVITIES

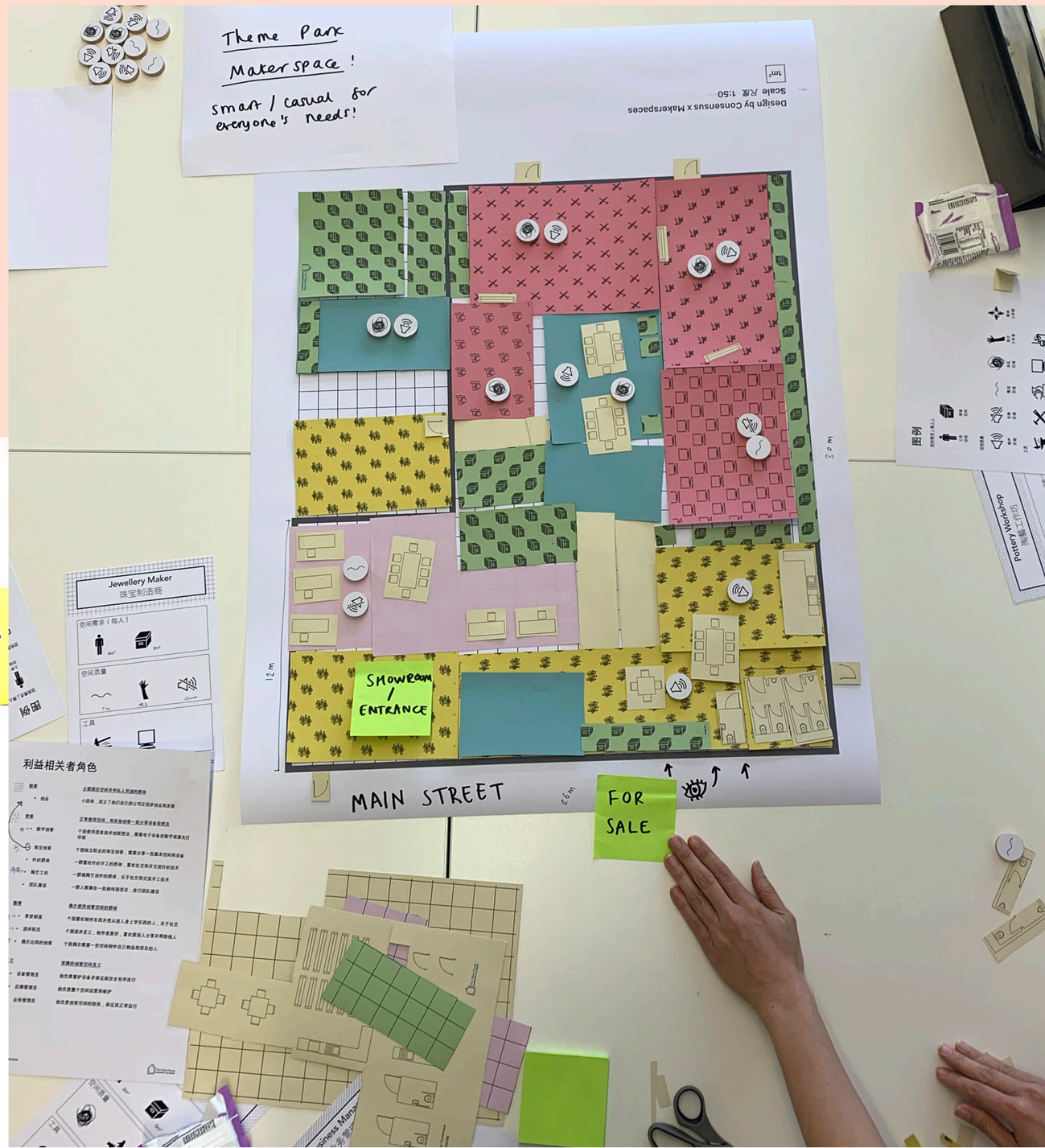
2.1. CO-DESIGN WORKSHOPS AS A LEARNING TOOL

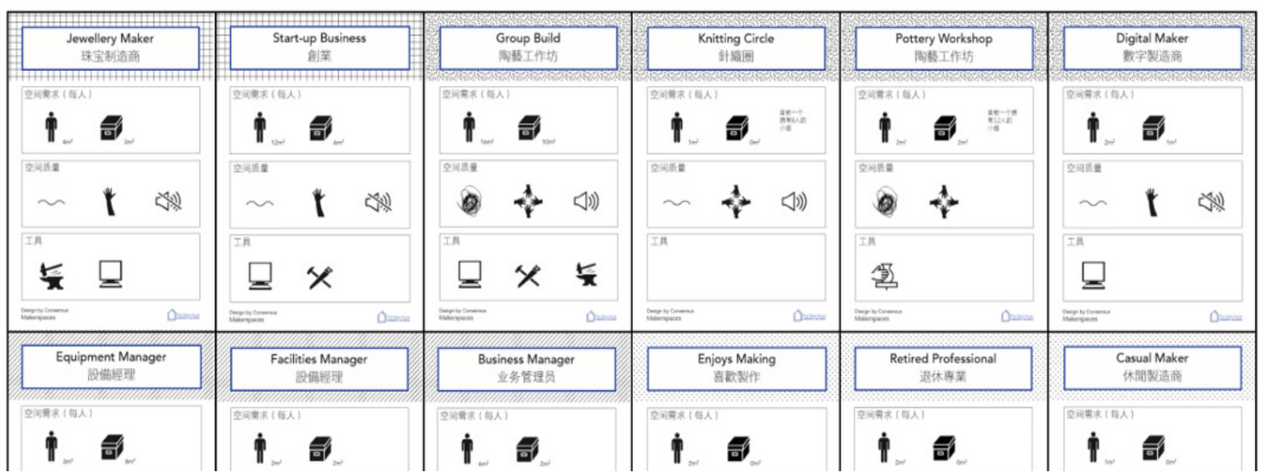
Through our research, we were keen to explore the role of co-design workshops in shaping makerspaces with communities. Different degrees of familiarity with creative tasks among participants were taken into consideration when designing and facilitating workshops. In this way, we could create suitable tasks and atmosphere that enabled participants to express their creativity freely.

We are also interested in observing how participants' creativity can be stimulated by inspirational resources (e.g. workshop materials), which help them see things in a different way. This research considered the following issues for the workshop design and facilitation: *1) how (individual/collective) creativity can be applied in co-design tasks, and 2) how co-design workshop can be used to develop (individual/collective) creativity.*
Co-design workshops are themselves flexible and creative spaces, where people can come together to identify shared values and ambitions, explore how to respond to opportunities and challenges, and negotiate solutions through collaborative tasks. It was important that our co-design workshops be safe and playful spaces, using simple, accessible and interactive activities that could serve as a means of kick-starting dialogue and collaboration.

2.2. DESIGN BY CONSENSUS

The first series of co-design workshops we used was the Design by Consensus workshop, which was initially created by The Glass-House Community Led Design and adapted for this project. The workshop helped to bring together different stakeholders to explore role of makerspaces in the community context. By assigning people into different roles, participants negotiated shared visions and develop design ideas that respond to both individual and collective needs as well as ambitions of various users. We held three workshops altogether (two in the UK and one in China). The same format was used in all workshops - facilitated in English and in Mandarin. A series of stakeholder roles were created for this project. In this case, they represented three categories of users: 1) staff; 2) experienced or professional makers who needed regular workspace; and 3) occasional or aspiring makers with varying degrees of experience. Workshop participants were divided into groups and given different stakeholder roles. They were asked to work together to co-design their ideal makerspace building, based on the needs and interests of the various stakeholders represented within their group. In order to introduce some key design considerations, the workshop introduced an imagined building with internal and external space, and a series props to help explore shared and private workspaces, clean and messy, quiet and noisy, storage and social spaces. There were different size kitchen spaces, toilet configurations and also some standard building features such as doors, windows and corridors. With co-design tools, participants could shape a building that is catered for multiple different makers, and could help engage people in the community.



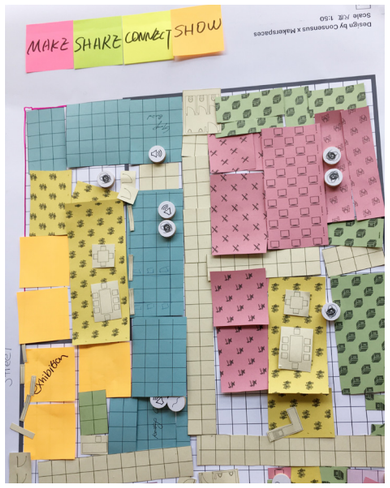


2.2.1. Design by Consensus as part of UK Field Trip

The first workshop was part of an academic conference day at Brunel University London. The event brought together students and researchers from Tongji University, academics from Brunel University London and other universities and invited guests from the community and industry. This was an opportunity for the research team to introduce the Design by Consensus workshop to Chinese participants.

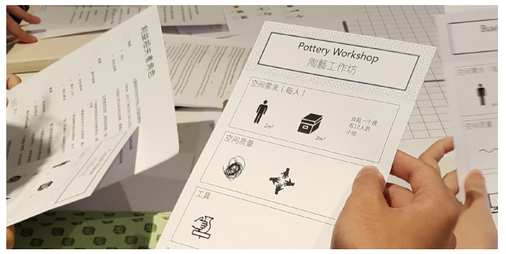
Workshop participants were divided into two groups. The two groups took quite different approaches to formulating their visions. Group 1 created the shared visions first and then developed the design ideas for the built environment. Their vision can be described as *"theme park of making"*, as they wanted to emphasise the joy of making. On the other hand, Group 2 explored design ideas for the built environment first and then created their vision statement based on emerged working zones. Their vision can be described as *"make, share, connect and show"*. Both groups were interested in the **interface** between the **makers** who used the buildings and the **general public**. As a result, they created a gallery or shop in their design in order to stress the importance of a space for showcasing and selling the artefacts created by makers, as well as introducing the public to creative making activities. Both groups also gave a high priority to **social aspects** of the makerspace by dedicating large areas for social activities as well as open spaces for making and working together.

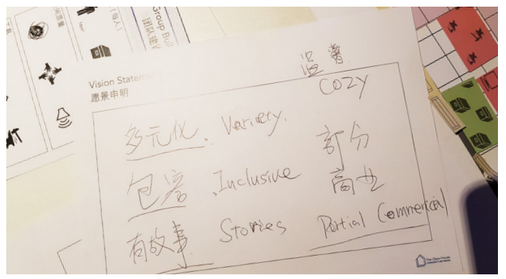
The themes emerged from this first co-design workshop were combined with the findings from interviews and site visits both in the UK and in China. These results helped informed the structure and format of the second co-design workshops in Shanghai, which aimed to gain useful ideas as well as refine the co-design tools further.



2.2.2. Design by Consensus as part of Shanghai Field Trip

The second workshop was organised with design students, creative professionals, local residents and academics at Tongji University. The workshop was facilitated by members of the research team and some researchers who had participated in the first workshop. The presence of a wide range of participants in this second workshop, and the interests that they represented, as well as the workshop being rooted in a local conversation led to some interesting ideas, observations and tensions emerging through the task and follow-up discussion. As at the first workshop, two groups were formed and stakeholder roles were assigned so that each table had participants taking on different stakeholder roles. Group 1 was made up of predominantly students from similar age groups and educational backgrounds. Group 2 had participants from different age groups, various professional backgrounds and different making experiences. The design ideas that emerged were quite different from the results in the first workshop. Participants placed more emphasis on catering for people already engaged with making rather than trying to include everyone. Social interaction was perceived as a means to promote this place and sell the artefacts created by the makers rather than introducing makerspaces to the community and encouraging the general public to engage in creative making activities.





2.2.3. Design by Consensus with design students

The third workshop was held at Brunel University London with design students. They were divided into four groups. Two groups had Chinese participants only, while the other two groups had participants from different countries, such as Thailand, India, South Korea, Greece, UK and Brazil. The common points shared by all participants were that makerspaces should be **inclusive, interactive, accessible** and **flexible.** Most participants believed that interactions between makers and non-makers were crucial when designing public makerspaces. Thus, they aimed to make the making activities visible to the general public through windows, which could generate a sense of welcoming. They all agreed that a makerspace should have an exhibition space inside and/or outside of the building, where the items made in the makerspace can be displayed (or sold). Moreover, most participants believed that making should be perceived as an inclusive activity that is accessible for everyone. Hence, they wanted to place their makerspaces in a residential area to maximise opportunities for interacting with local people. In this way, non-makers could develop interests in making and become makers in the future. All groups separated the workspaces based on the functionality and organised the areas according to the level of noise. Having green space appeared to be necessary to all groups.

Some differences between Chinese and non-Chinese groups could be identified. Firstly, Chinese participants wanted to maintain a **certain degree of control** (e.g. keep the certain areas private). Moreover, they showed interested in **growth** (e.g. an increase of number of makers). For Chinese participants, socialisation might not be seen as part of 'making'. Although having a proper socialising space for makers was important, they preferred to separate socialising space from making space. Finally, most Chinese participants demonstrated strong business awareness by considering the economic sustainability of the makerspace. Through the series of co-design workshops, it was possible to identify issues that were rarely discussed in western literature, such as productivity, the element of control, and separation between socialising and making.

2.3. CO-DESIGN WORKSHOPS AS A PROTOTYPING TOOL

The application of the Design by Consensus in this project suggested that the co-design workshops were effective at supporting value co-creation, as they excel at engaging participants and enable them to collaborate as equal partners. While cultural differences emerged in the outputs, it supported an accessible and inclusive way to introduce participants to the co-design of their makerspaces and to explore and articulate their shared values and design ambitions. The study revealed that community centres have potential to become creative hubs that can respond to emerging demands for creative activities within local communities.

There were great demands for a platform to practice making by residents. Some programmes and events run by self-organised clubs or local groups have illustrated a rapid increase of bottom-up initiatives. While top-down interventions remain prominent in the maker movement and the development of makerspaces in China, there are more opportunities for bottom-up initiatives to provide benefits to a broader range of people, help foster creative citizens and improve their quality of life in an inclusive manner.

Moreover, most centres are well-equipped and strategically located in the middle of residential areas. Their multipurpose spaces could be adapted for creative making activities. In addition, many centres already have substantial experience of organising and supporting creative making activities.

Developing community creative hubs in the community centres in a bottom-up manner can be challenging. In order to get government financial support, the centres are required to meet policy goals. Although citizens can suggest programmes and activities to the centres, the centre management team will make a decision whether to support these ideas or not based on a government policy. Therefore, a strategic and long-term framework with the right balance between top-down and bottom-up approaches would be more appropriate.

Three more workshops were carried out within the community to achieve two aims: test the different forms of creative making within the local communities; and develop a sustainable model of creative hub through connecting different stakeholders. Three workshops included: creative hub taster; asset mapping; and co-designing a sustainable business model. Prior to the workshops, semi-structured interviews, questionnaires and relationship mappings were conducted with people around the Neighbourhood Centres to explore the hidden assets and possibilities for future collaborations. The findings suggested that current connections between local residents in the community centre were not strong. However, this situation could be enhanced and reconstructed by increasing and improving local activities. The centre could get local residents more involved in the planning process which could help to stimulate their interests in everyday creativity.

2.3.1. Creative Hub Taster Session (Creative Co-Knitting Workshop)

Brunel University and Tongji DESIS held the first co-design workshop in Fushun Road Community Centre in Shanghai. The workshop theme was 'Creative Co-Knitting' in collaboration with Innocent and the local community centre. A professional knit designer was invited as the on-site tutor. A call for participants was made one week in advance via social media site. We received more than 50 applications to join the workshop. 26 participants were carefully selected to ensure the diversity of age groups and backgrounds. 23 people completed a survey after the workshop. Some participants were senior ladies in the local community, who were skilled in knitting. Some participants had basic knitting skills and some had zero experience.

Methods: The co-design method employed in this workshop was story sharing. Participants (including local residents, professional designer as well as some external partners) were encouraged to share stories while knitting hats for Innocent drinks together. The event aimed to test whether creative making activities, such as co-knitting, can promote peer-learning and help foster individual creativity. The event also encouraged participants to use local elements in their hat design. The event also intended to test whether collaborations with external organisations (Innocent was used as an example in this case) could provide a means for the local community centre to expand their activities.

Snapshot:

The workshop included project introduction, co-knitting and sharing outcomes and stories.

Firstly, Dr Minqing Ni from Tongji DESIS, introduced the concept of co-design and explained how creative making could benefit the community. Next, Jing Ouyang from Innocent shared the story of the Big Knit project. Jing explained how knitted hats by senior groups contributed to the marketing campaign and profit generation, which went back to supporting the community. After that, Foning Bao, the professional knit designer, shared her stories about knitting and professional design.

The second part of the event was co-knitting activity. Participants were separated into five groups. Each group had participants with different skill levels – from the zero to the skilful ones. All participants were asked to express their creative ideas by drawing the designs and knitting together. They were asked to knit a hat based on any element(s) related to Shanghai City (e.g. local dishes or architectural decorations). The co-design of the knitted hats in each group was facilitated with support of the on-site professional knit designer. For people with relatively high skills, the professional knitter helped them to improve and realise their ideas in a more aesthetic way. For beginners, there were some semi-finished samples for them to start with. These beginners also got help from experienced participants on the same table (peer-learning).

At the end of the workshop, people shared outcomes and stories. Hats created by skilled knitters contained many references of Shanghai City, such as traditional windows and staircase. Through this workshop, they learned how their work could be refined further. Some experienced knitters reported that they gained a lot of new ideas on how to improve their skills and patterns. For beginners, although time was too limited to complete their work, they had learned a great deal about knitting and would like to practice more in the future.

Key Findings:

Firstly, this workshop helped people **recognise their creative talent** and how to develop it further. According to the survey after the event, people feel their creativity was enhanced through drawing and knitting together. The expert's **guidance** as well as **peer-learning** were helpful for people to recognise their potential in creative making. Experienced knitters realised that their skills could be improved. Inexperienced knitters also recognised their potential to be creative makers.

The second finding was that creative citizens could be built around the community centre. Using **local elements** (e.g. cultural references) were useful for promoting creative education within the local community. By getting participants to think about their local elements, this made them realise that the community centre provided a good platform for creative making, as it could bring together different parties including commercial companies, local residents, university researchers and the wider public audience. It was observed that the community centre has a great potential to solve problems through people's creative ideas, which encourage self-governance at the community level.

Finally, the introduction of **external resources** to the community was helpful because the makers could co-brand with commercial companies. The example of Innocent's Big Knit enabled participants to see how creative artefacts could be aligned with branded stories for wider commercial use.

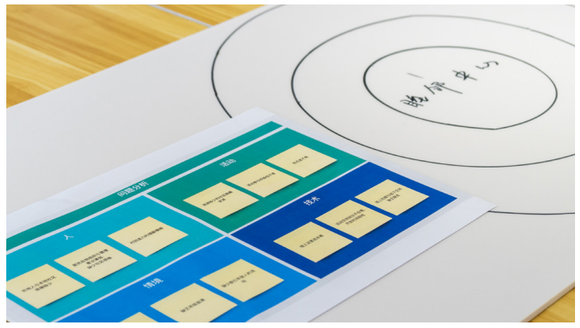
Emerging Ideas:

The workshops revealed an interesting form of creative making within the community centre. The self-organised groups (e.g. local knitting groups) were considered as a part of the creative hub plan in the future. Collaboration with different stakeholders was needed to build up and sustain self-organised networks. Although story sharing helped building up the platform for creative makers, a more strategic approach would be needed to get more stakeholders involved.

2.3.2. Asset Mapping Workshop

We held the second workshop at Fushun Road Neighbourhood Centre in Shanghai. The workshop applied **assets mapping** as the co-design approach to discover and unlock the hidden resources of the community. This workshop provided a starting point where local people could work together to create a long-term plan for everyday creativity projects. This event brought together nearly 50 participants including representatives of the Neighbourhood Centre, the Siping Road Street Officer, Fushun Road Community Neighbourhood Centre operator, Siping Road Community Chest Foundation, local enterprises in the Siping community, students and teachers from Tongji University, representatives of the civil society, and many local residents.

Method: The asset mapping consisted of three parts. The first part focused on showcasing existing creative resources (including the knitting project by the local group as well as the creative futures made by Tongji university students near the community). The second part was the Mapping Game. With the help of visual tools, participants discovered the hidden resource for building up community and their connections for some future development programmes. Many intangible and physical assets were visualised using icon cards (such as venues, facilities, skills and human resources). Participants played the cards and made connections between them. In this way, they started to realise whether these resources could be run together in a sustainable way. The final part of was to identify community leaders. It was observed that some participants were active/ positive about leading potential projects in the future. Thus, they were invited as the community representatives for our third workshop to discuss and implement some potential strategies.



Snapshot:

The workshop started with the 'daily creativity brainstorming' followed by the Mapping Game and the reward and engagement. Participants were divided into three groups. Each group was comprised of people from different ages, genders and backgrounds.

The warm-up session started with the brainstorming activity which asked participants to explore *"what is creativity in everyday life"*. This task helped open up participants' imagination. Some people thought that daily creativity could be different ways of cutting apples, researching new recipes and revamping old things. Others thought that 'real' examples of creativity should be 'out-of-the-box' ideas and practices, such as new ways of thinking/ doing things and sustainable lifestyles.

In the mapping session, participants were asked to identify and link available resources on the board. The Neighbourhood Centre was placed at the centre of the board and resource cards were scattered around in different distances. As people connected different resources together, they proposed new creative activities for the centre and explained how different assets and stakeholders could work together. They also examined relationships between different resources and the community centre. This enabled everyone to check the practicality/ viability of their proposals.

In the end, each group presented their ideas of re-constructing the creative activity network and how it could work with the Neighbourhood Centre. At the end of the workshop, a special pin named "Community Leadership Pin" was awarded to all participants. The gifts were handcrafted by those skilled knitters (who took part in the first workshop). The idea was to show the appreciation and demonstrate how a successful case of creative activity and networking could be.

Key Findings:

Several key elements were identified for building up a creative hub within the Neighbourhood Centre – for example: an active community leader, more community of interest, more commitment from community members, and more accessible funding opportunities. It was also important to balance different stakeholders' viewpoints and their demands as well as find efficient ways for people with different roles to work together. For instance, a mature gentleman, who was the senior citizens' association manager, suggested a lot of good ideas for running creative activities. However, his ideas were not appealing to younger groups. Some younger participants were rather practical and rational about the possibilities of multi-resource cooperation. Although the workshop was comprised of both local residents and representatives from the local organisations (such as Siping Community Foundation and the Autonomy Office of Siping Road Street), they were generally receptive to new ideas and suggestions. It was also noted that some participants were thinking strategically - showing their potentials to lead the future programme development.

Emerging Ideas:

The asset mapping results and participants' interests at the workshop provided a way forward for the development of third workshop. Three groups of participants came up with three pictures of the future creative community. The proposal made by Group 2 (Full-time Mothers Activity Centre / Book Club) was selected as the most suitable theme to be developed further.

2.3.3. Co-designing sustainable business model

The third workshop was held in DESIS Street Lab near Tongji University. Six community residents who attended the second workshop were invited to take part in this workshop. They were joined by two more participants (one member of staff from the local foundation and one student from the university).

Results from previous co-design workshops were analysed and combined to create six possible strategies for future development, namely:

1. Establishing an online community of creative citizens (social media group such as WeChat)

2. Collecting and classifying existing community activities (new opportunities and residents' visions)

3. Incubating 1 - 2 community projects and apply for fund from the local community foundation

4. The group from "Knit How" project to participate in the activities in the neighbourhood centre

5. Establishing a "Street Lab" to empower the Neighbourhood Center in the long term.

6. College of Design and Innovation, Tongji University, to contribute to community projects and connections.

Method: Firstly, participants were encouraged to brainstorm and came up with some potential solutions that connected all six strategies. Participants were asked to map their reflections on the above solutions. Lastly, the mapping exercise was then followed by a group discussion aiming to identify the priority projects, the operation details, and how individuals could contribute to them.

Snapshot:

The workshop was mainly divided into four steps: self-introduction, connecting potential solutions to the six strategies, resource mapping by residents and group discussion.

In the self-introduction session, everyone explained why they would like to take care of the community and what issues they found. The common issues identified by all participants were: 1) some seniors were living alone and felt lonely, 2) parents would like more activities for their children, and 3) some marginalised groups need more support. The participants then elaborated these issues and gave their feedback. Details were written and attached to the six strategies to form a road map.

The most crucial step was co-mapping each participant's abilities and how they could contribute to the potential projects identified. People were asked to answer two sets of questions. In the first set of questions, participants were asked about themselves: 1) what I need and 2) what I can do. In the second set participants were asked to explore: 1) what the neighbourhood centre needs and 2) what DESIS Lab can provide. Next, they were asked to find common issues and map them out.

The group discussion at the end was considered productive, since the participants got to know each other through previous tasks. People discussed what kinds of project should start first and what role they could play. They also started communication in the social media chat group.

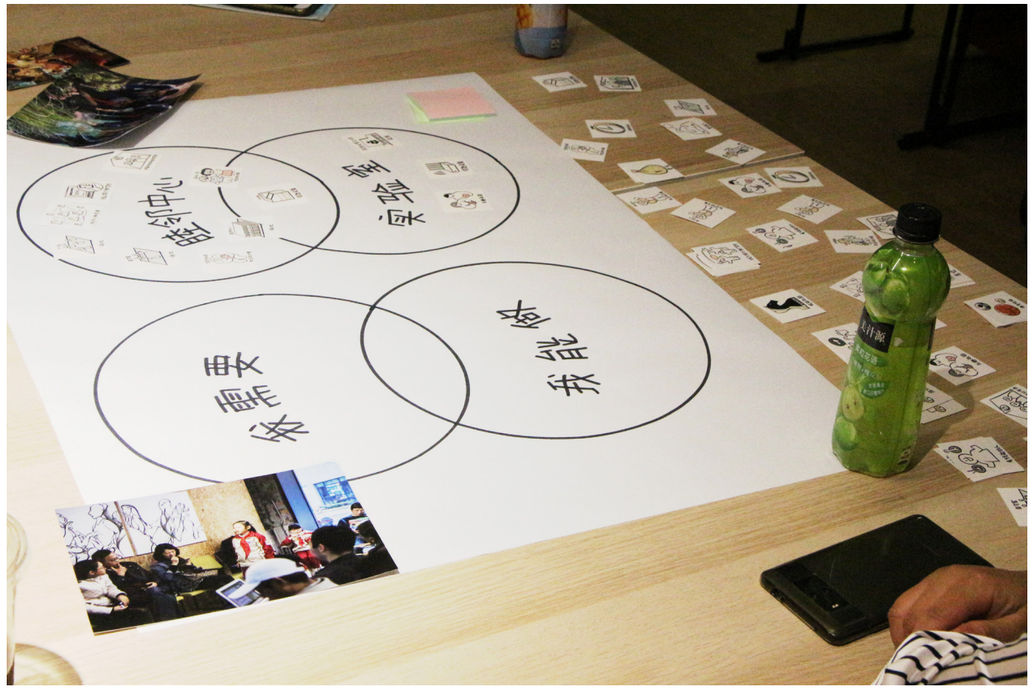
Key Findings:

The workshop helped all participants realise that they are creative and passionate about leading activities for their community. A WeChat media group was formed as a result of the workshop for further discussions and implementation planning. Since most participants were parents, most projects were related to children – for example: parent-child reading corner and activities between children and their fathers. Other ideas were also proposed, such as resource-sharing salon, personal photography exhibition, emergency rescue training, flea market, and pharmacy related courses.

Emerging Ideas:

Communications between participants has continued in the social-media chat group. Several activities have potential to be implemented at the community centre. There is a need to assess these ideas strategically. To move the ideas forward, the following steps have been proposed and agreed. Firstly, the group will assess and choose a pilot project. Next, they will select the potential leader and facilitators of this activity. After that, they will work together and plan the implementation as well as ensure that this activity is linked to the community centre.

To conclude, these co-design workshops helped stimulate interests in creative activities among the general public. They also helped participants develop ideas and identified people who would be willing to turn these ideas into reality. While these co-design workshops helped promote bottom-up initiatives from people, government policies and support were still taken into consideration through asset mapping exercise, since the activities would be organised at the community centre. This process leads to a good balance of top-down and bottom-up practice.



03 STRATEGIC FRAMEWORK

The framework aims to cover the key elements that need to be considered when developing a community creative hub in China. The recommendations have been developed based on the principal findings from a variety of research activities, including interviews, field visits, questionnaire survey and a series of co-design workshops. The main discussions were structured in a format of 5W1H to ensure that all critical aspects were covered fully.

	MAKERSPACES IN THE UK	PROPOSED COMMUNITY CREATIVE HUB	MAKERSPACES IN CHINA
WHAT			
WHO			
WHERE			
WHY			
WHEN			
HOW			

3.1. MAKERSPACES IN THE UK

1 WHAT

Makerspaces in our UK case studies can be broadly divided into two types based on the purposes and target groups. **Commercial makerspaces** were designed for professional users (e.g. professional makers, designers, freelancers and entrepreneurs) while **community-based makerspaces** were created to fulfil the social needs of the community, e.g. supporting people who are vulnerable to isolation and loneliness and/or enabling people to tackle environmental issues in their local areas by utilising reclaimed materials.

WHAT	Community-based makerspaces	Commercial makerspaces
WHO	Community of Interest	Community of Practice
WHERE	Community/multipurpose space	Dedicated making space
WHY	Empowering people to achieve personal and/or social goals	Empowering people to achieve business goals
WHEN	Part of their lifestyle	Work requirements
HOW	Independence in terms of service delivery and management	Independence in terms of service delivery and management

2 WHO

Commercial makerspaces in the UK focus on the **community of practice**. These groups of people engage in making activities to share professional knowledge and advance their skills, e.g. freelancers. On the other hand, community-based makerspaces appeared to target the **community of interest.** These groups of people share common interests and come together to address social issues that are important to them, e.g. sense of belonging, friendship and comradery.

WHAT	Community-based makerspaces	Commercial makerspaces
WHO	Community of Interest	Community of Practice
WHERE	Community/multipurpose space	Dedicated making space
WHY	Empowering people to achieve personal and/or social goals	Empowering people to achieve business goals
WHEN	Part of their lifestyle	Work requirements
HOW	Independence in terms of service delivery and management	Independence in terms of service delivery and management

3 WHERE

Commercial makerspaces in the UK are generally **a stand-alone workshop dedicated to making**. Professional users normally pay some forms of subscription and/or membership. Some of these makerspaces provide other services, e.g. storage. Community-based makerspaces tend to occur in **community spaces** (e.g. community centres or share spaces with other social organisations, e.g. social enterprise. As a result, the spaces have to be flexible and can serve different purposes and types of making.

WHAT	Community-based makerspaces	Commercial makerspaces
WHO	Community of Interest	Community of Practice
WHERE	Community/multipurpose space	Dedicated making space
WHY	Empowering people to achieve personal and/or social goals	Empowering people to achieve business goals
WHEN	Part of their lifestyle	Work requirements
HOW	Independence in terms of service delivery and management	Independence in terms of service delivery and management

4 WHY

Both types saw themselves as a platform enabling people to achieve their goals. While commercial makerspaces focused on commercial purposes (e.g. launching business), community-based ones concentrated on personal/social targets (e.g. building self-confidence). Both perceive their role as **empowering people** 1) to make and 2) through making. Whist the former is about developing/advancing skills and confidence, the latter is about creating outputs (e.g. artefacts) that could benefit a wider audience.

WHAT	Community-based makerspaces	Commercial makerspaces
WHO	Community of Interest	Community of Practice
WHERE	Community/multipurpose space	Dedicated making space
WHY	Empowering people to achieve personal and/or social goals	Empowering people to achieve business goals
WHEN	Part of their lifestyle	Work requirements
HOW	Independence in terms of service delivery and management	Independence in terms of service delivery and management

5 WHEN

Staff at commercial makerspaces observed that their services were similar to those of a landlord. Rather than renting a house or office space, they provide spaces, tools and materials for making instead. The **requirements** of their jobs/businesses dictate when professional users would come to use the space and tools. Users of community-based makerspaces tended to perceive making as **part of their lifestyle** and social activities. Many attended making sessions on a weekly basis.

WHAT	Community-based makerspaces	Commercial makerspaces
WHO	Community of Interest	Community of Practice
WHERE	Community/multipurpose space	Dedicated making space
WHY	Empowering people to achieve personal and/or social goals	Empowering people to achieve business goals
WHEN	Part of their lifestyle	Work requirements
HOW	Independence in terms of service delivery and management	Independence in terms of service delivery and management

6 HOW

Makerspaces in this study were (at least, partially) **independent**, even though some of them might receive some funding from the local government. Most organisations were set up based on the aspirations of the founders. Some organisations might have been established as part of the local governments' initiatives, and some have working relationships with other organisations, e.g. public libraries. Nonetheless, they have the autonomy to plan and manage their services.

WHAT	Community-based makerspaces	Commercial makerspaces
WHO	Community of Interest	Community of Practice
WHERE	Community/multipurpose space	Dedicated making space
WHY	Empowering people to achieve personal and/or social goals	Empowering people to achieve business goals
WHEN	Part of their lifestyle	Work requirements
HOW	Independence in terms of service delivery and management	Independence in terms of service delivery and management

3.2. MAKERSPACES IN CHINA

1 WHAT

Makerspaces in China case studies can be broadly categorised into two types. The first type can be described as **educational-oriented** focusing on teaching STEM subjects (e.g. Tongji FabLab O). They usually target students and equip them with knowledge about digital fabrication and coding. The second type is **commercial-oriented**, concentrating professional users, e.g. entrepreneurs, freelancers and designers – see Xinchejian for an example.

WHAT	Educational-oriented Makerspaces		Commercial-oriented Makerspaces
WHO	Community of Practice		Community of Practice
WHERE	Dedicated Space		Dedicated Space
WHY	Platform for STEM Education		Platform for Entrepreneurs
WHEN	Personal Development		Work Requirements
HOW	Partially Independent		(Partially) Independent

2 WHO

Both types of existing makerspaces in China seemed to consider primarily on **community of practice**. The professional users of commercial-oriented makerspaces came together to share professional knowledge and experience, resulting in advancing their skills, while students attended the programmes provided by educational-oriented makerspaces to obtain STEM-related knowledge and develop relevant skills. At present, makerspaces for community of interest (e.g. casual makers) are still rare in China.

WHAT	Educational-oriented Makerspaces		Commercial-oriented Makerspaces
WHO	Community of Practice		Community of Practice
WHERE	Dedicated Space		Dedicated Space
WHY	Platform for STEM Education		Platform for Entrepreneurs
WHEN	Personal Development		Work Requirements
HOW	Partially Independent		(Partially) Independent

3 WHERE

Both types of existing makerspaces in China have **dedicated space to making**. While commercial-oriented makerspaces could be found in various settings, hackerspaces, Fablabs and co-working spaces, educational-oriented makerspaces seemed to link with educational institutes, such as Tongji FabLab O. Some secondary school also set up their own Fablabs to teach their students about digital fabrication and coding. Some offered summer/weekend courses.

WHAT	Educational-oriented Makerspaces		Commercial-oriented Makerspaces
WHO	Community of Practice		Community of Practice
WHERE	Dedicated Space		Dedicated Space
WHY	Platform for STEM Education		Platform for Entrepreneurs
WHEN	Personal Development		Work Requirements
HOW	Partially Independent		(Partially) Independent

4 WHY

Both types of makerspaces in China perceived themselves as a platform that enables people to achieve their goals. Commercial-oriented makerspaces saw themselves as a **platform for entrepreneurs** (e.g. helping users launch their business, creating prototypes and developing professional networks), whilst educational-oriented makerspaces perceived themselves as a **platform for STEM education** (e.g. helping students build their portfolios).

WHAT	Educational-oriented Makerspaces		Commercial-oriented Makerspaces
WHO	Community of Practice		Community of Practice
WHERE	Dedicated Space		Dedicated Space
WHY	Platform for STEM Education		Platform for Entrepreneurs
WHEN	Personal Development		Work Requirements
HOW	Partially Independent		(Partially) Independent

5 WHEN

Similar to the UK cases, professional users in China would use the space and tools when there are **work-related requirements**, e.g. getting commissioned jobs. For students, engaging with makerspaces is part of **personal development** since this knowledge could provide good opportunities for higher education and/or future careers. However, it was noted that social aspects were not part of drivers for engaging with making or makerspaces.

WHAT	Educational-oriented Makerspaces		Commercial-oriented Makerspaces
WHO	Community of Practice		Community of Practice
WHERE	Dedicated Space		Dedicated Space
WHY	Platform for STEM Education		Platform for Entrepreneurs
WHEN	Personal Development		Work Requirements
HOW	Partially Independent		(Partially) Independent

6 HOW

The educational-oriented makerspaces (e.g. Tongji FabLab O or FabLabs set up in schools) are partially **independent** in service delivery and management as they still need support in terms of resources, including financial support. The commercial-oriented makerspaces are (at least, partially) independent. They were set up based on the aspirations of the founders (e.g. Xinchejian) - some organisations have been founded as part of the governments' initiatives and are required to respond to the government's policy goals

WHAT	Educational-oriented Makerspaces		Commercial-oriented Makerspaces
WHO	Community of Practice		Community of Practice
WHERE	Dedicated Space		Dedicated Space
WHY	Platform for STEM Education		Platform for Entrepreneurs
WHEN	Personal Development		Work Requirements
HOW	Partially Independent		(Partially) Independent

3.3. PROPOSED COMMUNITY-BASED MAKERSPACES OR COMMUNITY CREATIVE HUB

1 WHAT

Currently, a place where people from different groups with different making skills could come together to explore creative activities is still lacking in China. However, the research revealed that **a community-based makerspace** or **a community creative hub** could fulfil this latent need. Since there were distinct requirements for makerspaces from different age groups, community-based makerspace should be flexible with multi-purpose programmes/activities to fulfil all age groups' needs and accommodate various preferences.

WHAT	Educational-oriented Makerspaces	Community-based Makerspaces	Commercial-oriented Makerspaces
WHO	Community of Practice		Community of Practice
WHERE	Dedicated Space		Dedicated Space
WHY	Platform for STEM Education		Platform for Entrepreneurs
WHEN	Personal Development		Work Requirements
HOW	Partially Independent		(Partially) Independent

2 WHO

The project illustrated that the makerspaces for **community of interest** was still lacking in China, although there are great demands. At present, both educational and commercial-oriented makerspaces were mainly designed for community of practice. By focusing on community of interest, community-based makerspaces might not need to be equipped with heavy machines; small handheld tools are likely to be sufficient, making them more flexible for various creative activities.

WHAT	Educational-oriented Makerspaces	Community-based Makerspaces	Commercial-oriented Makerspaces
WHO	Community of Practice	Community of Interest	Community of Practice
WHERE	Dedicated Space		Dedicated Space
WHY	Platform for STEM Education		Platform for Entrepreneurs
WHEN	Personal Development		Work Requirements
HOW	Partially Independent		(Partially) Independent

3 WHERE

This study found that **community neighbourhood centres** have the potential to become a community creative hub, because (1) most centres are well-equipped and strategically located in the middle of residential areas attracting a broader range of audiences, including older people, families, children, students and working professionals, (2) the multipurpose spaces in most centres can easily be adapted for creative making activities, and (3) many centres already have substantial experience of organising and supporting creative making activities.

WHAT	Educational-oriented Makerspaces	Community-based Makerspaces	Commercial-oriented Makerspaces
WHO	Community of Practice	Community of Interest	Community of Practice
WHERE	Dedicated Space	Community Centres (Multipurpose spaces)	Dedicated Space
WHY	Platform for STEM Education		Platform for Entrepreneurs
WHEN	Personal Development		Work Requirements
HOW	Partially Independent		(Partially) Independent

4 WHY

The key research findings showed that people were interested in developing, running and participating creative activities at the community-neighbourhood centres. Since the centres will support the activities, they should benefit residents with a significant impact on social value creation through societal engagement, creating self-fulfilment and positive behaviour changes. The community-based makerspaces in this case should be treated as a crucial platform to help people achieve social goals successfully.

WHAT	Educational-oriented Makerspaces	Community-based Makerspaces	Commercial-oriented Makerspaces
WHO	Community of Practice	Community of Interest	Community of Practice
WHERE	Dedicated Space	Community Centres (Multipurpose spaces)	Dedicated Space
WHY	Platform for STEM Education	Platform for Social Innovation	Platform for Entrepreneurs
WHEN	Personal Development		Work Requirements
HOW	Partially Independent		(Partially) Independent

5 WHEN

The research identified that **social aspects**, e.g. sense of belonging and friendship, were not drivers for users to engage with educational and commercial-oriented makerspaces in China. However, social aspects (e.g. projects that could benefit the local community) could play key roles in attracting people to engage with community-based makerspaces. This type of makerspace could also encourage **self-development with self-motivation**, enabling them to plan, lead and participate creative activities.

WHAT	Educational-oriented Makerspaces	Community-based Makerspaces	Commercial-oriented Makerspaces
WHO	Community of Practice	Community of Interest	Community of Practice
WHERE	Dedicated Space	Community Centres (Multipurpose spaces)	Dedicated Space
WHY	Platform for STEM Education	Platform for Social Innovation	Platform for Entrepreneurs
WHEN	Personal Development	Social and Self-development	Work Requirements
HOW	Partially Independent		(Partially) Independent

6 HOW

At present, most community neighbourhood centres' activities are planned and organised in a top-down manner, since the idea often comes from the local government or the managerial team of the centres. However, this approach cause potential issues that provided activities and programmes do not always meet user requirements and only involve specific groups. Therefore a **better balance of bottom-up and top-down approach** is required to be more inclusive and user-oriented community centres with more achievable and impactful social innovation and personal goals . This could also lead to more opportunities for people to get engaged in proposing and leading programmes but still match with the government policy.

WHAT	Educational-oriented Makerspaces	Community-based Makerspaces	Commercial-oriented Makerspaces
WHO	Community of Practice	Community of Interest	Community of Practice
WHERE	Dedicated Space	Community Centres (Multipurpose spaces)	Dedicated Space
WHY	Platform for STEM Education	Platform for Social Innovation	Platform for Entrepreneurs
WHEN	Personal Development	Social and Self-development	Work Requirements
HOW	Partially Independent	Bottom-up and Top-down	(Partially) Independent

3.4 EXPANDED ROLES OF EXISTING STAKEHOLDERS

To achieve a well-balanced top-down and bottom-up approach, it is recommended that the stakeholders **expand their roles** and start working more closely with community actors – i.e., people proactively put themselves forward to plan and organise creative activities leading social innovation. They should move away from the idea that creative sessions is only about making 'things'. Instead, these creative activities should focus more on **'empowering people'** – e.g., getting them to act more proactive in supporting their community.

	Existing Role	New Role
Local policy makers (local government)	Provide financial support and overall innovation policy in the region/area	Work collaboratively with community actors
Managerial team of the centres	Use the policy to plan sessions and assess proposed creative activities	Work collaboratively with community actors
Community centre staff	Provide creative sessions funded by the government and support the self-organised groups and communities of practice (e.g. a group of painters)	Work collaboratively with community actors to supportother groups, e.g. community of interest
General public (local residents)	Attend the sessions, use facilities and suggest some ideas for new sessions	Consider taking a leading role in planning sessions

3.5 NEW ACTORS

The research proposes that new actors should be added to the existing stakeholders, namely:

• **External parties:** They could be companies, schools, universities, NGOs, government organisations and any other entities, that help provide supports to community-based makerspaces and community projects with resources including finance and in-kind supports.

• **Community actors:** These are people who are willing to proactively participate in planning and organising creative sessions and/or community projects for their local communities. Those community actors could attract more people to join since they could effectively reflect people's interests in the community.

• **Designers/creative professionals:** This group of people could bring design thinking and design process to help advance creative skills and creative thinking through critical analysis of current problems and potential issues and find alternatives to resolve. They could also support co-design activities with stakeholders and users to produce more practical and comprehensive ideas.

3.6 DESIGN RECOMMENDATIONS

The study considered developing design recommendations in the following aspects: (1) identify (2) access, (3) context, (4) flexibility and (5) resource and maintenance. Note that this research has borrowed some themes for exploring the design of community buildings suggested by the Glass-House Community Led Design (http://explore-design.empoweringdesign.net).

THEMES	RECOMMENDATIONS
IDENTITY	Makerspaces are social spaces where people can enjoy themselves through co-creating, making, sharing ideas and resources, exchanging knowledge and skills, and socialising. Several studies describe makerspaces as the *"third"* place, and this research also found that they can be treated as a "pub with no beer". Although both people in China and the UK appreciated the social aspects of makerspaces, Chinese people might want to separate *'socialising'* from *'making'*. Thus, having a dedicated space for socialising that is separate from the workshop may be more appropriate.
ACCESS	Both practical and emotional issues should be taken into consideration. The term *'community'* makerspace suggests that anyone can use it (e.g. professional makers, amateurs, hobbyists, beginners and non-makers). Therefore, there should not be any entry barriers or prerequisite knowledge required. Users do not have to be trained before using this space and/or any means of making it provides. They should not feel intimidated to use this place and/or engage with making. Thus, this place may not have any machines/equipment that required training. In this way, this place does not have to be manned by trained technicians. Potential barriers could be eliminated by focusing on making activities that do not require health & safety procedures.
CONTEXT	Users should have a high degree of autonomy. Making provisions does not have to be organised as a class. While classes are useful in training people in new skills, they may not allow people to explore ideas freely. To foster creativity and provide social benefits (e.g. a sense of self-worth), users should be given full autonomy. They should be able to use this place and make things whenever necessary.
FLEXIBILITY	As these making activities will occur in the community neighbourhood centre, it is not practical to create a fixed physical space dedicated to making activities only. It is important to keep everything flexible. In this way, the space could be adapted to suit various making activities.
RESOURCE/ MAINTENANCE	The centres welcome new ideas and suggestions. Existing stakeholders, including the new actors: external parties, community actors, and designers/creative professionals, propose new activities/programmes voluntarily, which to be consulted with the centre managers. The local government may consider funding to successful proposals.

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creative makerspace

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