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Assessing the feasibility of home gardening among urban residents in Harbin, China

Measuring urban residents food literacy and analysis of home gardening related policy implication.



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Abstract

Urbanization as one of the major social changes occurred in China the past 40 years, millions of rural area migrants arrived in cities seeking for opportunities for a better life. As urbanization keeps on growing in China, the country is facing the challenge of land scarcity in urban areas, and at the same time, to feed its population.

When a series of food safety scandals exposed by social media in China, home gardening was considered as a growing trend. However, the activity was not commonly adopted by the urban residents, and the attention on home gardening has gradually disappeared.

In this study, the author intend to gain an deeper understanding on the current situation in relation to home gardening by conducting a mixed-methods study, to analyze actors and factors concerning the topic, and seek for the potential future of home gardening in China.

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Table of content

1. Introduction	7
1.1 Study Background	7
1.2 Aim of the study	9
1.3 State of the art	9
1.3.1 Food literacy	9
1.3.2 Home gardening	10
1.4 Research question	10
1.5 Delimitation and definitions	10
1.5.1 Urban agriculture	11
1.5.2 Home gardening	11
1.6 Context and Justification	11
1.6.1 Urbanization and urban food system development in China	11
1.6.2 Urban agriculture and urbanization	12
1.6.3 Urban gardening development	13
1.6.4 Home gardening development	14
1.6.5 Environmental impact	15
2. Theoretical framework	15
2.1 Social Ecological Model	16
2.2 Innovation diffusion theory	17
3. Methodology	20
3.1 WeChat Communication	20
3.2 Literature review	21
3.3 Qualitative method	22
3.3.1 To reach the target group	22
3.3.2 Semi-Structured Interviews	23
3.3.3 Ethical considerations	24
3.4 Quantitative method	24
4. Result	27
4.1 The qualitative result and analysis	27
4.1.1 Interview result with 'E' (Appendix 1)	27

4.1.2 Interview result with 'S' (Appendix 2)	28
4.1.3 Interview result with 'O' (Appendix 3)	29
4.2 The quantitative result	29
5. Discussion	35
5.1 Result	36
5.2 Method	37
5.2.1 Bias	37
5.2.2 Strength and weakness of the study	37
5.3. Policy implication	38
6. Conclusion	39
7. References	41
8. Appendix	44
Appendix 1. Interview transcription with 'E'	44
Appendix 2. Interview transcription with 'S'	49
Appendix 3. Interview transcription with 'O'	53
Appendix 4. Quantitative Questionnaire	56

1. Introduction

1.1 Study Background

Food is essential for human health, and it is playing an important role in enhancing the quality of life (Vigen, 2014). The relationship between individuals and food continues to change over time due to the complex change of the global food system (Vigen, 2016). China as one of the fastest developing countries in the world, the food system has changed significantly, and food literacy has become a severe problem in China. Along with the development of industrialization and globalization, the miles that food travels from producer to consumers has increased. The concentration of power built by companies within food manufacture, retail and catering, these new actors in the food system who appeared during the 20th century has considerably modified the supply and demand characteristics (Lang, et.al). Therefore, the consistent diet quality is difficult to achieve and challenged by food related factors including availability and accessibility in individual household, community, and national level(Vigen, 2016).

The term 'literacy' has always been the central to the field of education in China. It is generally used to describe the knowledge and skills needed to navigate a range of other societal systems (Vigen, 2016). In China, people typically associate the word 'literacy' with 'technology literacy', 'computer literacy', 'financial literacy' and 'legal literacy'. However, no forms of 'literacy' has been addressed to the growing concern related to food in China, such as obesity epidemic, food safety issue, or urban agriculture.

Accompanied by the rapid economical growth in China, the pace of life accelerates especially for people living in urban areas. However, the changes in lifestyle and food choice has shown a negative impact on the urban residents health status, as people nowadays tend to eat more outside, and turns less healthy (Zhang, 1016). The Chinese Center of Disease Control and Prevention (CCDC) conducts the China Health and Nutrition Survey (CHNS) on a regular basis to examine how the social-economic transformations of Chinese communities affect the health and nutrition status of the population, and the result shows that the developing of economics and advancing science has freed people from the hard physical labour, and the prevalence of lifestyle related disease such as obesity, type two diabetes, hypertension, and hyperlipidemia has

increased significantly over the past decades. These chronic disease as so called 'rich disease' or 'civilized disease' in the Chinese term, has become an important factor influencing the national health.

In China, since a series of food safety scandals illustrated the severity of the situation, food safety is became a major public health issue (Forum on Health, 2014). These events have caused direct economic and life losses, as well as created distrust in the Chinese food system (Ortega et al., 2010). As food safety encompasses a wide range of problems that occurs at different points of the food supply chain. In China, much attention has been paid to the problems plaguing the government's food inspection system and inefficient food certification. Unlike many developed countries, China's food safety is regulated by several government entities with different and sometimes overlapping responsibilities (USDA, 2016), and the food supply chain composed of millions of small farmers, traders, and retailers. Many of them are operating unsupervised, which poses a great challenge to the implementation of a comprehensive and effective domestic food safety system (Ortega et al., 2010). As a result, consumers do not have a comprehensive food safety and quality system on which to base their purchasing decisions (Ortega et al., 2010). Moreover, extreme cases like food poisoning from food additives or contamination has caught the attention by social media. Many of the food safety problems in China can be traced back to the farm level, as some farmers still using highly toxic pesticides since the government has no control on purchasing such pesticides by the farmers (Ortega et al., 2010).

Fresh fruit and vegetable production is one of the major food safety concern in China nowadays, as more scandals exposed on the contamination of water or soil, and abusive use of fertilizers or pesticides in China (Huang, 2005). However, evidence shows that when gardeners producing their own food, they tend to eat the food because it is believed that what they grow is safe and good for them (Bellows et al., 2003). Studies indicated that practical experience with fresh food is also positively correlated to the consumption of the food (Carney et al., 2011). Furthermore, a study conducted in England indicated that home gardeners find themselves "creating of a pleasant environment" and "promoting relaxation" while gardening. The experience of growing, harvesting and understanding seasonality, cooking, and preserving is also having a positive impact on the dietary habits (Dunnett & Qasim, 2000), thus, the overall food consumption patterns and food literacy can both be improved. Moreover, the experience of gardening also involves gardeners in healthy, active work and recreation (Carney et al., 2011).

Home gardening was considered to be a growing trend in China. The Chinese most influential national newspaper 'China Daily' reported an article 'Green fingers and green house' in 2012, indicated that a growing number of people have taken home gardening into practice due to the series of food safety scandals (China Daily,2012). However, the popularity of home gardening has gradually lost its attention by the social media and the focus has moved to a new urban gardening model - 'urban farm'.

1.2 Aim of the study

The aim of this research is to explore the concept of 'food literacy' and 'home gardening', to gain a deeper understanding on the current food literacy and home gardening situation, reveal the factors and actors that are influencing the food literacy, and the promotion of urban gardening. Further discuss on the potential of home gardening within the Chinese context.

1.3 State of the art

1.3.1 Food literacy

Over the past 25 years, food literacy has gained increasing importance in the western world, and it is commonly used in research, policy, practice, and public arena(Chung&Wong, 2013).

According to Vidgen, food literacy is defined as:

'the scaffolding that empowers individuals, house- holds, communities or nations to protect diet quality through change and strengthen dietary resilience over time. It is composed of a collection of inter-related knowledge, skills and behaviours required to plan, manage, select, prepare and eat food to meet needs and determine intake' (Vigen, 2016).

Food literacy has emerged as a term to describe the individual practicalities to ensure a regular food intake that consistent with nutrition recommendations. It requires of competency on individuals' ability to understand where food comes from, how it is produced, and what to choices and the impact of food on multiple levels (Dyg.,2014).

When searching for scientific literatures on 'food literacy' within the Chinese context, no relevant study has been performed till date in relation to food literacy in China. In terms of

'home gardening', relatively few literatures has been carried out in relation to home gardening, and as the terms 'home gardening' often refers to gardening all different types of house plants in the Chinese context. Thus, this research can contribute to fill the gap by exploring the current situation of the two entities and reconnect them.

1.3.2 Home gardening

Home gardening has become a trend in the past few years particularly in western world. Countries such as the United State, Cuba, Denmark, Chile, as well as other South American countries has adopted home gardening successfully (FAO,2014) (Brown &Jameton, 2000). The advantages shows home gardening does not depend on imported inputs, high technology tools, food aid or large space, and a number of studies has indicated the multiple benefits of home gardening including enhancing food and nutritional security, improving health, increasing food literacy level and self-reliance of households, as well as having the potential to perform as a bridge to connect the community residents together (FAO,1998) (Powell &Wittman , 2017) (Galhena et al, 2013). However, compared with the countries where home gardening has been adopted successfully, the popularity of home gardening is still at the preliminary stage in China.

1.4 Research question

Does the 'Home Gardening workshop' result in raising urban residents' food literacy level and gardening interests in Harbin?

Sub-questions:

- What is the current situation of home gardening in China?
- Why is it important to promote home gardening?
- What is the potential of urban gardening in Harbin?
- How to motivate urban residents to be involved in home gardening activity?
- Can home gardening become a strategy for raising urban residents' food literacy level?

1.5 Delimitation and definitions

Due to the scope of this research, actors considered critical in relation to home gardening in China will be introduced. The importance of other actors is acknowledged, however, an in-depth analysis of their relation to home gardening will not be performed in this research.

The study solely concentrates on the topic of home gardening. The target group are the urban residents living in high-rise buildings without access to private garden, but instead having the possibilities of gardening indoor or at the balconies. Even if it could be a topic worth exploring in relation to urban gardening, this paper will only engage with the current situation briefly on urban gardening taking place in China, but to put the emphasis on one form of urban gardening - home gardening in specific, which is not bonded by the community or governmental rules or policy in terms of occupying community land, and can easily be adopted by the urban residents.

1.5.1 Urban agriculture

In general, urban agriculture can be categorized into two spheres: Controlled Environment Agriculture (CEA) and Uncontrolled Environment Agriculture (UEA) (Ibrahim & Primus, 2015). The UEA refers to urban gardening, including community garden, rooftop farms, home gardening, and such, which are playing an important role in urban food system. The CEA includes any form of agriculture where environmental conditions (such as light, temperature, humidity, radiation and nutrient cycling) are controlled in conjunction with urban architecture or green infrastructure (Hanna & Pikai, 2016).

1.5.2 Home gardening

The definition of home gardening is blurry, and there is a clear difference in terms of defining 'home gardening'. Studies conducted in China in relation to home gardening refers to all types of plants including flowers and succulent plants (Luo, 2017). According to literatures conducted in western countries, it is often consider home gardening is food related plants (Galhena et al, 2013). As the study is focusing on food and health aspect on the subject, home gardening in this research is defined as :

'small scaled horticulture planting activities indoor, at balcony, terrace or backyard, that encompasses different types of food related plants like vegetables, fruits, herbs, spices, and other edible house plants'.

1.6 Context and Justification

1.6.1 Urbanization and urban food system development in China

Home gardening is considered as an integral part of local food system especially in developing countries. Reviews of studies from various countries has provided evidence of numerous benefits of home gardening on the household and community level (Galhena et al, 2013). However, since the economic and demographic transition of China was

considerably unique, a different perspective on the influences caused by the Chinese history and culture in relation to food and home gardening were found relatively more important to discuss.

1.6.2 Urban agriculture and urbanization

Agriculture and urbanization are commonly viewed as conflicting activities (Smit & Nasr, 1992). With the rapid economic development of China, the whole world has witnessed its great prosperity. The Chinese government embarked on its economic reform program back in 1970s, including a household responsibility system in agriculture, where land rights were reallocated from collective farms to rural households. The system resulted not only motivated greater food production by rural households, but price distortions were also reduced. The positive impact on agricultural production, food security, and poverty reduction were considered dramatic, as the reform program have lifted hundreds of millions of rural residents out of extreme poverty (Shahbaz et al. 2008).

2018 marks the 40th anniversary of the Chinese reform and opening up policy, and it has clearly reveals great achievements in different aspects (China Org, 2018). When looking back upon the past 40 years, one of the major source for the development in China, was to encourage labour movement from countryside to the city. As urban areas are providing better facilities with opportunities, more and more rural farmers chose to migrate to cities for pursuing a higher quality of life. Historically, the majority of rapid urbanization occurred in developed countries before 1950 as a result of industrialization in Europe and North America in the 19th and 20th centuries, Since 1950, urbanization has slowed down in most of the developed countries, and in some cases, large cities began to lose its population as urban residents moved away to rural areas (Zhang, 2016). In China, the urban population were risen from 215 million in 1982 to 749 million in 2014, and it was estimated that over one quarter of the Chinese population lived in urban areas back in the 1990s, but today, the number has raised to over a half of its whole population. Unlike the situation in developed countries, the growth rate is going in the opposite direction, and still expected to continue for some time (Berkelmans L & Wang, 2012).

On the other hand, to accommodate the massive influx and population growth within cities, China has expand the urban area by converting large farmland areas to urban use (Peng et al, 2012). As the urbanization trend keeps on growing, it has lead to a strong housing demand, and the price of real estate keeps on raising in the densely populated cities.

Under the circumstances, it is uneasy for low and moderate families to afford a house in the modern urban areas. However, instead of moving to the countryside, the majority of the young and middle-aged population choose to live in high-rise buildings in the urban areas for the better infrastructure, education, and employment. Hence, the urban land expansion has been a cause of concern, as China is facing the challenge of land scarcity in order to feed its population, moreover, the government's ability to maintain control over the development (Lichtenberg & Ding, 2009.).

As the building density rate keeps on increasing in urban China, the environmental impact caused by urbanization has led to degradation of environmental quality, especially quality of air. As mentioned above, China has expand large farmland areas to urban use, which has led to an effect on climate change. On a global scale, direct loss in vegetation biomass from areas with high probability of urban expansion is predicted to contribute about 5% of total emissions from tropical deforestation and land-use change (Zhang, 2016). Moreover, nearly 25% of China's cultivated land suffers from declining productivity has been affected by land degradation. According to United Nation (2015), Urban agriculture can be defined as "the growing, processing, and distribution of food and other products through plant cultivation and seldom raising livestock in and around cities for feeding local population (Ibrahim, Richaela, 2015)." Urban agriculture has shown its popularity due to concerns related to climate change and sustain urban food security during the last few years. Even though agriculture contributes to 30% of anthropocentric greenhouse gas emissions (Smith & Gregory, 2012), presence of vegetation in urban areas can lower temperatures and greenhouse gas emissions (Solecki & College, 2003.). An environmental Life Cycle Assessment of Urban Food Growing in London found that urban farms has the potential reduce food-related greenhouse gas emissions (Kulak et al., 2013).

1.6.3 Urban gardening development

The recent Chinese national policy instruction in regards to children's education has indicated that the natural environment should be considered when organizing activities by the educational institutions. As recommended in the instruction, institutions should develop programs to maximize the use of nature, and to support children to get in touch with nature, and gain experiences of life through observation and practice in the nature. After the policies came out, a large number of educational department in different provinces and cities has set up a special funds to invest on 'nature education', and seeks for possible educational program in the nature.

Under the circumstances, 'Urban Farm' as a new business model targeting school children was introduced to the major cities in China, and quickly received great response by the local educational institutions. As the market demand is growing, a number of farmers from second-tier cities has also seen the potential of this emerging market, and turning their small-sized farms into a 'Urban Farm' to seeks for cooperation with local educational institutions. Apart from that, families with children has also shown an increasing interests in spending a weekend day with their children on the farm, not only for educating their child, but also for enjoying a family time together.

1.6.4 Home gardening development

As one of the world's oldest civilizations country, China has a long history of farming tradition since ancient times. According to the historical records, together with a large collection of Chinese poems and paintings mentioning the scene of home gardening from thousands of years ago, it is clear that people has a special feeling, and passion to plant at their own yards for centuries in China. Thousands years of farming tradition has been kept and integrated into Chinese's people's cultural blood, and it became one of the national characteristics. However, since the economic reform occurred, the farming tradition has been gradually weakened(Wang, 2012). Study indicated that almost a million acres of farmland in China are converted to buildings each year(Rechard, 206). As the urban growth trend is still growing, the Chinese idiom 'Cun Tu Cun Jin' is expressed precisely in the densely populated cities, as every inch of land in the city worth as the value of gold. Under the circumstances, a self-owned home yard in the modern urban areas has become an extravagant hope for the the local residents with middle or low social economical status families.

Together with the repaid industrial and economical development in China, the natural environment and ecological balance of the nature has been disturbed. Before the massive farmland converted to urban use, people used to do gardening at their yard. Today, as overpopulated urban residents are mostly living in apartments with limited access to the nature, people tend to be more aware of the concept 'green'(Xia & Zeng, 2006). A study conducted in Beijing indicated that the food product labeled with 'Green' and 'natural' are relatively more popular compare with same type of other products on the Chinese market (Xia & Zeng, 2006). This is one way of reflecting the fact that people are having the desires to be more close to the nature. Instead of chasing the possibility for a bigger house

in the city, urban residents can learn and create a green world within the limited space at home, as the evidence indicated the potential benefits of home gardening like increasing the interests of people's daily life, reduce the food budget, increase food literacy, as well as providing safe and healthy food for the whole family. With proper planning, home gardening can be both functional and attractive, as well as bringing other benefits to the family.

According to the sales report from one of the Chinese leading online retail portals Taobao, the sales of home gardening related items is still increasing, however, the speed has slowed down compare to the point in time when food safety scandals were exposed.

1.6.5 Environmental impact

As the building density rate keeps on increasing in urban China, the natural environment and ecological balance of the nature has been disturbed. The environmental impact caused by urbanization has led to degradation of environmental quality, especially quality of air. As mentioned above, China has expand large farmland areas to urban use, which has led to an effect on climate change. On a global scale, direct loss in vegetation biomass from areas with high probability of urban expansion is predicted to contribute about 5% of total emissions from tropical deforestation and land-use change (Zhang, 2016). Moreover, nearly 25% of China's cultivated land suffers from declining productivity has been affected by land degradation.

2. Theoretical framework

The purpose of the study is to investigate whether the promotion of home gardening through urban community can result in increasing food literacy level, and the social ecological theory in this study is being used to explore the food and health related issues addressed by the social and environmental changes in China, and identify the alternative to change the individual behaviors for pursuing healthier lifestyle that can also be beneficial to the community, and national level. Innovation diffusion theory is applied in this study due to the development of communication channel changes in China, and the theory is being used as the fundamental framework for developing the intervention for this study.

2.1 Social Ecological Model

The social ecological theory was initially introduced to illustrate the intersecting systemic influences that affect human behavior. Subsequently, the social ecological model was widely used as guidelines for health promotion from small groups that participate in interactive education to large-scale social marketing campaigns (Gregson, 2001). The model provides an overall understanding of a identified problem in the multilevel social surroundings, and it consists of five components of social structure including individual, interpersonal, organizational, community, and public policy (See Figure 1).



Figure 1. Social Ecological Model

The model was used as a framework and guided the author from identify the emerged problem of 'food literacy', to develop the home gardening intervention. Thus, the actors involved in promoting food literacy and home gardening activity, were also identified according to the model. The following table (Table 1) will illustrate the actors and benefits of promoting the home gardening activity on the multiple level.

Components	Overall advantages of home gardening
Individual	Empowers health status by increasing food literacy level, and physical activity
Interpersonal	Influencing family members by improved dietary knowledge and practice, saving money, eating fresher and safe food
Organizational	Private business like urban farms, gardening schools and online shop can benefit from the promotion of home gardening, as people are willing to invest time and money on gardening activity
Community	Creating better social life in urban neighborhoods, people can share their gardening tips and information, and exchange self grown food items
Public policy	Improving urban food security and urban ecological environment

Table 1. Home gardening actors and advantages reflected by Social Ecological Model

2.2 Innovation diffusion theory

The Innovation diffusion theory is a classical theory in the communication effect research field. It can be applied when concerning how idea, technology, and innovation to be adopted throughout societies or cultures. The theory was proposed by Everett M. Rogers in the 1960s, and he consider the key elements for a successful innovation diffusion are 'innovation', 'communication channels', 'time' and 'social system'. In terms of the adopters accepting new concept, matter or product, the theory divide them into five categories: innovator, early adopters, mid-term adopters, late adopters, and laggards. Moreover, Rogers believes that when the number of individuals adopting a new idea is plotted on a cumulative frequency basis over time, the resulting distribution is an S-shaped curve (Figure 2.).

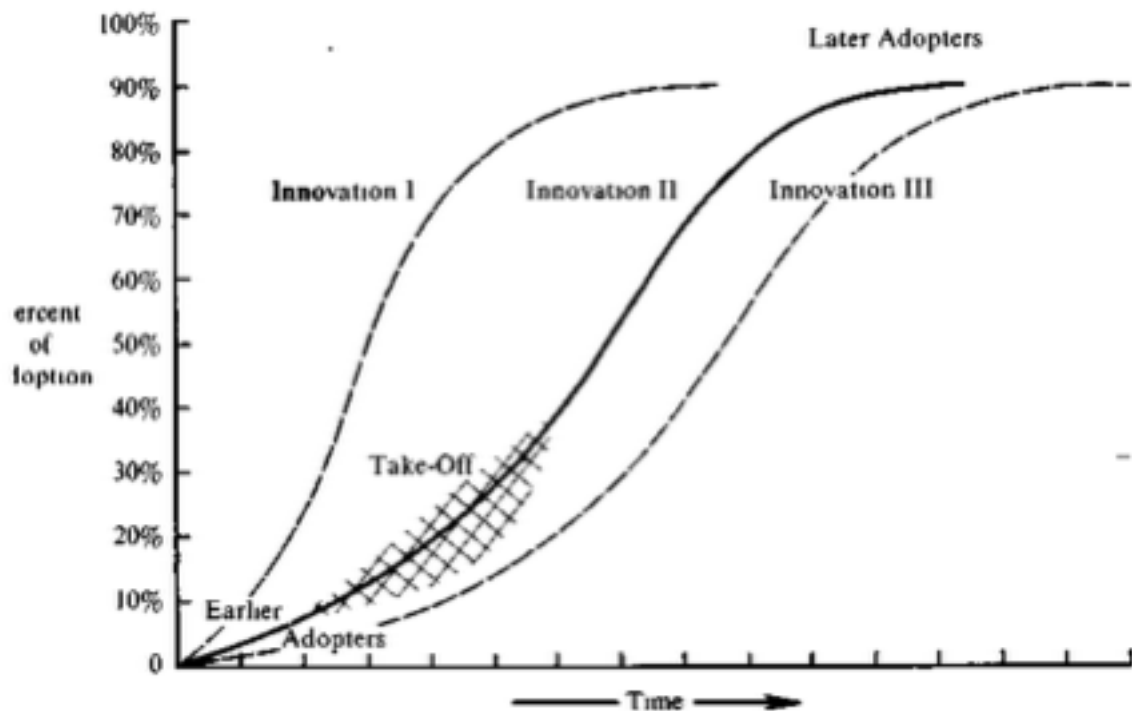


Figure 2. The S-shaped innovation adoption curve

From a narrative perspective to look at the curve of the intervention, the idea of home gardening workshop attracted only a few participants at the beginning. These participants are considered as the innovators who are extremely important since they are the ones first accepting the idea of the home gardening workshop, and as more discussion related to home gardening arise in the community chatting group, together with motivating their neighbors to join in, their willingness to spread the words for the idea among other residents in the community are considered important. As more residents started to gaining interest in the workshop, and joining the home gardening chatting group, the diffusion curve begins to climb, so as called the ‘take-off’ period. During the climbing period, as the idea is accepted by a larger number of community residents, the early adopters, mid-term adopters, and late adopters appears, as they consists of the large percentage of the total participants. Later, as fewer and fewer participants remain who have not yet accepted, the trajectory of the rate begins to level off. At last, when the laggards appears, the curve is also reaching the asymptote, and that is the finishing point for the diffusion process.

From introduction to wider-adoption of innovation diffusion, there are five stages considering the adopter’s decision making process (See figure 3).

- Cognitive stage. Also called as 'knowledge stage', when an individual is exposed to the innovation, and gained little understanding of its function.
- Persuasion stage. When an individual forms attitude (interested or not) towards the innovation, and seeks for more information.
- Decision stage. When an individual engages activities that lead to a choice to either adopt or reject the innovation.
- Implementation stage. When an individual puts the innovation into practice.
- Confirmation stage. When an individual seeks for decision whether continue to adopt the innovation or not (80).

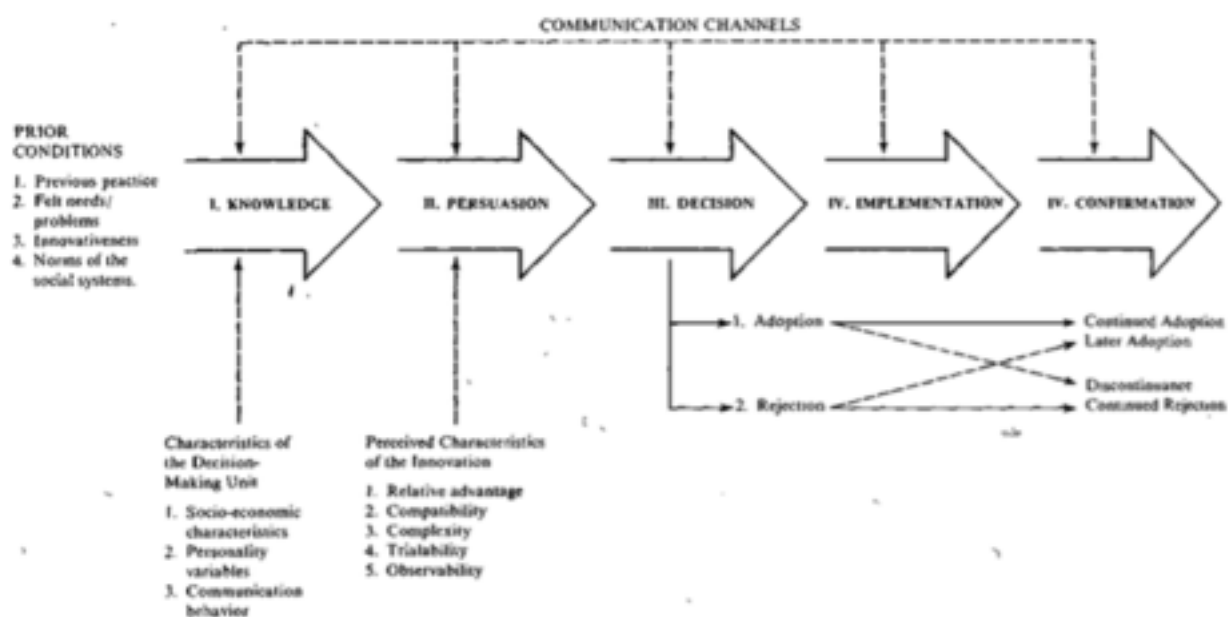


Figure 3. The stages in the innovation decision process

At the cognitive stage of the study intervention, an invitation to the home gardening workshop was sent through a WeChat chatting group, which all group members are consisted of the community residents. They were invited to join another chatting group, which was formed by the author on the purpose of promoting the home gardening workshop. However, on the purpose of motivating as much residents as possible to join in the chatting group, the author mentioned it is a great community residents get-together event, with the opportunity of learning home gardening skill, instead of the sending the 'convincing' message of the benefits of home gardening, or other home gardening knowledge related information, which might be boring for the residents.

When the community residents has joined the home gardening chatting group, the diffusion has moved to the persuasion stage. At this point, the author start to send articles, pictures, together with video links related to how home gardening can decorate the apartment, in order to attract the group members. Little by little, the message was moved its focus onto the advantages and stories oriented informations on home gardening. After a few days, the author moved on to the decision stage, where the group members were invited to sign up for the home gardening event. Part of the group members decided to participant the workshop, and part of the group members either remained silent, or decided to quit the chatting group. On the implementation stage, the participants were offered a chance to practice gardening themselves, to try and see wether they enjoyed the experience or not. Finally, at the confirmation stage, the participants were asked to answer 3 follow-up questions, in order to determinate the result of the study.

3. Methodology

The study was composed of two methods- the qualitative expert study and the quantitative study with local residents. The design allowed the author to be comprehensively understand the current food-related situation from multiple viewpoints.

The expert interviews occurred first, as it contributed the author with a deeper understanding of the current situation related to home gardening in China, as well as gained an insight of the home gardening policy on the political level. The quantitative study occurred afterwords, as the author considered that the information collected from the expert interview may contribute to the design of the questionnaire.

3.1 WeChat Communication

With the continuous development of science and technology, the Internet is gradually replacing traditional media channels like newspaper, magazine and television. It has became an important communication tool for people's daily life. People nowadays can more quickly and easily get access to information through the internet, as well as to communicate with others. WeChat as one of the most popular mobile applications in China has successfully reached over 963 million daily users according to the lasted statistics in 2017 (The statistics Portal, 2017). The application was first introduced in China in 2011, and quickly went viral throughout the country. WeChat is considered as an 'all-in-one' application in China, because it combines the function of the world's most popular

application like Skype, Facebook, Instagram, WhatsApp, Paypal, Google Maps, Uber, and so on. People using WeChat not only for contacting people, but also for sharing their daily life, and pay for daily consumption.

'WeChat' was used as the fundamental tool to support the research. It applied both in the quantitative method and qualitative method. For the qualitative study, two of the interviewees were contacted through WeChat, furthermore, one of the interviewer were interviewed through WeChat video call, as the author would be able to observe the interviewee's facial changes while interviewing. For the quantitative study, the participants were reached through WeChat chatting group. The author was being able to send out invitation of the intervention, and information related to home gardening to encourage group members for participation. Furthermore, the participants were relatively easy to reach for conducting follow-up data.

3.2 Literature review

A literature review was initially performed for finding as much scientific and grey literature concerning the topic as possible. Literatures encompass international scientific literature concerning the topic of food literacy and home gardening on the global scale, and their relation to the food system. The collection of literature took place through Google Scholar, Pubmed, Scopus database, using the following combination of keywords: 'food literacy', 'home gardening', 'urban farming', 'food and gardening', and 'food system'. The author also tried to combine the keywords with 'China', and search for literatures related to China, but no relevant literatures were found except 'China food system'.

In order to seek for relevant studies as evidence to support the research, CNKI and Baidu Xueshu were used to searching for Chinese literatures. CNKI and Baidu Xueshu are both leading literature search engine in China. Key words 'home gardening China', 'urban farming China', 'food literacy China', 'urban gardening China' were used to seek for relevant literatures. However, no relevant studies related to the keywords has been carried out till date in relation to food literacy, and home gardening in China. Therefore, literature review was only performed as secondary data in this research.

Gathering of empirical data was achieved by using the mixed methods. Qualitative research method was applied for developing semi-structured interviews, and it was primarily used to bring a deeper understanding of the desired subject. Quantitative

research methods was applied for conducting self- completed questionnaire, in order to collect a numbers of data from the target group within a limited period.

3.3 Qualitative method

The qualitative research method enables the study for producing a more detailed in-depth analysis of the investigation (Bryman, 2012). Moreover, it also tends to assume that each interviewee brings a unique perspective to the study. The advantage of using qualitative research method is the interaction between the interviewer and the interviewee, as well as the possibility to elaborate the emerging opinions. This brings a greater flexibility into the data collection, and providing access to new knowledge and the possibility to investigate an unknown field (Bryman, 2012).

A total of three interviewees were chosen by the author, as they were considered main actors who are, or has the potential to be involved and contribute to the promotion of home gardening activity. Interviewing different role of actors has the possibilities to provide knowledge and information from different aspects for further analysis.

- The first interviewee is a gardening expert, who has been successfully adopted home gardening since 2011. The interviewee will appear as 'E' from the following section.
- The second interviewee is a website's founder who started online business selling equipments and materials for creating home garden. The interviewee will appear as 'S' from the following section.
- The third interviewee is government officer from Harbin Municipal Bureau of Agriculture. The interviewee will appear as 'O' from the following section.

3.3.1 To reach the target group

Keywords 'home gardening' in English was initially googled, and the 'expert' interviewer who has been successfully adopted home gardening, was being targeted through an online news, as the interviewee was interviewed by a journalist from one of the most influential news channel in China - China Daily. The author was being able to reach the interviewee after get in contact with the journalist from China Daily first. The second expert interviewee was also targeted through google search. The interviewee is relatively easier

to reach, as the author sent a message on the interviewee's website page, and the interviewee quickly responded with more detailed contact information. The government officer as the third interviewee was reached through phone calls to the Harbin Municipal Bureau of Agriculture.

The semi-structured interview design provides the interviewer with a greater flexibility when asking questions, which bring the possibility of ensuring more details, shared by the interviewees (Kvale, 2007). The 'gardening expert' interview was conducted face-to-face in a coffee shop in Beijing, and the interview with the 'business interviewee' located in Shanghai was through video call as agreed. The 'government official' interview was conducted face-to-face at the interviewer's office.

3.3.2 Semi-Structured Interviews

Semi - structured interviews were used in this study to illuminate experts' understanding and opinion on home gardening in urban area. Therefore, interviews with open-ended questions was considered important by the author, as it can provide a richer qualitative data as well as giving the expert interviewees a chance to talk freely and in their own terms. As the questions do not lead to certain answers, the interviewees will be reflective in their opinions. Conversely, if closed questions were used, it would not be possible to illuminate the interviewee's expression, because the questions are asked with a set of fixed alternatives (Bryman, 2008). The author attempted to put herself in the interviewees' position in order to understand if there might be some difficulties answering the questions while designing the interview guideline (Bryman, 2008). The author quickly realized that some of the questions were vague and not related to the research question (Bryman, 2008).

The three interviews were conducted for this study in order to gain a deeper understanding of the current situation related to food literacy and home gardening in China, as well as the potential future of home gardening. Interviews were approximately 10-15 minutes in length and were digitally recorded. Audio files were transcribed, and translated to English for further analysis for this study.

Three guidelines for conducting the interview were developed, and the main focus of the interview are:

- Interview with 'E'.

- To understand the motivation for home gardening
- Whether obstacles occurred at the beginning of home gardening and the maintenance situation
- To explore the influence on neighbors and friends
- Interview with 'S'.
 - To explore the segmentation of the consumers
 - The point in time when home gardening gained its popularity
 - Strategies applied on promoting his product
 - Whether people became regular customer after their initial purchase
 - The potential future of home gardening in S's opinion
- Interview with 'O'
 - To gain an insight on whether government has/ has not done projects in relation to promote home gardening
 - whether home gardening's potential has been noticed
 - Potential and visions on home gardening

3.3.3 Ethical considerations

The interviewees were contacted beforehand and provided with a short description of the author's study, and the purpose of the interview. They were informed that the interview is anonymous and that all data will be treated with confidentiality. General information of the interviewees was deleted in all documents by the author during the transcription process. The interviewees were also informed that the conversation would only contribute to this study.

3.4 Quantitative method

The quantitative study was conducted at Xin Fa Community in located in the central city of Harbin. After the community was chosen, the author created a WeChat chatting group, and requested one of the local resident living in the community to send out a message in their internal community chatting group (which was created for people living in the community to share information and organize activities) to invite group members to add into the chatting group if they are interested in home gardening activity.

A total of 146 persons added into the home gardening chatting group, and 61 signed up for participation of the intervention. The participants were well informed regarding the procedure of the intervention while signing up, and they were also numbered at the same time, so that the author can be sure that the data is correctly conducted to follow-up.

Food literacy related literatures was considered while developing the questionnaire. However, this study is mainly focus on the gardening related practical part of food literacy, so instead of asking non relevant questions to the study, the author developed the questionnaire based on the reality that home gardening in China is still being at a low level of adoption stage within urban area. Furthermore, the result from qualitative interview was also taken into consideration while designing the questionnaire.

Since the detailed questions has the potential to influence the questionnaire recovery rate and efficient rate, the size of the questionnaire (number of questions) was designed relatively short, as the interviewers preferred only to include crucial questions related to the research question in order to not wasting the participants' time answering questions that are less valued (Bryman, 2008), so that the participants could manage to complete the questionnaire within 5 minutes. The questionnaire was designed to gain an understanding of the background, food literacy level, and the motivation and purpose for participating the intervention of the respondents. Moreover, data of three follow-up questions were also collected for the purpose of analyzing the outcome of the intervention. A total of 54 structured questionnaires were collected, as 6 persons who signed up were absent for the workshop.

The questionnaire consists 17 questions, and were divided into three parts.

- Social-Demographic characteristics (1-7). To understand the participants' background. The data were collected including gender, age, marital status, family size, occupation, income, and educational level.
- Food literacy level (8-10). To look into the participants' current knowledge and attitude towards home gardening.
- Motivation and purpose for attending the workshop (11-17). To define the factors that are influencing their decision on participation.

In order to indicate whether differences are made in their knowledge, attitudes and action toward home gardening, three follow- up questions was sent 4 weeks after the intervention for evaluating the intervention.

The questionnaire was designed in Chinese, because Mandarin is participants' mother language, and the questionnaire has been translated into English for this thesis.

Intervention design

The intervention program was developed based on Public Health Nutrition(PHN) Cycle, which provides the logical approach to make the intervention plan.



Figure 4. PHN cycle

The PHN Cycle

1. Identify the problem: Food literacy, home gardening
2. Goal: The goal of this intervention is to increase food literacy level among residents living in a Harbin community.
3. Objectives: This intervention aiming at increasing participants' knowledge practical skill on home gardening.
4. Target group: Residents living in the Xinfu community in Harbin.
5. Program selection of sample: Participants were invited to take part in the intervention through WeChat community chatting group.
6. Intervention:

The intervention was conducted at the Xinfu community public space. In total of 54 participants were included in this intervention.

- To begin with, participants were offered refreshment while they were introduced to the intervention.
- A self - completed questionnaire was asked to answer, and were informed that they will be receiving three follow-up questions after four weeks on WeChat once the questionnaire was finished.
- The participants received pots, seeds (chosen by the participant) for planting, and were being able get tools and soil on the workshop table. A gardening expert was educating and assisting through out the intervention. The participants were encouraged to shares their knowledge and tips on home gardening with each other.
- After four weeks, three follow-up questions were sent out to the participants through WeChat in order to investigate the outcome of the intervention.

4. Result

4.1 The qualitative result and analysis

The qualitative result will be illustrated in the following three sections, to get an insight on the understanding of home gardening situation in China.

4.1.1 Interview result with 'E' (Appendix 1)

The interviewer as home gardening adopter was chosen on the purpose to understand the background, motivation, obstacles, and the influence of adopting home gardening, which might contribute for further developing the quantitative questionnaire.

In terms of the initial motivation for 'E' to start home gardening, the main motivation was due to the food safety concern, as well as the desire of getting more close to the nature.

- *'I started growing my own vegetable because I was most of the time at home with my daughter, (because) she was very little, it is not so convenient to go out with her, so I feel like I was trapped at home... later on, I got inspired by the news, talking about the food safety related topic, and back then, my daughter was so small, and she was about to start adding supplementary food, and then I thought, why not gardening vegetable at*

my balcony myself? I like greens, It helped me a lot, really.. I feel much more relaxed when I see my (balcony) garden.'

When asking whether obstacles were faced by 'E', a potential risk of abandoning the home gardening activity was mentioned, and this needs to be taken into consideration while designing the intervention, as it could be a bias while evaluating the result.

- *'...I used to think that it is more like a task for me, but then slowly... I get used to it, and now it has become a way to relax myself from work... I really do enjoy it now, it is part of my life now.'*

In relation to the influence 'E' brought to her families, friends, and neighborhood, the answer was positive.

- *'...she found it is interesting too, and she has planted her own vegetable as well...and she often gets excited when her vegetable is ready to be picked'*
- *'... quite a number of my friend has started growing food at home as well... and even my friend's friend who added me on wechat, and ask for advice.'*
- *'... if you now visit the community where I live, you will see quite a number of household is now growing vegetables on their balcony, too... I also share my vegetables with my neighbors, and they all like them.'*

4.1.2 Interview result with 'S' (Appendix 2)

Interview with 'S' in for analyzing the current home gardening market, and gaining information from the private business aspect. Overall, the interviewee consider home gardening has the great potential to be adopted by more people.

In terms of the consumers segmentation, 'S' indicated most of the customers are young people, age between 25-35, and mostly mothers with young children. The main reason for adopting home gardening is due to the food safety concern, and most importantly, safety food for their children.

The strategies that 'S' applied on promoting his product remains by using internet as the platform, such as Taobao and WeChat. As the interviewee indicated:

- *'Taobao, of course. and actually it(Taobao) sell more than my own webpage.. everybody use Taobao, and it is the best way to reach a larger number of customers... WeChat, we have a few people working on promoting our stories and products through WeChat, and it is also very helpful, and if people are willing to buy our products, they can get the link of our Taobao shop'*

According to the interviewee's sells record, customer often purchasing a few essential items the first time for supporting home gardening activity, and often purchase more diverse type of seeds and more expensive tools.

4.1.3 Interview result with 'O' (Appendix 3)

The interview conducted with 'O' was relatively short, as the officer has a meeting to attend to. So only crucial questions were raised in order to gather the relevant information needed. The topic of 'ecological development' was arise by the author, as the author looked into the guideline for the 'Urban agriculture development for 2016-2020' beforehand. Within the guideline, 'community ecological development' was mentioned, but no further information were found in relation to how to achieve the goal. To the author's surprise, the interviewee with an agricultural background considered 'community ecological development' only refers to 'greening the community'.

- *' basically the community ecological development was referring to the greening of the community, especially the new developmental communities. So.. from the agricultural point of view.. we are not very much involved in this, and it is mainly in charged by the Gardening and Greening Bureau..'*

Moreover, the interviewee has showed no interested to work on urban gardening related project so far.

- *'...we still having a lot of important tasks in terms of developing urban agriculture, and I think the idea of promoting home gardening is not the most effective way...'*

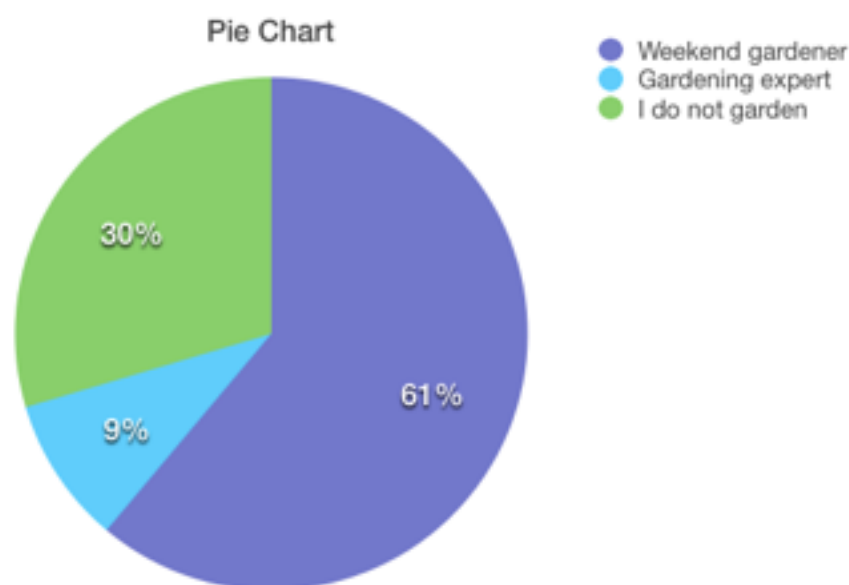
4.2 The quantitative result

The statistical tool SPSS applied in the following section. All the questionnaire were collected and the data were inserted to the computer for analysis by using SPSS.

Variables	Category	Frequency	Percent
Gender	Male	10	18.5
	Female	44	81.5
Age	20-29 years old	8	14.8
	30-39 years old	22	40.7
	40-49 years old	10	18.5
	50-59 years old	13	24.1
	60-69 years old	1	1.9
Marital status	Single	3	5.6
	Married/ Partnership	2	3.7
	Married/ Partnership with children	45	83.3
	Separated/ Divorced/ Widowed	2	3.7
	Separated/ Divorced/ Widowed with children	2	3.7
Family size	1 person	1	1.9
	2 persons	5	9.3
	3 persons	30	55.6
	4 persons or more	15	27.8
Occupation	1 person	3	5.6
	Self- employed	12	22.2
	Employed for wages	25	46.3
	Out of work	2	3.7
	Student	11	20.4
Income/month	Retired	4	7.4
	Under 1500	9	16.7
	1501 - 3500	8	14.8
	3501 - 5000	16	29.6
	5001 - 10000	13	24.1
	10001 - 15000	4	7.4
Education	Over 15001	4	7.4
	Middle school	1	1.9
	Technical secondary school	6	11.1
	Senior school	8	14.8
	Diploma	13	24.1
Bachelor	17	31.5	

Table 2. Social-Demographic characteristics

Social-Demographic characteristics of the participants are presented as shown above (Table 2). A total of 54 participants who live in the same community were included in the final analysis. Among them, females accounted for 44 (81.5%) of the total participants, while the remaining 10 (18.5%) were male. Overall, 70% of participants were under the age of 50. The participants within the age group of 30-39 years old accounted for 40.7% of the total respondents, followed by the 50-59 years old age group, which accounted for 24.1%. The majority of the participants were married or in a partnership with children, and it accounted for 83.3%. Within the 54 participants, nearly half of them are currently employed for wages, and the income between 3501-5000 accounted for nearly 30%, followed by 5001-10000 (24.1%). In terms of educational level, nearly half of the participants were having a bachelor or higher education.

**Figure 3. Participants' gardening skill**

In regards to food literacy level, three questions were raised in the questionnaire in order to understand their gardening background, current gardening activity, and a testing question to indicate their knowledge. The result shows 61.1% of the participants consider themselves as 'weekend gardener', followed by nearly one-third (29.6%) reported they are not involved in home gardening activity, and only 9.3% consider themselves as 'gardening expert'.

When asking whether the participants are gardening any vegetables/ herbs / fruits at home, 94.4% reported no. In relation to the knowledge text, a percentage of 42.6% of the total participants were correct.

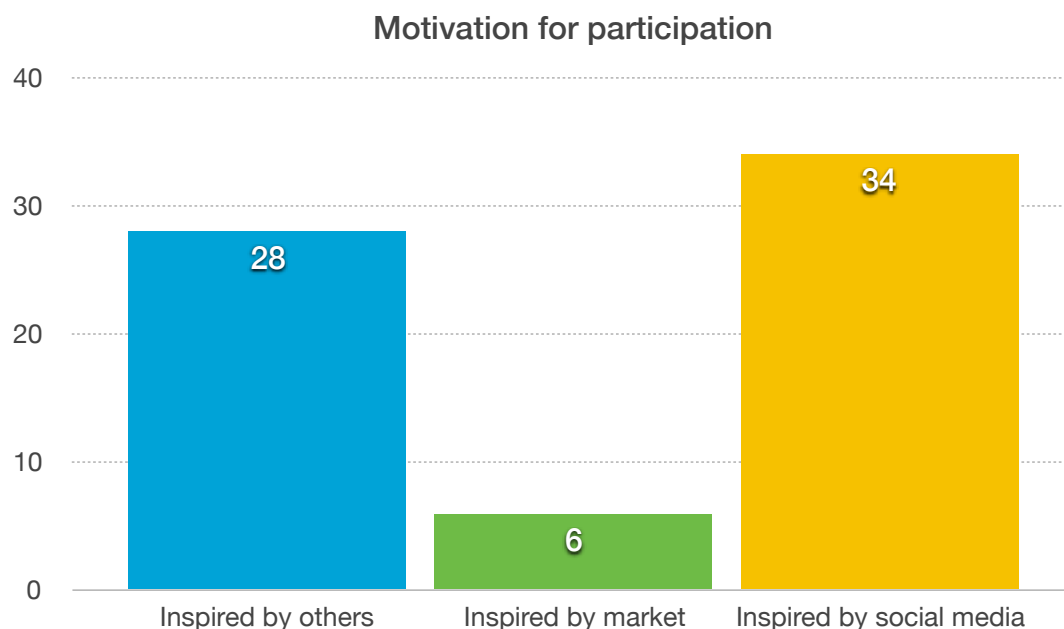


Table 3. Motivation for participation

Three questions related to the motivation for attending the workshop (see table 3) were raised, and the response were being able to make multiple-choice. As the table shows, one of the most influential motivations for the participants to attend the workshop is due to the influence by social media (63%). Another important factor that influenced their decision is 'inspired by another person' (51.9%).

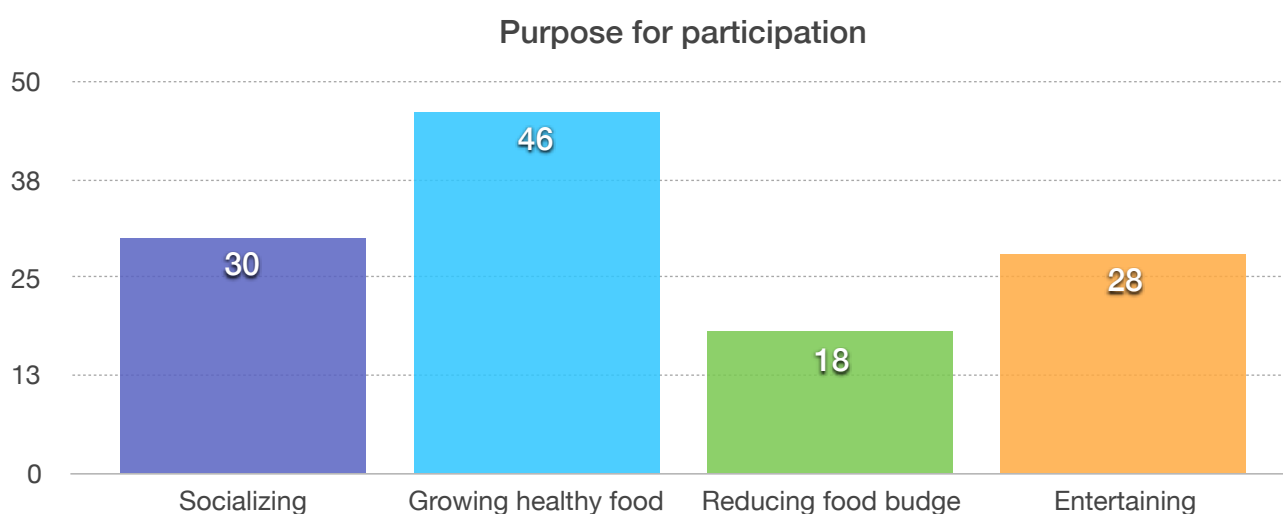


Table 4. Purpose of participation

In terms of purpose for participation (see table 4), the main factors for the participation is for 'growing healthy and safe food for the family' (46%). followed by 'socializing with neighbors' (30%) and 'entertaining leisure time' (28%).

Application of the Fisher Exact Text were used for the following three tables. These tables were made on the purpose of seeking for relationship between the social demographic status and their motivation, and purpose of participating the workshop.

By comparing participants' occupation and gardening skill as the table showing below, the result showed no significant between these two ($p=0.709>0.05$)

Gardening at home	Occupation					Total	p
	Self- employed	Employed for wages	Out of work	Student	Retired		
Weekend gardener	8	16	2	5	2	33	0.709
Gardening expert	0	3	0	1	1	5	
I do not garden	4	6	0	5	1	16	
Total	12	25	2	11	4	54	

The following table explore the association between age group and their motivation for participating the intervention.

		Age					To tal	P
		20-29 years old	30-39 years old	40-49 years old	50-59 years old	60-69 years old		
Motivation- inspired by another person	Yes	4	7	7	9	1	28	0. 09 2
	No	4	15	3	4	0	26	
Motivation- inspired at shops/ markets	Yes	0	2	1	3	0	6	0. 59 4
	No	8	20	9	10	1	48	
Motivation- inspired by social media channels	Yes	6	17	7	4	0	34	0. 03 3
	No	2	5	3	9	1	20	

Total	8	22	10	13	1	54
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According to the table, there is no association between the different age group and the motivation of 'inspired by another person' ($p=0.092$), or 'inspired at shops or markets' ($p=0.59$). However, the age group was found significantly associated with the motivation of 'inspired by social media' ($p=0.033<0.05$). when further compare was made with post hoc, no significant were found on different age with the motivation of 'inspired by social media'.

A further compare was made in term of the martial status and the purpose for participating the workshop, and as shown in the table below, no significant was found among them.

		Martial status					Total	P
		Single	Married/ Partnership	Married/ Partnership with children	Separated/ Divorced/ Widowed	Separated/ Divorced/ Widowed with children		
Purpose- Socializing with neighbors	Yes	2	1	25	0	2	30	0.499
	No	1	1	20	2	0	24	
Purpose- Grow healthy food	Yes	2	1	40	2	1	46	0.142
	No	1	1	5	0	1	8	
Purpose- Reduce food budget	Yes	1	1	13	2	1	18	0.225
	No	2	1	32	0	1	36	
Purpose- Entertaining leisure time	Yes	1	1	24	1	1	28	0.949
	No	2	1	21	1	1	26	
Total		3	2	45	2	2	54	

The three follow-up questions were conducted for the purpose of evaluating the outcome of the intervention. and according to the table, 44.4% of the the total participant consider that they have gain 'quite' much knowledge on home gardening. In terms of interests gaining degree, 46.3% of the participants consider moderately, followed by 39.6% considered 'quite' interesting. Moreover, when asking the participants whether they have purchased any home gardening related items after the work shop. 61.1% confirmed no.

Variables	Category	Frequency	Percent
Knowledge and skill gain	Slightly	5	9.3
	Moderately	14	25.9
	Quite	24	44.4
	Very much	11	20.4
Interests gain	Not at all	2	3.7
	Slightly	6	11.1
	Moderately	25	46.3
	Quite	16	29.6
Action in purchasing	Very much	5	9.3
	Yes	21	38.9
	No	33	61.1

5. Discussion

To compare the Chinese home gardening situation on a global scale, there are clear differences in terms of the urban residents' awareness, the degree of government support and social media promotion, and the space for gardening.

Chinese urban residents' overall awareness on home gardening is relatively weak, due to the fact that the government and social media has not put much focus on the topic of home gardening in China. One of the strategies for promoting home gardening on a national scale in China could be using the influence from role model. In the past few years, same as the popularity of role models on Facebook and Twitter in western countries, the Chinese users showed their tendency of following role models, like celebrities, athletes, or Weibo bloggers(88). Role models are considered vital in today's society, as they have the potential to create new dynamisms to the society(89). According to the diffusion innovation theory, role models can be considered as inventors, who can spread the words among their followers. One classic case of using role model for promoting home gardening would be Michelle Obama as mentioned in the introduction. Despite the fact that there has no study conducted to seek for the relationship between the 'American Grown' campaign and the national improvement on healthful eating or home gardening situation, the effect of social media has played an important role in this case, by gaining the awareness of home

gardening, as the news 'First lady gardening vegetable at Whitehouse' was widely spread throughout the country. On the city or community level, governmental promotion program, or community workshops on home gardening activities can have an influence on gaining people's knowledge, skills, as well as attitude towards home gardening. Therefore, a good gardening workshop experience has the potential of resulting in a long-term behavioral adoption.

5.1 Result

Main findings

According to the literature together with the result from the mixed-methods, the main cause of motivation for urban residents to be involved in home gardening activity was due to the food safety concern. Moreover, the majority of the participants who are interested in such activity are female parents with children. This can contribute to further studies in terms of identifying the target group, and addressing the problem.

The food literacy level is not as low as the author expect, as over 60% of the participants considered themselves as weekend gardener, with the result of nearly half of the participants were correct on the knowledge testing question, hence, a potential bias might have contribute to the result and will be discussed on the next section.

To answer the research question according to the result, the general knowledge has gained, as 44.4% of the participant found themselves learnt 'quite' much at the workshop. By looking at the data on the interests, nearly half of the total participant considered 'Moderate', which the the author perceived as not gaining much interests. Moreover, in relation to indicating their action towards home gardening, nearly 40% of the participants has already start to purchase gardening related products to support their activity. therefore, the author consider the the intervention of home gardening activity has increased the participant's food literacy level on the chosen community.

Since no relevant literature has been found in relation to home gardening (focusing on food planting) in China, this study can be contribute to fill the gap, and for further develop on the subject, by conducting larger scale study, or comparative study with another city in China.

Moreover, as main topic of this study, 'food literacy' should emerge in and being used to address the national and local food related issues in China.

5.2 Method

5.2.1 Bias

As the home gardening WeChat chatting group was created and people are being able to speak freely, and share informations, a number of participants shared gardening related articles in the group in terms of knowledge oriented. This may have an influence the on result of the questionnaire, as one of the article a group member shared, indirectly contained the answer of the author's food literacy related question. However, due to the time consuming, the author was not being able to print new questionnaire with updated question for the intervention. Therefore, a potential data bias might occurred.

The initial intervention program was planned as two workshop activities. The author considered the most accurate way to evaluate the food literacy outcome in terms of knowledge, skill, and action gain, would be conducting a second workshop activity face-to-face four weeks after the first workshop. However, since the author was not being able to stay in Harbin for a long period, the second workshop plan had to change to sending out follow-up questions through WeChat instead. This might potentially cause bias in the study, as participant might just 'saying' instead of 'doing'.

5.2.2 Strength and weakness of the study

The amount of interview was at a minimum due to the timeframe that the author was being able to be present in Beijing. Several of the requested interviewees, located in Beijing, were simply not available within the two days that the author was able to conduct the interviews. This is considered a limitation to the study, as more interviews from the identified actors would have strengthened the outcomes. Having a larger amount of interviewees could possibly have increased the knowledge and provided more evidence to the study.

The overall use of theory in this study could have been developed further, as in some cases only partial application of theoretical models was implemented. One of the significant examples, is the application of social ecological model, that can potentially used for identifying more relevant actors on the organizational level and their role in terms of

educating food literacy or promoting home gardening. Furthermore, the use of the social ecological model for developing the interview guide would have resulted in a more in depth questions and themes, as questions can covers multi-levels concerning to the identified topic.

Despite at the listed limitations, the study has the essential strengths that helped to unfold the chosen topic. The study gathered the empirical data that provided a broader perspectives on the two topics. Hence, the use of mixed method applied in this study has provided an overall understanding of current home gardening situation generally in China, and more specifically, in Harbin.

5.3. Policy implication

Public sector involvement

In order to promote home gardening on a larger scale, the government's support for home gardening should be strengthened to integrate of home gardening promotion and food literacy education. As mentioned in the introduction, government required children's education need to involves nature is a good starting point, where children are being educated on urban gardening. However, visiting urban farm once or twice a year can hardly result in behavioral changes in relation to food. On the other hand, if schools and institutions raise home gardening campaign to encourage students to start gardening at home, the result could be different, as the child practically involved in gardening, watch the plant grow each day. Moreover, this could also make an influence on the family members in the household.

Private sector involvement

Private enterprise can also playing an important role in terms of promoting home gardening. The horticultural equipment supply needs to be taken into count when considering promoting of home gardening. With the limited space for gardening at home, the intervention participants tended to prefer well designed gardening pot or carriage for utilizing the space more efficiently. According the participants opinion, together with the author's observation, lacking of diversity product supplies on the market, can be an excuse for adopters to lose of interests. Therefore, for domestic gardening companies seeks for further development, it requires the companies to taken the circumstances into

consideration when developing marketing strategies targeting the space saving design, and innovation on products can potentially open a new market.

One suggested possibility could be cooperation with furniture stores and flower shops. Enterprise is suggested to work on the design of the whole package of the plant, especially the pot, to attract customer with the appearance of the product. It is commonly seen in IKEA in nordic countries where the store demonstrates how a piece of food plant product decorate a home. Another suggested possibility could be cooperation with the supermarket. Enterprise can work on innovation on developing small DIY Kits that contains all necessary materials except water, with instruction. The product can contains only a few seeds, and the purpose is to motivate people to make the first step towards home gardening. The customer of the supermarket has the possibility to know the product while paying for their purchase at a very cheap price for the DIY Kits at the cashier.

Individual involvement

As individuals, urban residents has the possibility to influence their surroundings. With the rapid development of Internet technology, individuals can become very influential. A new business model called WeChat Business (WeiShang in Chinese) has been raising the last few years, where individuals are being able to promote certain product to people they know by simply post status. This is just to explain the fact that promoting home gardening by updating posts related to home gardening on blog or WeChat may also having an influence on others.

6. Conclusion

The contradiction between urban population and land became more and more glaring in China. Due to the fact that high-rise building is one of the main residential form in urban areas in china, residents living in apartments are having relatively limited space for gardening compare with the western countries(85), which has created an invisible boundary for the residents when considering gardening at home. As one of the participant asked a question during the intervention 'What if I tried, and get addicted with gardening at home, but find out there is no extra space for gardening?' In this case, other forms of urban gardening was brought into the conversation, as community gardening and rooftop gardening could be the solution. A case conducted in Germany that the government provide the possibility to land-leasing of unused urban land, such as riverside and roadside

to families with no access to private gardens in urban areas(86). However, successful gardening experiences from abroad can not be adopted directly into the Chinese context. The different national circumstances like economy, residents living conditions, the horticultural market and other aspects are having an direct impact on the promotion of home gardening. This is the main reason why the author did not compare case studies conducted in other countries, and discuss the possibility of the case adoption in China. Instead, to draw lessons from others country's experiences, giving examples of promoting strategies applied in other cases for inspiration, which can be a strategy when developing national or community level program in China. Nevertheless, without government active involvement and support on promoting home gardening in China, promoting home gardening is considered difficult for further development.

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8. Appendix

Appendix 1. Interview transcription with 'E'

M: So, first of all thank you again for coming today.

E: You are so welcome, that's nothing.

M: I would like to introduce a bit about myself first..again. I am a student from Aalborg University in Denmark, and I am currently working on my master thesis, and the topic, as I have mentioned with you, is about home gardening.

E: Yeah.. I know.. I remember. Ahh.. Don't tell me that you come all the way to Beijing just to conduct this interview?

M: No, no.. Of course not.. I have two more interviews, and I am also working on a quantitative study on certain population in my home city Harbin.,,Umm.. I just flied back to China, and since I need to take a transferred flight in Beijing anyway, and it happens that you have the time too yesterday, I decided to fly to Harbin tomorrow instead, so I don't need to fly back and forth for this interview.

E: Ahh.. of course.

M: So..How old are you?

E: I'm 34 years old.

M: Are you married?

E: Yes, for 9 years already.

M: Any Children?

E: Already a pupil now.. She's 8 years old. She's a girl.

M: So how long have you been home gardening? When did you start (gardening)?

E: 8 years too, haha..

M: So you started gardening the same year when you had your daughter?

E: Yes, it was the same year.

M: For what reason did you start gardening at home?

E: I started growing my own vegetable because I was most of the time at home with my daughter, (because) she was very little, it is not so convenient to go out with her, so I feel like I was trapped at home... later on, I got inspired by the news, talking about the food safety related topic, and back then, my daughter was so small, and she was about to start adding supplementary food, and then I thought, why not gardening vegetable at my balcony myself? I like greens, and I often dream of getting back to the nature. It helped me a lot, really.. I feel relaxed when I see my (balcony) garden.

M: Can I ask about your job? What do you do?

E: Ah, I am a network designer, working in a company.

M: So as we have talked before, you are now a 'community star', right?

E: Hahaha... yes, sort of... Because of my (balcony) garden, now everybody know my apartment, even my friends... Even if some people don't know or don't remember my unit number, um.., or room number, they can still easily find where I'm located, because of my balcony is quite eye-catching, haha...

M: Right. So does your garden had any influenced on your friends?

E: Yes, yes.. Quite a number of my friend has started growing food at home as well. and they often ask me for advice, or if they have any other questions related to gardening at home, they often text me (through wechat), and even my friend's friend who added me on wechat, and ask for advice.

M: Did it bothered your life in a way? I mean, you have your job, and a family to take care of, and then people just keeps on asking question.

E: Ummm. To be honest, sometimes.. Not at the beginning though, but after sometime, especially when I am stressed out by work and my kid, I don't feel like answering a lot of questions. But then I adjusted my attitude, and reply such questions when I have the time. I think.. after all... they ask me because they were influenced by me, and they trust me for my advice. The same as my neighbors in my community, they always ask questions when seeing me around.

M: So I guess your neighbors were also influenced by your garden, right?

E: Absolutely. If you now visit the community where I live, you will see quite a number of household is now growing vegetables on their balcony, too. But mine is still the biggest, and the most obvious one, haha... I also share my vegetables with my neighbors, and they all like them.

M: I can imagine. Do you feel healthier when eating your own vegetable?

E: Not physically of course, haha.. but, I feel more safe when eating the food that I grow myself, and I remember at the beginning, I feel very proud of myself, to feed my daughter (with food) that I grow myself. Now, our family has got use to it, and it is more like part of our life now... The vegetables I grow are genuinely organic, and it doesn't contain pesticides, and I do spend a lot of time removing the worms from the pots, haaa..

M: Is your daughter also helping you while you are gardening?

E: Yes, she knows how the food is grown, she found it is interesting too, and she has planted her own vegetable as well, and she is always happy when watching her plants grow, and she often gets excited when her vegetable is ready to be picked.

M: Do you think the taste of your vegetables is different from what you buy in the market?

E: Yes, yes... My vegetables are more tender and refreshing, and it taste better... I think, my kid will be very healthy if she grows up eating the vegetables I grow myself.

M: Did you had any knowledge related to gardening before you started 8 years ago?

E: No, I didn't. I studied online, searched for instructions and bought the seed and.. all that online, too

M: Do you think home gardening can be addict?

E: Yeah, absolutely! I am a living sample myself, haha... and people I know who started gardening, most of them are still doing it, and grow more and more at home...

M: As you mentioned earlier, you need to spend a lot of time removing the worms, do you think it is annoying sometimes? or any other obstacles you faced related to gardening?

E: Umm.. I used to. I used to think that it is more like a task for me, but then slowly... I get used to it, and now it has became a way to relax myself from work, I don't feel like I am living in this small apartment while I am taking care of my garden. I really do enjoy it now, it is part of my life now.

M: Where do you buy the seed and pots? or the soil?

E: Online. I started with Taobao searching for the keywords, and I found a few sellers who's selling these things, and I chose Mao's store, because you know, at the beginning, I knows nothing about gardening either, and I had a lot of questions too. He got a lot of good feedbacks, and after I talked (online) with him, he was always explaining to me, he's very patient, and now he is selling a lot the last few years, and he is one of the top sellers on Taobao.

M: Was there any other channels that was useful as well?

E: There is. the 52caiyuan. It is one of the largest platforms for people growing food at home. We share our stories and tips for gardening there, and it is very useful. I also get to know a lot of friends through this platform, from different cities, and we still keep in touch sometimes on wechat, as we have this wechat group, we are mostly chatting on wechat nowadays, instead of sharing informations on 52caiyuan, because, you know... everybody use we chat, it is more convenient.

M: Of course, I understand. Have you noticed any shops or market that are selling home gardening tools?

E: I only saw it once.. in a market, selling seeds only. I think it is a shame that we can only buy it online, because you know, a lot of people I know, who's interested in this, are old people. Most of them are retired, and they don't know how to use Taobao. I do help some people to buy it online for them, but of course... I can't help everyone. People that I am not that familiar with, I recommended them to ask their children to help buying the stuff for them online. But you know, not all children are taking this seriously, and maybe the elderly are not that much interested in gardening, so once they got no access to the basic tools and materials, they just give up easily. But of course, if they see it everywhere in the shops or markets, I guess there will be a better chance for them to try.

M: I agree. Uhh.. Do you think home gardening has the potential to become a trend for more urban household?

E: I do. I think... ummm... For example, myself, I have made a great influence on my friends and neighbors, and maybe they are influencing others as well. It was very rare a few years back to grow food at urban city, at home, but it is not that rare anymore, not for me at least.

M: What is the most influential way to motivate people start home gardening in your opinion?

E: Umm.. I think... uhhh... Influence by neighbors is the most effective way, because they can pretty much see the greens everyday, and soon or later, it can change people's mind

about doing it, maybe... And after I was interviewed by the social media, I think I have also inspired a number of young people to think about it, too. I got some feedbacks saying mothers with small child are very inspired by my story, they are having the same concern (food safety) as well, and started to make plans for gardening at home.

M: If the government is promoting home gardening on the community level, I mean, to offer seeds, pots, soil, and tools, and teach people hand by hand how to do gardening, do you think it can make a difference?

E: Absolutely! I absolutely think that will make a difference. That could be a better way to influence people compare with what I just mentioned.

M: Yes, I think so too. I would like to show you a few pictures about home gardening, and please tell me what you think about it.

E: Sure. Let me see.

After seeing some pictures about nordic style of home gardening.

E: Oh.. That's really nice! It looks more like art! They makes me feel like.. a bit embarrassed by my garden, I was very proud of it, and now it looks like mine.. is a real real garden, hahaha.. But these, that's so pretty! I never thought about turning home garden into art!

M: Ha.. right? I really like this nordic style myself as well. and for me, I would rather do home gardening as turning it into a piece of decoration at home.

E: That's... really, something that I never thought about.

M: Would you consider to make a bit change of your garden after seeing these?

E: I think so.. But I will try to make a plan for it first, I need to think about it. But it is really inspiring. I think a lot of young people will likes it too.

M: I think so, too.

E: Uh..

M: Uhhmm, I think that's all I need to know from you. So.. thank you so much for meeting me today, and for your time.

E: That's nothing, I like to talk to people about this hobby, too. I want more people to know about home gardening, and enjoy it in.. like this cement and steel made cities.

M: Great! then, that's it, Thank you.

E: You are very welcome.

Appendix 2. Interview transcription with 'S'

M: Hello, this is Mengyu.

S: Hello, Mengyu..

M: I am doing research on home gardening for my master thesis, and as we have spoke about.

S: Ah, hello, I remember now, sorry I didn't remember your name.

M: It's fine. So you have the time now for the interview, right?

S: Yes, you can start anytime.

M: Okay.. Uhh... Can you start with introducing yourself a bit?

S: Fine, My name is XX, I am the founder of 52caiyuan website, the website was established in 2010, and I am now mainly working with selling home gardening related product.

M: Thank you, so,, what was the motivation for you to establish this website?

S: The idea came from the QQ 'vegetable stealing' game, which was very popular back in the days, I guess you know it too, right?

M: I have heard about the game, and I knew it was quite popular as well, but I was studying in Denmark, so I don't know much about what was popular in China, but this game was one of the few things that I heard about. Besides, I am not a fan of games, so..

S: Good, good, haha... But at least you know it.

M: Yes, I do.

S: Good.. So.. I got inspired by the game, and started to grow vegetable at home myself back in..2009, and.. I often share my experiences in our internet group, and consult with others as well... umm.. To my surprise, I realized there are many people have the same hobby as me. Iam a website designer back then, so, umm.. I decided to establish a larger platform for people across the country to share their experiences and improve the gardening skills, and also exchange views.

M: That was a great move you made! I'm sure a lot of people have get the benefits from your website, right?

S: Yes, that's true. Since the website was established, the number of our registered members has increased significantly. It was roughly from 100 to more than 40,000, and then after the series of domestic food safety scandals back from 2011, the member boasted up to 80,000 members, and the number is still keeps on growing the last few years...umm, our page views is over 2,38 million, that people who have dropped by and to look for tips and read on others' gardening experiences.

M: Ohh, that's really great, I am very impressed by the numbers you just said.

S: Yeah... I was very surprised, too. But I saw the trend, and I am now very proud of myself that I did this (laughing)...

M: Of course, of course.. So who are your customers? I mean gender, age or marital status...

S: Uhh.. Mostly young people, especially mother with young children. I did not do any research on this, but according to the registration information, I know a large percentage of our members are female, between age, uh.. I would say.. 25-35. Often from their post, I know the food safety concern is one of the main reason motivated them to start gardening at home, in order to provide their children with safe and healthy food.

M: So, I know you have made online business on selling home gardening products, so how's the business doing?

S: Umm.. it is quite successful, I think. Of course I can not compete with Ma Yun (laughing), but I am very satisfied with my business overall, and I believe it will keeps on getting better and better.

M: I am sure it will. Does your customers usually coming back to buy more of the items you offered online?

S: Yes. It is very often that people started with very simple tools and 1-3 types of seed, and other things like soil and stuff, and once if they found it interesting, they will come back and buy a lot more seeds, and more expensive tools to support their gardening activities, so we have a large number of loyal customers who keeps on making new orders.

M: So except selling these products on your own website, do you have other channels to promote your products?

S: Taobao, of course. and actually it sell more than my own webpage.. You know it as well, everybody use Taobao, and it is the best way to reach a larger number of customers.

M: Was there another channels that you have tried to work with?

S: Uhh... WeChat, we have a few people working on promoting our stories and products through WeChat, and it is also very helpful, and if people are willing to buy our products, they can get the link of our Taobao shop. Besides that..uhh...nothing else, I am already busy enough to deal with my business so far, so I haven't consider anything else.

M: So where are you located exactly?

S: I live in Shanghai.

M: The city of magic.

S: Yes..

M: Do you know if your local government is supporting home gardening?

S: Well... yes, I know that our city has constructed this rooftop garden for the urban residents, so people living in the city can experience growing food themselves, and also, umm... I have seem this Shanghai agricultural zone, it is somewhere between the airport and the city, that people can grow food on the floating bridge, I think these are all good way to start promoting urban farming, and maybe soon, the government will realize that it is time to introduce home gardening to our urban citizen, I don't know when, but I think it will be someday.

M: Well, as a successful business man in this field, why don't you consider to make a move on promoting home gardening in Shanghai? For instance, to visit and organize workshops to teach community residents to learn how to do gardening at home.

S: Umm.. I never thought of that. I guess I am already too busy to take care of the things I do right now, and didn't really thought about it. Yeah.. it could be a good opportunity I guess.

M: I think if you make a proposal to the local urban agricultural Bureau, I think there might be an opportunity to cooperate with them, and move your business to a next level.

S: Like I said, I never thought of that, and I think you could be right, there is a great chance to reach a new group of consumers.

M: Do you have any physical store?

S: No.. I don't think the market for home gardening is matured enough to support physical stores. I have thought about this, but I don't the positive result in this, and it is also very convenient to purchase online, so, I don't think it is a good idea so far. Maybe, maybe someday when home gardening has become a wildly accepted activity by the urban residents, I think I will.

M: Do you consider home gardening in urban city is having a great potential in the future in your opinion?

S: I do believe that, like I said, I am also hoping for one day, that I can start my physical shops not only in Shanghai, but all over the our country. It will be beneficial for everyone who lives in this crowed city, both mentally and physically. I hope that day will come soon, haaa...

M: With that ambition, I think you should definitely consider cooperating with the government and expand your business.

S: After this conversation, I really... I will seriously consider it... and if I succeeded someday, I will thank you for inspiring me for the tips.

M: I hope so, too. Home gardening is very popular in the western world, and I do hope that citizens in our country could adopt home gardening as an hobby, instead of growing flowers, they can save money on food products, and get healthier and safer food to consume.

S: Completely agree with you.

M: I have some more tips for you. by browsing your website, I found most of the posts are related to skills and tips for gardening, or recommendation for tools or size of pots to use, but I rarely see any nice looking pots or designs. Have you noticed any nordic style home with indoor garden?

S: Uhh.. I have seem some designed from aboard, but not nordic style in specific.

M: I would suggest you baidu it, you know IKEA?

S: Of course, of course.

M: Then you know the typical nordic style furnitures and design, right?

S: Yes, I do.

M: In nordic style, people sometimes turn their home garden into a piece of art to decorate their homes, and I found it so attractive, and I would definitely recommend you to import, or make your own design, that something could be nice looking, I am sure it will motivate a number of people to start gardening at home.

S: Okay, thanks. I will look into that.

M: Alright then. That's all the questions that I have, so ...

S: Thank you for calling me, I learnt a lot, too.

M: I am glad... that I could potentially help you, and wish you all the best with your career.

S: Thank you, thank you.

M: Okay, we can talk later on WeChat if you need any help, or I have more questions for you.

S: Of course, of course.

M: So thank you, bye-bye.

S: Thank you, thank you, bye-bye.

Appendix 3. Interview transcription with 'O'

M: So... First of all, thank you very much for agreeing on this interview. A short introduction of myself, I am a student from Aalborg University in Denmark, studying Integrated Food Studies. I am currently working on my master thesis, and I chose the topic of home gardening, because it is quite popular in western world, but it has not gained much of its popularity in most parts of our country. Since I am from Harbin, I am very interested in knowing if it has the potential to become a trend in Harbin. In order not to take too much time of yours, I will try to make the interview as short as possible.

O: Ah, that's fine, that's fine..

M: Can you please introduce yourself a bit? Your educational background, and what you do at the Bureau of agriculture.

O: Sure...Uhhh, I graduated from Heilongjiang University with a master degree. I am currently working in the areas of agricultural production, agricultural market and economic information and promotion.

M: Thank you..So.. the purpose of of this interview is because I have tried to search on the government website, but I didn't find any information on promoting home gardening in general. I have read about the newly published ' Harbin agriculture and rural economic development plan' for 2016-2020 paper, and..ah..I'm sure you are quite familiar with it too, right?

O: Sure.. Yes, of course.

M: So, in the paper, the section of 'Urban agriculture development' mentioned community ecological development, but I didn't find more specific strategies or programs related to that on the webpage. Can I ask what has been done, umm..regarding the community ecological development, I mean... from the food related agricultural perspective?

O: Oh.. well... basically the community ecological development was referring to the greening of the community, especially the new developmental communities. So.. from the agricultural point of view.. we are not very much involved in this, and it is mainly in charged by the Gardening and Greening Bureau..

M: Okay... I have also done some research on the website of Gardening and Greening Bureau, and I have noticed that the city greening project are mostly projects concerning the city major district's green space, but I found nothing related to gardening food either.

O: Yeah...maybe.. that's true..

M: So, have your Bureau conducted any kinds of program or project on the residential community level?

O: No...Not that I... I can think of right now.. Umm... we are mostly dealing with agricultural projects in rural area of Harbin, or...um.. choose location for the growing food within urban areas, sub-urban areas mostly, but... not at residential areas.

M: So.. I have noticed that the city greening project are mostly big projects concerning the city major district's green space, but I found nothing related to gardening food like fruits, vegetables or herbs...

O: Ahmm... Yes, we have not yet putting any focus on gardening food on at communities right now..

M: Have you heard about projects related to gardening food in other cities?

O: Yes, umm.. I have read something on the internet, for instance, the rooftop farming in Shanghai, it was about urban residence growing food at their rooftop, so people can learn

to grow their own food. I think it is quite interesting, but I guess we are still far behind in Harbin.

M: Do you think it could be an good opportunity for urban residence not only learning how to grow their own food, but it could also be a chance for children to understand where the food comes from?

O: Indeed.. It is beneficial for everyone. As you know, our city is located in very north of China, and the weather..

M: Yeah... Of course. Growing season is not comparable with southern part of our country..

O: Yes.. So it could be a limitation for us while considering such project.

M: What about indoor gardening? I mean.. I know the limitation, there might not be much space for people to grow, but it could be a good start to teach children or even adult where the food comes from, and how is should be maintained, and in western world, indoor gardening is very popular, and it could also become a nice decoration of home, if people knows how to make it pretty. People can start with simple things, like herbs, coriander, spring onion and such, where we use very often in the Chinese food culture.

O: Yes, I get your point, and it sounds very interesting to me, ummm... I don't know if it could work, but it is definitely a good idea.

M: And.. it could also contribute to food availability issue in a way, too. I mean, we still import a lot of fruit and vegetable from the south, right?

O: Yes, due to the seasonality reason, but I don't think it will make a big difference in this sense.

M: I know, it is very different from what you do so far, unlike these big project you do, it is more of reaching the individuals, to actually walk into the communities and promote such activity. But it doesn't request big investment, and it is beneficial to our urban residence themselves, and I think in a long term, it has the potential to contribute to the urban agriculture, if home gardening can become a common activity for the Harbin household.

O: Umm.. I see your point.

M: Well, if someone make a project proposal, like.. what I suggest, do you think the Bureau has the potential to invest on such project?

O: Might be, but I am not sure.. Umm.. we still having a lot of important tasks in terms of developing urban agriculture, and I think the idea of promoting home gardening is not the most effective way, but on the other hand, it is a good opportunity for urban residences to learn about food, and gaining skills on how to grow food, so... I think we could be able to support such project, but not doing such project ourselves, I think...

M: OKay. Umm... Thank you for your time, and that's all I need to know so far.. I might get in contact with you again if I have more questions to ask..uhh...

O: that's no problem, no problem at all.

M: Great. Well then, thank you again.

O: You are welcome.

Appendix 4. Quantitative Questionnaire

Questionnaire

Social demographics characteristics

1. Your gender is
 1. Male
 2. Female
2. Your age is
 1. Under 19 years old
 2. 20-29 years old
 3. 30-39 years old
 4. 40-49 years old
 5. 50-59 years old
 6. 60-69 years old
 7. 70 years or older
3. Your current marital status is
 1. Single
 2. Married/ Partnership
 3. Married/ Partnership with children
 4. Separated/ Divorced/ Widowed
 5. Separated/ Divorced/ Widowed with children
4. Your family size is
 1. 1 person
 2. 2 persons
 3. 3 persons
 4. 4 persons or more
5. Your current occupation is

1. Self- employed
2. Employed for wages
3. Out of work
4. Student
5. Retired
6. Your current income per month (RMB)
 1. Under 1500
 2. 1501 - 3500
 3. 3501 - 5000
 4. 5001 - 10000
 5. 10001 - 15000
 6. Over 15001
7. Your educational level is
 1. Primary school
 2. Middle school
 3. Technical secondary school
 4. Senior school
 5. Diploma
 6. Bachelor
 7. Master
 8. Phd or higher
8. Would you consider yourself as a
 1. Weekend gardener
 2. Gardening expert
 3. I do not garden
9. Do you know how to plant vegetables/ herbs / fruits at home?
 1. Yes
 2. No
10. Which of the following sentence do you think is correct?
 1. For indoor gardening, the best season for planting spring onion is spring
 2. The coriander growth cycle is approximately 30-70 days depends on the temperature
 3. Herbs is easy to grow all seasons indoor as it requires only 4 hours of natural light per day

Motivation for participating the workshop

11. Did you get inspired by another persons' home plants (neighbors, friends)?
 1. Yes
 2. No

12. Did you get inspired through sale's promotion at shops/ markets?

1. Yes
2. No

13. Did you get inspired through home gardening promotion program on TV or other social media channels (eg. WeChat/ Weibo)

1. Yes
2. No

Purposes for you to participating the workshop

14. Were you intended to participant the program considering it is a good opportunity to socialized with your neighbors?

1. Yes
2. No

15. Were you intended to participant the program for growing healthy and safety fresh food for your family?

1. Yes
2. No

16. Were you intended to participant the program to reduce your family food budget?

1. Yes
2. No

17. Were you intended to participant the program for entertaining your leisure time?

1. Yes
2. No

Part 3. Follow-up question

18. To what degree do you think the workshop has gained your knowledge and skill on home gardening?

1. Not at all
2. Slightly
3. Moderately
4. Quite
5. Very much

19. To what degree do you consider yourself gained interests in home gardening after the workshop?

1. Not at all
2. Slightly
3. Moderately
4. Quite
5. Very much

20. Have you bought any extra tools or nice looking pots for your plants?

1. Yes
2. No