Narrating Gatedness in Urban China: A Comparative Study of Physical, Cognitive, and Social Forms of the Work Unit and the Commodity Gated Community

by

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS ..... **ii**

LIST OF TABLES ..... **viii**

LIST OF FIGURES ..... **x**

LIST OF APPENDICES ..... **xiv**

CHAPTER ONE: INTRODUCTION **1**

1.1 Gated Forms of Residence and Its Development in China **3**

1.2 Statement of Problem and Research Questions **8**

Statement of Problems 8

Research Interest 10

Research Questions 11

1.3 Structure of the Dissertation **13**

1.4 Potential Audience of the Study **15**

CHAPTER TWO: LITERATURE REVIEW **16**

2.1 Literature Review Regarding Gated Communities **17**

Gated Communities and Related Theories 17

Gated Communities and Social Implications in the West 34

Gated Communities and Social Implications in China 42

2.2 Theoretical Frameworks **57**

Theories of Environmental Perceptions and Environmental Consciousness 57
Theories of Space and Place 62
Theoretical Framework 69
CHAPTER THREE: RESEARCH METHODOLOGY 72
3.1 Case Study as the Primary Research Method: 73
Case Study Selection 74
Brief Introduction of Case Study Sites 76
3.2 Data Collection and Analysis 82
Historical Narrative and Morphological Analysis 83
Space Syntax Methodology 83
Observation 85
Survey 86
CHAPTER FOUR: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS 89
4.1 Summary of Demographic Features 90
4.2 Potential Implications of Demographic Features to the Community Life 93
CHAPTER FIVE: THE PHYSICAL FORM OF GATEDNESS: MORPHOLOGICAL AND CONFIGURATIONAL ANALYSIS 97
5.1 Introduction 97
5.2 Morphological Description of the Neighborhood Layout 99
Building Intensity and Residential Density 99
Building Types and Open Spaces 103
Comparison of the Morphological Structure of XAUAT and NMT 119
5.3 Configurational Analysis 122
5.4 Conclusion 137

CHAPTER SIX: EXPERIENCES OF GATEDNESS - Use of Public Spaces and Socialization 141

6.1 Introduction 141

6.2 Use of Public Spaces 142

Types of Movements in Public Settings 142

Spatial Configuration and Distribution of Movements 159

Demographic Factors and Use of Public Spaces 164

6.3 Neighborhood Social Ties 178

Likelihood of the Same Neighborhood Socialization 178

Demographic Factors in Relation to the Neighborhood Social Ties 180

Spatial Distribution of Neighborhood Social Ties 183

6.4 Conclusion 190

CHAPTER SEVEN: MEANINGS OF GATEDNESS - Resident's Motivation and Sense of Community 193

7.1 Introduction 193

7.2 Motivations 195

Ranking of the Motivation Factors 195

Similarities and Differences between NMT and XAUAT 198

Psychological Structure of the Motivation Factors 207

Summary 214

7.3 Sense of Community 215

Cognitive Construct of the Sense of Community 215

Perceived Sense of Community 228

Other Factors in Relation to Perception of Sense of Community 242

7.4 Conclusion 251

CHAPTER EIGHT: UNFOLDING GATEDNESS - Conclusion and Discussion.....255

8.1 Narrating Gatedness..... 255

8.2 From Work Units to Gated Communities..... 260

Gated Forms, Gated Living, and Gated Mind.....261

Physical Forms and Social implications.....278

8.3 Limitations of the Study..... 290

8.4 Suggestion of Future Works..... 293

APPENDICES.....296

REFERENCE.....319

LIST OF TABLES

Table 2-1: Types of gated communities and social values in the United States 28

Table 3-1: Sources of Data and Interpretation Strategies.....82

Table 4-1: Comparison of Demographic Characteristics of XAUAT and NMT 96

Table 5-1: Summary of Land Use Factors in XAUAT and NMT.....102

Table 5-2: Summary of Syntactic Properties of NMT and XAUAT.....126

Table 5-3: Summary of Syntactic Properties of Integration Cores in NMT and XAUAT 127

Table 5-3: Mean Integration Values for Civic Spaces.....134

Table 6-1: Mean of Observed Activities.....143

Table 6-2: Average Frequency of Activities for Using the Public Spaces. 147

Table 6-3: Purpose of Walking in NMT and XAUAT 150

Table 6-4: Correlations between Density of Movements and Integration Value of the Observation Sites in NMT and XAUAT 159

Table 6-5: Correlation between Frequency of Activities and Demographic Characteristics of Respondents (NMT).....164

Table 6-6: Correlation between Demographic Factors of Respondents (NMT). 166

Table 6-7: Correlation between Frequency of Activities and Demographic Characters of Respondents (XAUAT).....170

Table 6-8: Correlation between Demographic Factors of Respondents (XAUAT) 171

Table 6-9: Correlations Between Frequency of Activities (XAUAT)..... 177
Table 6-10: Respondents' Numbers of Same Neighborhood Frequent Contact (NMT and XAUAT)..... 179
Table 6-11: Correlation Between Respondents' Numbers of Same Neighborhood Frequent Contacts and Demographic Factors..... 180
Table 6-12: Chi-Square Test Comparing Groups of with/without Location Information..... 183
Table 7-1: Importance Values of the Motivation Factors and Chi-Square Tests Comparing XAUAT and NMT..... 199
Table 7-2: Primary Components of the Conceptualization of the Sense of Community (XAUAT)..... 220
Table 7-3: Primary Components of the Conceptualization of the Sense of Community (NMT)..... 225
Table 7-4: Scoring of Measures in the Sense of Community Assessment Instruments..... 231
Table 7-5: Evaluation Items with Significant Difference between XAUAT and NMT. 233
Table 7-6: Correlations between Sense of Community (SESC and GMSC) and Same-Neighborhood Social Ties..... 247

LIST OF FIGURES

Figure 2-1: Domain of Sense of Community and Hypothesized Relationships 24

Figure 2-2: Maslow's hierarchy of Human Needs (Maslow 1954).....59

Figure 2-2: Model of the Environmental Consciousness.....61

Figure 2-3: Relationships between Spatial, Social, and Behavior Factors in Space Syntax 63

Figure 2-4: Canter's Model of the Place Theory 65

Figure 2-5: Theoretical Framework and Research Questions.....69

Figure 3-1: Research Design in Relation to the Theoretical Framework 72

Figure 3-2: Locations of the Case Study Neighborhoods in the City of Xi'an.....75

Figure 3-3: Neighborhood Layout of XAUAT 77

Figure 3-4: Scenes from XAUAT.....78

Figure 3-5: Scenes from NMT.....80

Figure 5-1: Original Site Planning of XAUAT (1955) 103

Figure 5-2: Zoning Structure of the XAUAT (Site Planning in 1955)..... 104

Figure 5-3: Scenes in XAUAT..... 109

Figure 5-4: Development of XAUAT (1955-2012)..... 111

Figure 5-5: Distributions of Open Spaces in XAUAT..... 111

Figure 5-6: Urban Fabric around NMT..... 113

Figure 5-7: Bird View of High-Tech Development Zone of Xi'an..... 113

Figure 5-8: Street Views from Outside of NMT 113
Figure 5-9: Scenes in NMT 115
Figure 5-10: Distribution of Buildings in NMT 116
Figure 5-11: Distribution of Open Spaces in NMT 117
Figure 5-12: Morphological Structures of XAUAT and NMT 119
Figure 5-13: Axial Map of XAUAT (Global Integration) 125
Figure 5-14: Axial Map of NMT (Global Integration) 125
Figure 5-15: Integration Core of XAUAT 128
Figure 5-16: Longest Axial Lines in XAUAT 128
Figure 5-17: Integration Core of NMT 129
Figure 5-18: Longest Axial Lines in NMT 129
Figure 6-1: Percentages of Types of Activities in XAUAT 144
Figure 6-2: Percentages of Types of Activities in NMT 144
Figure 6-3: Distribution of Respondents' Frequency of Activities in the Public Space 149
Figure 6-4: Purpose of Walking in NMT and XAUAT 150
Figure 6-5: Frequency of Walking in NMT/XAUAT 153
Figure 6-6: MDS Plot of Frequency of Activities in XAUAT 156
Figure 6-7: MDS Plot of Frequency of Activities in NMT 156
Figure 6-8: Distribution of Respondents' Age Based on Their Frequency of Activities in the Public Settings 167
Figure 6-9: Distribution of Respondents' Education Levels Based on Their Frequency of Activities in the Public Settings 168

Figure 6-10: MDS Projection of Frequency of Activities in the Public Settings in NMT 168
Figure 6-11: Distribution of Respondents' Education Levels Based on Frequency of Activities in the Public Settings (XAUAT). 172
Figure 6-12: Distribution of Respondents' Age Based on Frequency of Activities in the Public Settings (XAUAT). 172
Figure 6-13: Distribution of Respondents' Length of Residence Based on Frequency of Activities in the Public Settings (XAUAT). 173
Figure 6-14: MDS Projection of Frequency of Activities in the Public Settings (XAUAT). 173
Figure 6-15: Distribution of Respondents' Numbers of Same Neighborhood Frequent Contacts (NMT and XAUAT) 179
Figure 6-16: Physical Distance between Respondents and His/Her Same Neighborhood Frequent Contact 184
Figure 7-1: Percentage of the Respondents' Rated Importance of the Various Motivations from Very Important (5) to Somewhat Important (4) in NMT. 196
Figure 7-2: Percentage of the Respondents' Rated Importance of the Various Motivations from Very Important (5) to Somewhat Important (4) in XAUAT. 197
Figure 7-3: Mean Values of Importance of Motivation Factors 200
Figure 7-4: MDS Plot of Respondents' Ranking of Motivation Factors 204
Figure 7-5: Motivation Factors in Relation to the Environmental Consciousness Model 206
Figure 7-6: Interrelationships between Motivation Factors (NMT) 209

Figure 7-7: Interrelationships between Motivation Factors (XAUAT)..... 212
Figure 7-8: Interrelationships between the Four Domains of Sense of Community. 216
Figure 7-9: Percentages of Survey Respondents Who Ranked the Factors Either "Very Closely Related" or "Closely Related" to the Sense of Community (XAUAT)..... 217
Figure 7-10: Interrelationships Between Factors Regarding the Sense of Community (XAUAT)..... 219
Figure 7-11: Revised Construct of the Sense of Community (XAUAT) 221
Figure 7-12: Percentages of Survey Respondents Who Ranked the Factors Either "Very Closely Related" or "Closely Related" to the Sense of Community (NMT)..... 222
Figure 7-13: Interrelationships between Factors Regarding the Sense of Community (NMT)..... 224
Figure 7-14: Revised Construct of the Sense of Community (NMT) 227
Figure 7-15: Two Primary Measures of Sense of Community in XAUAT and NMT.... 232
Figure 7-16: Evaluation of Sense of Community Using 12-item Instrument (XAUAT) 234
Figure 7-18: Evaluation Dimensions in the Cognitive Construct of Sense of Community (XAUAT)..... 236
Figure 7-19: Evaluation of Sense of Community Using 12-item Instrument (NMT). 238
Figure 7-20: Evaluation Dimensions in the Cognitive Construct of Sense of Community (NMT)..... 240
Figure 8-1: Development of Gatedness in Urban China..... 271

LIST OF APPENDICES

Appendix A: Principle Component Analysis Result Regarding the Factors of Sense of Community 297

Appendix B: Correlations between SESC and 12 Evaluation Items in the GMSC Instrument 301

Appendix C: Correlations of Respondents' Demographic Factors and Measures of Sense of Community 302

Appendix D: Chi-Square Test of Demographic Factors in Relation to Measures of Sense of Community 303

Appendix E: Correlations between Frequency of Using Public Settings and Measures of Sense of Community 305

Appendix F: Correlation between Motivation Factors and Sense of Community Measures 307

Appendix G: Original Sense of Community Index (SCI) 309

Appendix H: Survey Instrument 310

CHAPTER ONE: INTRODUCTION

This is a comparative study describing two types of gated residential settlements in China: the work-unit compound and the commodity gated community. The concept of gated community is now recognized as a global phenomenon. In China, it has gained such an unprecedented popularity that it has become the dominant development pattern in the today's housing market (Miao, 2003). These developments are often considered as an important part in the "global spread" of gated communities within a general context (e.g. Webster, Glasze, & Frantz, 2002).

However, gatedness is not a novelty in urban China. A former template of the enclosed residential compound, the work-unit, has been heavily built in China since the socialist planning and development period of the 1950s. Establishment and construction of work-unit structures has had a fundamental influence on the formation of the urban fabric during the pre-reform era before the 1980s, and its footprint remains on the current urban landscape. It has had a profound impact on both the visible and the invisible characteristics of the newly built gated communities. Meanwhile it has been undergoing a unique course of transition and development. Gated forms of residence in China exhibit more than a localized version of a global process; they have unique historical, political and socio-cultural rationales in their design, and embody unique ways of living.

This research focuses on the master-planned, middle-class gated

neighborhoods. Given the longevity and current pervasiveness of gated living in China, this study eschews the current emphasis in contemporary research on global phenomena, and aims to achieve a comprehensive and comparative description of gatedness from the everyday residential experience. This is achieved by investigating how the physical forms of communities are manifested, how the meanings of the "gatedness" and values of the community are perceived, and how gatedness shapes resident's social lives.

1.1 Gated Forms of Residence and Its Development in China

The gated community is normally defined as "walled or fenced housing developments, to which public access is restricted, characterized by legal agreements which tie the residents to a common code of conduct and collective responsibility for management" (Blakely & Snyder, 1997). Since notion of this concept in North America, neighborhoods increasingly are becoming gated residential zones with walls and fences, which were previously integrated within the larger shared civic space. The utility and popularity of gated communities is not limited to the US, but extends to virtually every corner of the world (Webster et al.., 2002). Despite increasing criticism of gated communities as a barrier to social interaction and equality, they provide features that cater to home buying needs and have achieved great marketing success.

Commodity-gated communities in China originated from the economic reforms of 1978. This practice gains support as evidenced in government policies and market interests, and has been accepted as the most conventional way to construct new buildings (Huang, 2006; Wu, 2005). Unlike in America and Europe, where gated communities are normally built for the rich and famous for security concerns, in China, the gated residence accommodates the majority of urban population with a wide range of socioeconomic backgrounds. It also presents great variety in terms of size, form, and degree of enclosure. The gated form of residence has become a

universal and dominating standard in the housing market. Alternative practices have been, for the most part, almost excluded in new constructions. Taking Shanghai as an example, 83 percent of all residential communities had been undergoing some forms of physical separation during the 1990s (Miao, 2003). And by the year of 2005, only about 4 percent of residential neighborhoods in urban areas were still in the open form (Gu, 2006).

However, gating is not a novelty in China. Its normative principle can be traced back to Zhou times (eleventh century to 256 BC) in the way of organizing the city into separating wards (Lu, 2006). Gatedness has been in existence and (re)development for thousands of years in Chinese cities (Wu, 2005). The "courtyard housing" (*sihuyuan*), an enclosed living space for extended families, was a typical example of urban gatedness, which was also the primary spatial unit of urban fabric in the modern era.

More relevant to today's gated communities, another enclosed residential form, the "work-unit", was widely constructed in socialist China. Founding of the new socialist country in 1949 was arguably the one of the most subversive turning point of society and space reformation in Chinese history. Under the principle of creating an egalitarian society, the communist party-state regime carried out a series of massive urban redevelopments. Soviet influence began to permeate every aspect of social organization and construction from the 1950s on. At this time the "*microdistric*" schema was introduced to China, which was later transformed into a unique working and residential settlement area called the "work unit" (*danwei*) (Lu, 2007). The socialist city was mainly an aggregate of such individual working-class

communities.

Work units are usually master-planned projects built for a single state-owned enterprise. These projects attempt to integrate working and living space in close territorial proximity, combining housing, workplace and the provision of social services. Its built form presents distinct physical features common in gated communities. For instance, the living quarters were generally developed with clear boundaries and walls, and gates were set up to mark the entrance and to control access. The work unit also has similar components to the new enclosed housing developments, such as multi-rise condominium clusters, community centers, central recreational spaces, and other attached amenities.

The remarkable similarity between the two types of gated settlement forms can be seen also in terms of collective living culture. Like gated communities, the work unit takes over responsibility for services and maintenance of urban housing from the local government. These services and facilities are provided to the work unit exclusively and collectively. It is believed that this helps to enhance a sense of community and to foster social solidarity on one hand (Huang, 2006); but on the other hand, it generates a social inequality imbalance between inside and outside (Huang, 2009; Wu, 2005b). This club style organization and the collective form of living in work units shares characteristics with the newly developed gated communities. Kinship between the two forms of gatedness is considered a continuation of the collectivist cultural tradition (Huang, 2006; Logan, 2011). Unlike in most western countries where modern urban landscapes are mostly wall-free to begin with, Chinese gatedenss is rooted within a persisting tradition, and is also local

in terms of physical form, social construction and implication.

However, today's commodity gated communities cannot be simply seen as a new generation of the work unit. The bulk of the existing literatures have concluded that the prevalence of new neighborhood enclosures is a spatial outcome that is inextricably embedded in ongoing social, economic, and political transformation (Pow, 2007; Qian, 2014; Wu, 2005; Wu & Webber, 2004). As in many western countries, the rise of gated community in China reflects the response to strategic governmental retreat and privatization of urban spaces. Since the nationwide launch of housing reform in 1998, local governments and socialist institutions have gradually stopped providing welfare-oriented housings to employees.

Previously subsidized public housing has been privatized through massive sell-off, while still remaining gated. New private commodity housing has begun to play a significant role in housing supply. In newly built developments, gating is employed to ensure the club style of housing and service provision to people of certain common interests, lifestyles, and affordability (Wu, 2005). In addition to market transition, the current gating phenomenon and its particular physical qualities are also accounts for the projection of the changing cultural landscape, for example: an increased fear of crimes due to a large scale rural-urban migration (Miao, 2003); and the urban nouveau riche's class self-awareness and their pursuit of prestige, privacy, individualism and identity in the gated style of living (Pow, 2007; Wu, 2004, 2005). In this respect, the new form of commodity enclosures has been fundamentally deconstructing the collectivist lifestyle and ideology characteristic of work units (Wu, 2005).

Despite the debates between the evolutionary and revolutionary approaches, both theories illustrate the particular link between work units and commodity-gated communities. With gating as the main theme, work units and gated communities are two protagonists on the stage of urban residential life. The notion of the strong linkage between two types of enclosures is inevitable when discussing the gating phenomenon in China.

Another fact of interest is that formation of today's gatedness in China is more developed through practice than directed by theories. Residential enclosures had been widely practiced for decades, even before the notion of "gated community" was introduced to China in late 1990s. The increasing level of concern regarding the negative social implications of gatedness do not change the fact that today, the majority of Chinese urban inhabitants are living within walls. To most of them, gatedness is neither an abstract design concept nor a symptom of social pathology. Instead, it is the default mode of urban residence, and is take-for-granted as everyday experience. However, the prevalence of gating does not make it less influential. Fundamentally, it impacts almost every aspect of people's lives, from the types of residence to the modes of transportation, from the routines of daily activities to the circle of socialization, from self-identification to the social cohesion. Thus, without acknowledging gating as an actual practice and a series of vivid life experiences, theoretical discourse of gatedness would be no more than an armchair critic with less significance and contribution.

1.2 Statement of Problem and Research Questions

Statement of Problems

There is a growing body of literature that has actively engaged in debates on the topic of Chinese gated communities from various perspectives, including social, political, economic, anthropological, urban geographical, and so forth. The majority of research has focused on gated community's socio-economic implications and policy-making consequences (e.g., Li & Huang, 2006; Miao, 2003; Chris Webster, Wu, & Zhao, 2006; Wu, 2005; Wu & Webber, 2004). Some scholars address the moral complexities and political influences of gated communities (e.g. Pow, 2009; Huang, 2006); while some other researchers focuses on the evolution of neighborhood design models and the related theories (e.g. Lu, 2006). However, extensive discussions of Chinese gatedness still leave a broad unexplored realm waiting for further investigations.

The existing body of literatures has reached a consensus that gatedness is a complexity with physical, moral, social, economic and political dimensions. Yet, the mainstream of the study focuses on the social and legalistic structure of gatedness, while paying little attention to the realm of physical form. Theoretical arguments on the economic, social and political discourses tend to see gatedness as an abstract concept, despite the fact that it also comes with substantial physical attributes and diversified real-world place experiences. Generalizability of those theories within a particular real life context remains challenging if the complexity and multifaceted

quality of gateness is not fully considered.

There are heated debates between detractors of the gated community forms who view it as symptomatic of the social segregation, and supporters who consider gatedness as either a legitimate cultural products or an efficient way of organizing public goods. Both sides of arguments are from policymakers and planners' perspective, concerning external influence of gating to the society. However, much less attention has been paid on the users of gated communities - their environmental experiences and psychological/social well-being. The macro-scale view on gatedness, though providing critical insights on their benefits or lack thereof to society, ignores the fact that gating is not an elitist privilege but rather a residential norm for the vast majority of Chinese people. Individuals' piecemeal gating experiences also contribute to the collective quality of urban life. Critiques of *how* gatedness matters would be rather arbitrary without a full investigation *what* gatedness includes and signifies from the place user's points of view.

Comprehensive empirical explorations, especially in the domain of architecture and urban design, are relatively scarce in the current discussion of gatedness. Existing studies on the physical environments are largely based on historical narration and theoretical interpretation of the design models and principles (e.g. Lu, 2006; Xu & Yang, 2009), while paying little attention to real case examinations. Emerging empirical studies in recent years are generally interested in the behavioral and cognitive aspects of the residential experience - such as exploring the moral implications of gatedness (e.g. Pow, 2009), behavioral patterns in the public settings (e.g. Wu, Wei & Wang, 2014), or assessment of sense of community

(e.g. S.-M. Li, Zhu, & Li, 2012). However, the social-spatial relationships are rarely investigated. The potential impacts of physical environments on individual behaviors, and psychological and social well-being are not fully discussed in the existing literatures. The absence of the comprehensive environment-behavior studies leaves an apparent gap between the theory and practice. More empirical investigations are required to provide practical assessment of gated communities in order to identify appropriate design guidelines for future projects.

Research Interest

This research examines two types of middle class gated residences – the work unit and the gated community. The primary interest of the research is not only a parallel comparison of the strengths and limitations of two types of gating, but also to achieve a comprehensive narrative of gatedness and its development in contemporary urban context in China.

Specifically, this research attempts to contribute to the existing body of literatures in four aspects: 1. to illustrate real-world phenomenon of gatedness deriving from empirical studies; 2. to obtain a comprehensive representation of psychological, socio-behavioral and physical components of the place experience of gatedness; 3. to frame the investigation through the place user's perspective, on an individual level, and at a small geographical scale; 4. to investigate the prototype of physical forms of gating and its development in the discourse of urban design and architecture; and 5. to highlight the social-spatial relationships in place-making.

Research Questions

With the primary goal of developing a comprehensive narrative of gatedness, this study seeks to answer a primary research question: *How is gatedness experienced from the occupants' perspective, on an individual level and at the small geographical scale in the contemporary urban China?* To explore this question, the place experiences in two gated settlements are unfolded on physical, psychological and socio-behavioral dimensions. The following set of sub-questions guide the empirical investigation of three aspects of place accordingly:

(1) What are the *morphological and configurational structures* of the two gated forms, and what are their relationships in the light of their historical and cultural contexts?

(2) In both case study neighborhoods, what are patterns of activities in the public settings and their interrelationships? What are residents' range of social networks and socialization patterns? And to what extent are people's *socio-behavioral patterns* related to spatial and non-spatial factors of the neighorhood?

(3) In both case study neighborhoods, what are residents' *motivations* in choosing the place to live? How do residents comprehend and experience a *"sense of community*"? And what are the influential factors that affect the perception of sense of community?

Based on the preliminary investigation, the conclusion chapter will further the scope of this study to include discussions of:

(4) How have *multiple aspects of physical form, psychological construct and*

real-life residential experience facilitated (re)construction of gatedness from the work unit to the commodity-gated community in modern China?

(5) What are *possibilities and capabilities of physical features*, especially morphological variations in site plans, that could minimize the negative consequences of gatedness concerning the environmental, psychological and social well-being of both place users and urban fabrics?

The research questions above will be further integrated into the theoretical framework proposed at the conclusion of the literature review chapter.

1.3 Structure of the Dissertation

This dissertation is composed of eight chapters.

Chapter one introduces the research backgrounds, defines the research interests and agenda, and situates the current study in the context of the existing body of literature.

Chapter two focuses on literature review. The first part of the chapter summarizes the theories and critiques regarding gated communities in the contexts of the Western countries and China, respectively. The second part reviews the methodological and theoretical arguments of *Place*, which further constructs the theoretical framework of this research.

Chapter three outlines the research design, methodology, related data collection and analysis tactics, and procedures employed in the study.

Chapter four, five, six and seven present the research results and discussions. Within them, chapter four analyzes the profiles of survey respondents to illustrate the demographical composition and socioeconomic backgrounds of two case study neighborhoods. Chapter five focuses on the physical aspects of gatedness. It presents the morphological and configurational characteristics of the neighborhood layouts and illustrates the relationship between two generations of gating. Chapter six examines the lived aspects of gatedness. It analyzes residents' behaviors and socializing patterns in the study sites, and discusses the spatial-behavioral dynamics

in place making. Chapter seven focuses on the cognitive aspects of gatedness. It first investigates residents' motivations of choosing the residence and analyzes its psychological structure. Following that, the conceptualization of "sense of community" derived from place user's perception is considered. The quality of "sense of community" is assessed employing the evaluation instrument, which is further related to physical, behavioral, social and demographic factors of the place.

Chapter eight summarizes the research findings of this study and discuss the development and implications of gatedness in urban China. Limitations of the current study and suggestions for the future works are also included at the end of the chapter.

1.4 Potential Audience of the Study

The findings of this study are of and value interest from two perspectives:

From the theoretical perspective, this study establishes an analytical framework by highlighting the dynamic relationship among physical, conceptual and social experiences in urban spaces. It enriches the debate surrounding gated communities by presenting a holistic understanding of the phenomenon in the discourse of architecture and urban design. It also highlights the significance of the unique socio-cultural momentums in Chinese urban contexts, facilitating insight on the literature concerning the global expansion of gated communities.

From the applied approach, this research bridges the gap between research and practice, which is meaningful to professionals who are closely engaged in development of gated communities, such as politicians, planners, architects, and urban designers. One of the goals of this research is to contribute to an understanding of the positive and negative externalities of gated communities and, accordingly, discusses whether and how to deal with the design issues and to appropriately respond to the pressing demand of gated communities.

CHAPTER TWO: LITERATURE REVIEW

In this chapter reviews the theories, themes and issues that are pertinent for this study. In particular, this chapter will first focus broadly on discussions of the "gated community" and its related concepts, including social and spatial realms of the "community", sense of the community, formation of the gatedness in the West and China, and their social implications. The second part of this chapter will showcase the significance of "place" theories in order to shed light on applicability of the chosen theoretical framework for this research.

2.1 Literature Review Regarding Gated Communities

Gated Communities and Related Theories

Relations of Social and Spatial Realms in Forming the "Community"

The most important ongoing discussion on the gated communities focuses on the political and social consequences of this specific spatial production. Gated communities have been generally considered as a physical "enclaves characterized by local control and collective ways of living (e.g., Blakely & Snyder, 1997; Mckenzie, 1994). However, some research in the literature contends that gated communities are not necessarily "communities," as their highly segregated landscape diminishes community cohesion, social integration, and sustainability (e.g., Miao, 2003; Wu, 2005). These arguments are based on the notion of the social and spatial realms in forming a "community". Before exploring the implication of "gating", it is important to first define the concepts and practices of the "community" and "neighborhood" in terms of their spatial territories and social functions.

Concepts of "neighborhood" and "community" are one of the most widely and frequently used terms in the realm of social science, although neither concept has precise and commonly-agreed-upon definitions (Rapport, 1996). General speaking, "neighborhood" often refers to a "definable, imaginable, and manageable residential area" (Kallus & Law-Yone, 2000). "Community" can be defined in two ways: one is *community of place*, referring to geographically defined groups such as

neighborhoods; the other is the *community of interest*, referring to an aspatial or extended-space group committed to a certain belief, job, or life style (Nasar & Julian, 1995). What is the relationship between the *community of interest* and the *community of place (neighborhood)*? To what extent do neighborhood physical designs portend a good community?

One approach of interpretation is based on an assumption of an organic relationship between human social connections and the physical environment. This approach suggests that the *community of place* plays a fundamental role in the ordering of the *community of interest*. The Chicago School of human ecologists in the 1920s was an early voice in this stream. They considered the neighborhood as a settlement to organize the social life of all people in one small district, and to bring neighbors, families, and different interests together. It was believed that deterioration of communities in large cities was due to unclear physical territories, where people lost attachment and face-to-face interactions (Park, 1925). Inspired by the same assumption, Perry (1929) suggests the "neighborhood unit" paradigm and provides a practical solution to neighborhood spatial design. His model emphasizes the idea of neighborhood with a clear physical definition, and it is used as a unit of development in the real estate industry. As well, his model offers technical solutions for traffic problems and endows the solutions with social significance – creating a sense of community. This model has had great influence on later suburban developments. The schema was introduced to China at early 20th century and became the archetype of formation of residential enclosures (Lu, 2006). However, this schema has also been criticized for over-simplifying multilayered relationships between people and social

networks, and over-emphasizing the socio-spatial connections in making of community (Banerjee & Baer 1984; Ye, 1999).

More relevant to development of gatedness, spatial territory and sense of boundary are also associated with crime inhibition in the residential settings. Oscar Newman (1972) introduced the concept of *defensible space* and its applications for creating vandalism-free environments. His research demonstrated that architecture designed with hierarchical order and clearly defined territoriality could enable residents to perceive belongingness and feel responsibility for their neighborhoods. Practices adopting *defensible space* are now commonly considered crime prevention through the urban design. This concept has also been largely utilized in later practices of gated communities. Proponents of gating believe that the walls or fences would enhance a feeling of ownership and responsibility, and the exclusive use of a private site would prevent any free-riding and unwanted visitors. However, this claim of enhanced security was questioned by Wilson-Doenges (2001). He suggested one of the critical failures of gated communities is over-reliance on physical territory for crime prevention - "without mutual responsibility, territorial functioning will not be optimal and may actually be harmed." His arguments challenge Newman's theory by suggesting that nonresident-initiated physical territoriality alone has limited ability to establish community responsibility and safety.

Opposite to the above approach, a non-correspondence relationship between *community of place* and *community of interest* are argued by a group of sociologists. Webber (1970), Fischer (1982), and Lee and Newby (1983) claim that humans are not necessarily tied together within the spatial neighborhoods. Rather, modern

communication allows people to develop extensive social networks based on common interests and kinship. Spatial proximity is no longer important for social relations (Webber, 1970), which means community does not correlate with the existence of neighborhoods. However, this argument runs the risk of greatly undermining social-spatial integration in urban areas. It is believed in environment and behavior research that physical characteristics may constitute, constrain, and mediate people's activities, not in deterministic way, but rather in terms of possibilities and probabilities (Jacobs & Appleyard, 1987). The argument of the non-correspondence between *community of place* and *community of interest* is not widely accepted, as people still believe that neighborhoods are important for the quality of life – even if residents are not dependent on it for social contact or livelihood (Banerjee & Baer, 1984).

Hillier and Hanson (1984)'s arguments of "natural movement" futher demonstrates the possibilities and probabilities that space attributes contribute on place making (Jacobs & Appleyard, 1987). Different from both of the aforementioned views, Hillier and Hanson (1984) attempt to introduce a third relationship – structured non-correspondence of spatial organization and social groups. Their theory accepts the heterogeneous relationship between space and social relations by suggesting two kinds of grouping that occur simultaneously: *spatial* by virtue of physical proximity, and *trans-spatial* by belonging to a certain social category. If people in the same social category physically cluster, they have correspondence between spatial and trans-spatial groups, and those two identities reinforce one another. But in reality, people's social relationships are normally across space such

that spatial and trans-spatial groups are non-corresponding. In this case, "space plays a positive role in generating and controlling this heterogeneity." (Hillier & Hanson, 1984) Spatial structures of the urban fabric generate and organize the "natural movements," through which the encounters and interaction among people from different social categories become possible. That said, patterns of social action and organization may be predictable by studying the global structure of the space – the configuration of the street system, for example. Thus, the socio-spatial dynamic is significant in the formation of community. "Space can reassemble what society divides," as Hillier and Hanson contend (1984).

In a phenomenological approach, David Seamon (2007) later supplemented Hillier and Hanson's arguments of place making. He suggests that place making is realized through a group of people's habitual patterns meeting in time and space – the habitual patterns that a person/group take for granted and of which they are typically unaware. Topological quality of the space provides one dynamic of forming the habitual pattern. However, in the real-world environment, non-spatial factors, such as the mode of encountering, types of people involved in the encountering, and the way in which they become attuned to each other are also essential parts of the habitual pattern, which both sustains and is sustained by the sense of the place. That said, formation of the community is related to the logic of both spatial and non-spatial habitual patterns. Beside morphological studies, phenomenological investigations are also necessary to understand logic of place making in the residential environment.

More relevant to this study, Brunn (2006)'s arguments on gated communities

address three interrelated concept about the "gatedness of life": *gated communities*, *gated lives, a*nd *gated minds*. *Gated communities* refer to physical areas and settings. *Gated lives* refer to those living in gated communities or living segregated and being apart from other in other forms. *Gated minds* are defined as the kind of thinking that are prejudicial and stereotypical of others' lifestyle, ethnicity, religious practice, skin colors, and etc. He especially emphasizes that the relationships between these three aspects are not always consistent or straightforward. That is, gated forms of residence do not necessarily lead to gated lives or gated minds; and also, one can possibly have a gated mind or a gated way of life but not live in a gated community. The highlight of Brunn's argument is that it points out the dynamic between the social, psychological, and physical aspects. Contribution of each aspect in formation of gatedness needs to be studied in a specific context.

Above discussions regarding formation of communities also highlight the significance of the concept of "*sense of community*".

What gives a sense of community? McMillan and Chavis (1986) present a psychological approach, positing that: "sense of community is a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be meet through their commitment together." They further propose a construct of sense of community with four basic elements: membership, influence, interactions and fulfillment of need, and shared emotional connections.

"Membership" refers to people's devotion of the community, including the feeling of boundaries, emotional safely, belongingness and identification, as well as

personal investments and the organization's common symbol system. The second element -"influence" refers to a two-way interaction between individuals and the organization: community cohesion requires that members receive influence from the group, as well as feeling that they have influence upon the group. "Interaction and fulfillment of need" indicates the feeling of being motivated and rewarded as a member of the community. The needs refer to more than survival, including that one is desired and valued. The last element, "shared emotional connection", includes shared history, shared participation, similar goals and purpose among members.

McMillan and Chavis (1986)'s psychological construct of "sense of community" is the most broadly validated and widely unitized theory in the area of the community study. Its assessment instrument, *Sense of Community Index (SCI),* was developed primarily for the study of residential environment (McMillan & Chavis, 1986). Its reliability has been assessed by numerous empirical studies in various types of neighborhoods and in different cultures and contexts (Kloos & Townley, 2009; Long & Perkins, 2003). The instrument is adopted in this study to measure the psychological sense of community in gated neighborhoods.

However, the community of place (physical domains) is excluded in McMillian and Chavis (1986)'s realm of inquiry. In one recent empirical study, Kim and Kaplan (2004) suggest a more comprehensive framework to address the sense of community in relation to physical attributes in residential settings. Based on the context of the New Urbanism neighborhood, they identified a four-domain framework for assessing the sense of community through *pedestrianism, social interaction, community identity,* and *community attachment* (Figure 2-1). Within these four domains, pedestrianism

and social interaction are activity based, while community identity and community attachment are based on meaning. Other constructs at play in this model are the trajectories of the individual/personal to the collective/public social, and from physical (which includes aesthetics) to psychological. One highlight of this framework is that it incorporates the social and physical components of the community and bridges the gap between them. Because this model focuses on the perceived role of physical features from users' perspectives, it overcomes the limitation of Newman's spatially defined territory theory. In applying this model to empirical studies, this instrument has special strength for evaluating how physical designs fulfill their promise of social outcomes.

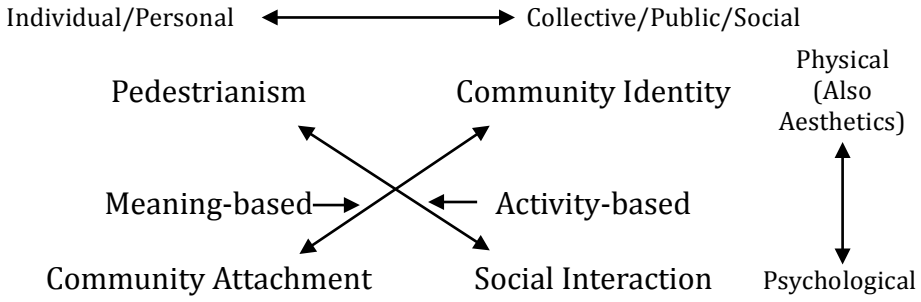


Figure 2-1: Domain of Sense of Community and Hypothesized Relationships (Kim & Kaplan, 2004)

Debates about concepts of community and neighborhood are key at comprehending the socio-spatial relationship of gated communities. Arguments from the Chicago School and Webber both contribute to explaining this relationship; however, both may only be partially true. The neighborhood is a complex and multi-faceted concept and it is dangerous to understand it as a simple entity, either defined by spatial territory or social ties. In the literature of the gated community, physical

boundaries are generally considered to be the cause of social segregation, therefore resulting in the decline of pubic spaces. This argument, however, may exaggerate the role that physical features play in social segregation. As Marcuse (1997) has argued, rather than its visible gated form, the invisible, political-economic barriers of the gated community are the decisive factors determining the social relationship between gated communities and outsiders. However, suggesting that urban society is organized functionally but not spatially is also problematic. This perspective risks on underestimating the capacities of physical features in reconciling the social and spatial relationships.

Hillier and Hanson's approach focuses on the cross-spatial relationship and also on how the spatial patterns of neighborhoods foster and create social connections through concentrating and channeling probabilistic co-presence and encounter within a shared space. This theory views the neighborhood as a much looser structure and integrates it in the larger context of the urban form (Hillier & Hanson, 1984). In the research of the gated community, this theory investigates the potential capacities of physical dimension in formation of the community. Seamon's phenomenological approach provides another dimension to investigate the non-spatial habitual patterns in place making.

In investigation of the sense of community, McMillian and Chavis's theory and construct provide a practical and powerful instrument for assessment in the psychological domain. Meanwhile, Kim's four-domain construct incorporates physical and psychological aspects under the umbrella of the sense of the community, which is especially inspiring for examination of the socio-spatial relationships in residential

settings.

Growth of Gated Communities

Gated communities are a worldwide urban phenomenon. However, their developmental histories vary among countries and cultures. This section first reviews the development of gated communities in the United States, representing cases specific to Western culture, and then discusses its practice in urban China.

Development of gated communities in America

In the West, contemporary America leads in the revolution of gated communities, because of its spacious land resources and tradition of suburban residence (Low, 2003). Development of gated communities is one of the latest productions of suburbanism in America. More specifically, it arose from the practice of master-planned communities initiated in the early 20th century.

Master-planned communities refer to a large residential development where amenities are factored into the planning before construction. Its development is based on the assumption that the properly planned neighborhood is able to meet basic human needs and moral requirements, thus promoting healthy social relationships. Private developers exclusively create a residential subdivision in rural land in order to balance the housing demand with development costs and transportation opportunities (Moudon, 1989). After the rapid growth of the 20th century, the master-planned community has typically been a combination of residence types, retail, and additional complementary uses, as well as aesthetic unity. In a wide variety of scales and forms, master-planned communities in the US share

characteristics in common. They can be distinguished from traditional suburban neighborhoods from the perspective of "place-making"(Dowling & McGuirk, 2006), with remarkable features of homogeneous housing type and appearance and frequently distinctive visual symbols of the neighborhood (Lansing, Marans et al..., 1970; Warrick & Alexander, 1998). Master-planned communities are built on the social and economic value of suburbia in terms of exurban location and auto-reliance, reflecting social homogeneity, individualism, and privacy.

The gated community is one of the recent formats of master-planned communities. "They are security developments with designated perimeters, usually walls or fences, and controlled entrances that are intended to prevent penetration by non-residents." (Blakely & Snyder, 1997) While adopting homogeneous design features and the suburbanism values of the conventional master-planned developments, gated communities provide two unique features: First and most obvious is their physical barriers such as walls, gates, and a range of other security measures, aimed at restricting access into the area. Second, gated communities have somewhat ambiguous private and collective characteristics - many amenities are collectively shared by the whole community but privately owned by residents within the gate. This type of collective ownership and collective interests on certain housing features are endorsed by some legal forms. Residents are required to become members of the association to manage the property, while "others" outside the gates could therefore legitimately be excluded. These two unique features distinguish gated communities from other development forms, making it not only a physical, but also a legitimate and ideological urban design concept.

According to different degrees of social dimension or values, Blakely and Snyder identified three main types of gated communities in the United States, which have been largely accepted in the field of the gated community research. They are: (1) lifestyle communities - where gates provide security for leisure activities; (2) elite or prestige communities which are not very different from ordinary residential areas, but the gates constitute a form of social distinction and a symbol of prestige; and (3) security zone communities where the motivation of gates is fear of crime and outsiders (Blakely & Snyder, 1997) (See Table 2-1). They further suggested the imbedded two-faceted nature of the gated community with notions of both personal well-being and common goodness. They argued that gated communities manifest a sets of social tensions "between exclusionary aspirations rooted in fear and protection of privilege and the values of civic responsibility; between the trend toward privatization of public services and the ideals of the public good and general welfare; and between the need for personal and community control of the environment and the dangers of making outsiders fellow citizens" (Blakely & Snyder, 1997).

	Lifestyle	Prestige	Security Zone
Sense of Community	Tertiary	Tertiary	Secondary
Exclusion	Secondary	Secondary	Primary
Privatization	Primary	Primary	Tertiary
Stability	Secondary	Primary	Secondary

Table 2-1: Types of gated communities and social values in the United States (Blakely &Snyder, 1997)

Development of gated communities in China

The modern form of master-planned communities is believed to have emerged in China in the early twentieth century (Lu, 2006; Li, Zhu et al..., 2012). It was first formed by introducing Howard's concept of the Garden City and Perry's neighborhood unit schema, along with practices found in some cities such as Shanghai and Beijing. During the early socialist construction period in the 1950s, Soviet influence began to permeate every aspect of Chinese urban reconstruction. The super-block schema rather than the neighborhood unit was widely transplanted to China by Soviet advisors. They believed that, "unlike the latter, which was isolated in the suburb, the super-block was an "organic component" of the city and a more economical approach to urban construction." (Lu, 2006). However, this model was soon found to be problematic in many respects due to unsuccessfully considering Chinese geographic, social, and cultural contexts. It was later reshaped into more flexible and compact plans by local planners. Planning norms were established as the dominant residential paradigm in the work-unit community since the late 1950s, and grew to maturity in the following 30 years. Accordingly, urban residential areas were mainly developed by individual state-owned enterprises into work unit compounds. The urban space presented a basically cellular structure consisting of semi-independent work unit compounds, each of which was in effect a mini-society. In the name of security and with the need to define boundaries, work-unit compounds were largely walled and gated (Lu, 2006). The roads inside the community were deliberately enclosed to prevent through traffic. The journey to work, which was generally by foot or bicycle, was short due to housing and employment normally

located in the same or an adjacent site.

Other than gating, two remarkable features of work-unit compounds are mixed use and mixed social classes. Depending on its scale, a work unit also provided other services and amenities, such as schools, post offices, grocery stores, restaurants, and so on. The work unit compound was also considered as an enclosed form characterized by social diversity (Wang & Murie, 2000; Wu, 2005). Under the principle of egalitarianism, housing allocation in work units was welfare oriented, and based on a set of non-monetary factors such as job rank, seniority, and marital status. It made the work unit an overall homogenous residential setting where uniform apartment buildings accommodated employees from high-ranking officials to ordinary workers, so that it was impossible to label the work unit as a housing area for a certain class. Therefore, work-unit evolved into self-sufficient microsocieties marked by high levels of functional and social integration (Douglass, Wissink et al.., 2012).

Commodity housing was introduced to China, when the post-1978 economic reform was initiated. The shift from a planned to a market economy significantly reshaped social and spatial forms in urban China. The radical 1998 housing reform, which allowed private ownership, not only privatized the welfare housing in state-owned work units, but also stimulated the real estate industry as an anchor of the economic growth (Lin, 2007).

As a consequence, the new master-planned commodity housing estates have been rapidly dominating redeveloped inner-city neighborhoods and newly developed suburban districts. These estates come in a variety of shapes and sizes, as well as and

the amenities; however, they are almost exclusively master-planned and developed, and presented many features of gated communities in the West, such as spatial enclosures with secured gates, walls, and fences; security personnel; and contracts with property management companies (Wang & Murie, 2000). The architectural design has also largely been selected from broad cultural repertoires of European and US styles, ranging from "the American," "the Baroque," "the Classic European," "the Nordic," etc. (King & Kusno, 2000). These features cater to the needs of the upwardly mobile and rapidly expanding urban middle class by providing a "good-life" with prefigured lifestyles, property-associated interests, elite status, and identities (Huang, 2006; Pow, 2009).

Economic and housing reform has also substantially caused the decline of the work unit. This is true especially in the "sunset industry", with increasing numbers of employees being laid off, enterprises undergoing bankruptcy, local governments taking over the traditional welfare responsibilies in the factory housing complex. Inferior housing quality in those declining neighborhoods caused many residents to relocate to better houses elsewhere, leaving the less prosperous behind. Many of those neighborhoods have been demolished and replaced by the new built gated communities in the construction boom, while the ones that survived have gradually become the shelters of the remaining low-wage laborers and have attracted low-income rural migrants with low rents (Douglass, Wissink et al.., 2012). Meanwhile, some work units became comparatively privileged in their locations, with access to services and housing stock - "most notably university and research institutes, government organizations, and state enterprises that survived the reforms through

their control over such monopolies as energy, railways, and telecommunications" (Douglass, Wissink et al.., 2012). Housing was sold to residents at very low prices during the housing reform. Some scholars consider these homes as one type of gated commodity housing among others (Webster, Wu et al.., 2006), while Wang and Murie (2000) argue that, even today, institutional ownership still plays an important role in the restructuring of urban forms. Thus Chinese cities will not be similar to cities in other market economies until the work-unit sector has been completely absorbed into the new market system.

Compared to their counterparts in the West with their remarkable suburban ambience, modern Chinese master-planned communities have the following unique features:

First, unlike in the West, gating in China is beyond an optional residential form. The majority of urban housing stocks, whether in preexisting work unit compounds or newly developed communities, are walled and gated, so much so that gatedness has been accepted and expected as the only residential standard in both the suburban and central cities (Miao, 2003).

Second, compared to its Western counterpart, housing development in China is highly regulated by the zoning code in consideration of their functional, social, and political roles with regard to their service to the city as a whole, and substantially supported by government agencies (Hsing, 2010; Douglass, Wissink et al.., 2012). This caused locations and forms of the Chinese gated community to have distinctive features. Residential development during the socialist period seldom followed regular economic principles of urban growth. For instance, some government

residential zones were planned next to government institutions in the very center of the city, foregoing the high land values. The production of new housing estates was also substantially influenced by the state and local government agencies. Beyond regulations efforts, government agencies remain actively involved in urban developments as well. State enterprises are highly competitive over income from land lease and residential construction, and also own a considerable number of domestic developers (Hsing, 2010; Douglass, Wissink et al.., 2012). As a result of the land-enclosure movement and land appropriation stimulated by local government, the newly developed housing estates can easily obtain large tracts of land by dispossessing tons of people from their landed assets (Zhang, 2007; Douglass, Wissink et al.., 2012). Newly built gated communities hence tend to be larger in area than those in most other countries (Miao, 2003). They typically cover 11 to 20 acres and house 2000-3000 families, with densities ranging 5 to10 times higher than in the United States (Douglass, Wissink et al..; 2012).

Third, physical forms of Chinese master-planned communities have distinct urban-oriented features compared to the suburban developments of their counterparts in the West. Work unit compounds are generally characterized by self-containment, mixed-use, high density; are pedestrian friendly, and reliant on public transit. The new trends of commodity housing developments, even when approaching the city periphery, still maintain most of their urban development features in terms of high density, accommodation of pedestrians, and provision of public transportation (Wang & Murie, 2000; Douglass, Wissink et al., 2012). To accommodate high density, buildings are primarily multistoried, typically ranging

from 6-story walk-ups to 10-story-plus high-rise (Douglass, Wissink et al.., 2012). Both types of residence are strongly attached to the city by means of administration, employment, recreation, transportation, and sense of belonging.

In summary, master-planned communities in China develop through continuously translating, selecting, and reinventing foreign models. They have also been shaped and reshaped by various political and economic forces. At a certain level, this new trend of development reflects the general suburban values of their Western counterparts - in terms of the separation of employment and residence, and the creation of class-segregated residential space (Fishman, 1987). Meanwhile, they still maintain distinctive high-density, urban-oriented features. This indicates that the future of master-planned development in China may not necessarily follow the same track as Western patterns; rather, it should be studied in the particular context of China's culture, economics, and politics.

Gated Communities and Social Implications in the West

Driving Forces

The issue of gated communities has attracted growing attention in the past decade because it will have a major impact on the form and function of future cities. To understand the rapid growth of gated communities, scholars from different areas have discussed the motivating forces behind them and have put forth arguments to explain these forces from sociology and economic perspectives.

The sociological arguments understand gating as a response to existing social segregation. As Low (2001) pointed out, the economic restructuring of the 1970s and

80s intensified polarization of social classes resulting from uneven allocation of capital. Two social groups, the "haves" and "have-nots," in turn, "imprint themselves physically on the urban structure through the formation of communities, competition for territory, and segregation, through cluster, the erection of boundaries, and establishing distance" (Low, 2001). Additionally, the long history of racism and racial discrimination is another critical force in the United States. Le Goix (2005) found that in Los Angeles gated projects are often located within homogenous ethnic areas. Residential enclosures act as buffer zones protecting the community from surrounding heterogeneous neighborhoods. Gated communities have been linked to increased social segregation by race and class at a local scale.

More often a fear of crime is believed to directly result in the development of gated communities (Blackly & Snyder, 1997; Low, 2003; Sanchez, Lang et al., 2005). Security is the overriding motivational factor identified by residents for moving into gated communities, irrespective of community size and type (Blackly & Snyder, 1997). An increasing sense of fear is associated with both environmental deterioration and social unrest in contemporary cities. Political and economic restructuring, increased mobility, and new technologies also have weakened existing social relations, which may in turn exacerbate the sense of insecurity (Low, 2001). Moreover, it is believed that a culture of fear is intensified by media reports and news from other "professional narrators" about crime and violence (Glassner, 1999). Ironically, increasing studies conclude that gates have no significant effect on crime prevention (Blackly & Snyder, 1997; Low, 2001; Wilson-Doenges, 2001). On the contrary, crime prevention through environmental design (CPTED) in gated

communities passes the responsibility for vigilance on to a hired security force or an electronic code system. This, in turn, makes the residents feel less responsibility for the area and they are less likely to keep watch on suspicious people or activities in the neighborhood (Sanchez, Lang et al.., 2005).

More complex motivations of moving into gated communities were addressed, such as pursuing a sense of community and the desire for status and common interests. Ability and willingness to pay for the segregation and services offered by gated communities has driven much of the market for the construction of new gated residences. This is especially true of prestige and life-style gated communities (Blakely & Synder, 1997; Wilson-Doenges, 2001). As Pow (2009) points out, "…, the development of gated communities has been shaped by (and in turn shapes) the changing tastes and lifestyles of upper and middle-class residents who see gated living as offering promises of the good life."

Other researchers look at the economic influences on the development of gated communities. They suggest that governments, developers, and homebuyers use gating as a management vehicle to relocate public resources to different socio-economic groups.

Development of gated communities is believed to be a spatial outcome of the privatization of urban spaces. The libertarian political-economy perspective believes that the public provision of collective goods and services is inefficient due to a lack of competition and interest differences between social groups; thus the supply of public goods is often skewed toward the most powerful interests (Le Goix & Webster, 2006). Manzi and Smith-Bowers (2005) introduced the theory of club goods (Buchanan,

1965) to explain gating. They argue that gated communities are that type of product "which like private goods had excludable benefits but was allocated through groups." Gated communities in economic terms are property developed through the collective action of individuals for mutual benefit. It ensures that the interest group has accessibility to a range of scarce goods, such as secure, guaranteed parking and common standards for property appearance, but within an efficient range of cost.

Privatization of public services in gated communities that have been traditionally provided by municipal government results in increasing of tax revenues with minimal public expenditure. As the consequence, gated communities are supported by some local government policies, such as in Las Vegas. Because gating contributes to protect the real-estate investment from market fluctuations, a significant spillover effect has been found consequently - even existing neighborhoods are under pressure to become private communities (McKenzie, 2005; Le Goix, 2006). Another direct outcome is privatization of public spaces is that the quality of traditional public spaces has been critically worsened due to state retreat and strained public resources. Environmental deterioration further increases the sense of insecurity and individual disengagement (Smith-Bowers & Manzi, 2006). In this regard, the rise of gated communities and decline of public spaces are mutually reinforcing. Thus, it is believed that the market demand for gated communities will continue to rise and become even stronger as long as this political-economic context is sustained (Xu & Yang, 2008).

Social Sustainability of the Gated Community

The social sustainability of gated communities is the most frequently

discussed theme of the many issues related to gated communities. Especially in the US, segregation in terms of income and race is a sensitive topic in residential communities and is of wide concern to many researchers. Bramley (2009) proposed two main dimensions for social sustainability. The first dimension is related to social equity on accessibility to service and facilities. The second dimension is the sustainability/well-being of the community concerning issues of interaction, community participation, sense of place, and security. Based on this definition, the social sustainability of gated communities can be examined as two issues: 1. social segregation/integration between inside and outside; and 2. community cohesion within the community walls.

Mainstream arguments consider gating resulting in increasing levels of social division between rich and poor (e.g. Blackly & Snyder, 1997; Glasze, 2005; Low, 2003;). While blocking undesirables outside, residents of gated communities may simultaneously break their social link with society. Low (2003) has argued in his research that residents in gated communities are concerned more about social order, control, mobility, and fear of crime, and are motivated by xenophobia, ethnocentrism, class consciousness, and status anxiety. Segregation is thus an implicit aim of choosing gated living.

Gated communities may also intensify the negative factors in the adjacent area. For example, empirical evidences suggest that gating may be associated with increased crime rates (Helsley & Strange, 1999) or decreased property values (Le Goix, 2007) in surrounding non-gated neighborhoods. These processes further increase the overall differentiation between gated communities and their vicinities,

which may result in two consequences: first, it will significantly intensify disagreements between the two communities due to benefit conflicts; and second, non-gated communities may convert to gated ones in order to prevent diseconomies (Helsley & Strange, 1999). Either way, spatial and social segregation may spread over a wider physical range for a longer period of time. A long-term consequence, as mentioned before, is that reduced government tax income may further cause the compromised quality of public space and intensify uneven development, which, in turn could reinforce segregation in local areas (Blandy, Lister et al., 2003).

However, conventional negative accounts of gated communities have been challenged by other studies. Marcuse (1997) argued that it is serious urban sprawl instead of gating that fundamentally causes social/spatial segregation in contemporary urban spaces. Unlike conventional suburban neighborhoods, gated communities provide acceptable living conditions and more possibilities for the settling of diverse groups within a proximate territory, such as in inner cities with more compact and mixed living conditions (Webster, 2001). In this sense, gated communities are relatively sustainable in their potential to reverse the trend of low-density suburban sprawl. More empirical evidences suggests that upper class gated communities may bring positive externalities to local communities, such as roads, stores, jobs, and an improved reputation to peripheral districts. In this regard, gated communities may create segregations on a small scale but may improve integration over a larger area (Sabatini, Caceres et al., 2001; Salcedo & Torres, 2004).

Regarding whether the physical barriers are able to increase the neighborhood bond within gated communities, the existing body of literature holds

mixed opinions as well. Those who are optimistic believes that gating would be a useful vehicle for creating strong local communities, and a mechanism for active participation and communication. Developers and buyers tend to accept the idea, seeing gated communities not only as about housing but are a form of direct democracy, a means of local control and self-determination to bring neighbors with common interests together. Proponents of this argument always relate it with Newman's theory of territoriality (Newman, 1972), suggesting that physical territory with a clear boundary is associated with reduced crime and a higher perceived sense of community. Lang and Danielson (1997) summarized a Fannie Mae sponsored panel discussion about gated communities in the US. They concluded that gated communities in fact had delivered on their promise of reduced risk and inward-focused community culture - despite these benefits entailing a high social cost such as increased segregation.

However, other empirical studies arrive at opposite conclusions, suggesting that compared with their no-gate counterparts, residents in gated communities either perceived less (Alexander, 1994; Castell, 1997) or about the same (Blackly & Snyder, 1997; Wilson-Doenges, 2001) level of sense of community with their neighborhoods. The following factors may be relevant to the lower level of cohesiveness in gated communities.

Lack of cohesiveness in gated communities is due to the "common interest" and largely focused on privacy, safety, and socioeconomic backgrounds rather than personal involvement and community values. For example, Wilson-Doenges (2001) found that residents in high-income gated communities ascribed low levels of

importance to the sense of community and participation, and less acknowledgement of common goals and interests among residents. Moreover, residents no longer rely on direct face-to-face contacts and mutual assistance, and thus lose neighboring connectedness (Blackly & Snyder, 1997; Wilson-Doenges, 2001; Sanchez, Lang et al., 2005). As Jacob (1961) mentioned, "eyes on street" or community surveillance is an important part of the territorial puzzle. Mutual community responsibility is the key to successful territorial functioning. This connection is deteriorated when residents have less responsibility for community safety and maintenance, but instead rely on a private security force employed by the association. In addition, Wilson-Doenges (2001) realized that fear of crime itself can also affect quality of life by leading people into a false sense of insecurity, keeping them from social activities.

However, due to profit-concerns of developers and investors, home buyers' fear of crime, and ambiguous relationships between local governments and gated communities, this development will continue in the future. Notable evidence of this is that gated communities are widely accepted by younger population (Blandy, Lister, et al., 2003). The next generation, growing up in gated communities may have less accessibility to the outside, and thus may be more reluctant to appreciate traditional community values (Low, 2003).

In summary, development of gated communities has been associated with negative and positive social impacts. The heated but controversial debates among scholars indicate that, although development of gated communities is a global trend, they are derived from cases with greatly varied political, economic, and cultural contexts. Rather than reaching a universal consensus, it is more practical to be aware

of the local forces involved and to discuss each case based on specific context.

Gated Communities and Social Implications in China

Over the last decade, many sociologists and urban planners have paid attention to the rapid rise of gated communities in China. Considerable insightful ideas and discussions have been initiated, and much influential research has been published within the domain of the social, economic, and political issues. This section will review two themes appearing in the literature. The first part of the discussion examines the driving forces of transformation of gating in urban China. The next section focuses on the social implications of both forms of work unit and commodity gated communities.

The Forming of Gated Communities – Reconstruction versus Deconstruction

After a substantial overhaul of the socialist system of housing distribution, gated communities in China have rapidly replaced various forms of conventional residential compounds and traditional courtyard dwellings, and have led to a massive privatization of the housing stock. Transformation from a socialist centrally planned economy to a socialist market economy, and from institutionalized to privatized ways of residence has produced distinct built-environment features and socio-occupational mixes in Chinese gating that is significantly different from the Western experience. Two approaches of examination in existing body of literatures attempt to explain the underlying dynamics of this transition.

The first approach sees this transition as the result of the reproduction of the physical, cultural, social, and political forms either from the West or from Chinese

tradition. We refer this type of interpretation as “reconstruction.”

One argument from this approach understands the development of Chinese gated communities as a branch of the “global gated” phenomenon, and a sign of the global trends of privatization. By mimicking Western residential forms, Chinese elites reproduce Western lifestyles signifiers of first-world modernity forms (e.g., Atkinson & Blandy, 2005, Glasze, 2006; Webster, Glasze et al.., 2002). However, this view has been largely criticized for it overemphasis on the “subjugation of China’s cities and its citizens to the homogenizing effects of marketization, social stratification and globalization” (Tomba, 2005).

Another argument considers the gated communities as a recent episode along the historical continuum of China’s gating urbanization (Bray, 2005; Miao, 2003; Xu & Yang, 2009). This argument highlights the evolution path of spatial forms, from the walled cities and courtyard housing, to the work unit compound, and then to the new form of gated developments, to suggest that the cultural and socialist legacies of China’s “collectivist-oriented culture” and strong political control may constitute some of the underlying reasons behind the present phenomenon of gatedness (Huang, 2006). Those arguments raise questions about the relationship between social space and physical space - do gated places result from gated mindsets and can this become patterns over time? Some empirical studies confirm this suggestion, finding that Chinese residents regard high walls and a strong defense system as stemming from culture and tradition more than from a “discourse of fear” or any other factors commonly addressed in other contexts (Pow, 2009). However, such “culturalist” explanations are also criticized for over-emphasizing genealogy over

political and social forces. Tomba (2005) argued that, to explain away the modern gating phenomenon in contemporary Chinese cities as the product of an immutable cultural tradition or social norm is clearly to ignore the complexities of urban change and its underlying social-cultural process.

Different from the notion of "reconstruction," other researchers suggest an alternative approach, seeing the gating and privatization of residential spaces as the "deconstruction" of previous spatial, social, and political structures.

These arguments are established by comparing the models of work-units and the newly developed gated communities. As Wu (1995; 2004a; 2004b; 2005) suggests, from its appearance, the work-unit compound conforms to the definition of a gated community, and it actually served as the basic organization of a "totalitarian" society. The dominant structure of urban governance in the pre-reform period is characterized by state hierarchical control through the work-unit system, and was complemented by local governments ranging from municipality, district government, and street office to residents' committees. The existence of the work-unit ensures the government's organizing and monitoring of the residents and employees. The emergence of commodity housing enclaves has changed the way in which urban communities are managed. The homeowners' associations have begun to compete with residents' committees. These used to serve as the most basic organizational unit to undertake the tasks assigned by the government, such as maintenance of public order and basic welfare provision. Communities have experienced the transition from administrative dominance by residents' committees to self-governance led by homeowners' associations. Through these changes, Wu (2005) proposes that, in the

gated community, “the purpose of gating is to demarcate boundaries rather than to build all-inclusive relations.” Rather than fear of crime, gating in China reflects residents’ fear of collectivism experienced in the pre-reform work-unit communities. Deconstruction of “community” from under the hegemonic control and interference of the state is actually the purpose of the gatedness – to create a private space and to foster individualism. The expectation of privatization can also be shown through introducing the Western image of cityscapes and architectural motifs into neighborhood designs. A new version of the “good life” is selling in gated communities to replace the way of life of the socialist era (Wu, 2004). Pow (2009)’s research in Shanghai’s gated enclaves further demonstrates that gatedness is “the key sites of and for middle-class spatial formation, where class cultural practices and place-making strategies are enacted and where nascent class identities are bring cultivated, staged and contested.”

Wu (2005) also points out that the Chinese government now actively promotes a shift of governance from hierarchical state control to territorial-based management. Gating is welcomed in this situation by providing an image of a “safer living environment” without government surveillance. However, Huang (2005) and Tomba (2010) argued that gatedness actually facilitates the state governance by introducing privately managed but politically realizable forms of urban self-administration. From another perspective, Li (2007) sees this transition as a social progress, as the territorial-based managements have somehow brought community in the social sense back to the urban life.

Social Implications of Gatedness in China

Widespread mega-construction of gated communities and their dramatic impact on the urban form in China today has drawn increasing attention in the urban study area. The previous interpretations generally see the Chinese gated communities as a form of gateness spreading around the world, and hence mainly focus on the negative social implications of the gatedness as in many other countries (e.g.. Miao, 2003; Wang, & Murrie, 2000; Wu, 2005;). However, in recent years, scholars increasingly stress the need for a discussion of gatedness concerning specific Chinese urban characteristics (e.g. Douglass, Wissink et al., 2012; Huang, 2006; Pow, 2009; Xu & Yang, 2009;). They suggest that without denying the potentially social consequeces of gatedness, fewer negative intepretations of those consequences are possible as well when judging in terms of the local context.

The following section will accordingly review literatures regarding social implications of gatedness in China focusing on three issues: 1. social segregation/integration and inequality; 2. community cohension in the gated neighborhoods; and 3. other residential experiences, incluidng living quality, privacy, security, and general satisfaction.

Social segregation/integration and inequality

Development of commodity gated communities in China has been largely associated with emerging segregation and social inequality. However, scholars in urban studies point out such an inequality has already existed prior to the housing reform, and the work unit has served as the most important spatial indicator for social mapping under a specialist regime (Wang & Murie, 2000; Huang, 2005; Wu,

2005; Zhang, 2008). Most inequality was caused by unequal distribution of in-kind goods and services among different types of work units on the basis of their sector, ownership types, and bureaucratic rank. Those amenities include housing, retirement insurance, medical cares, and other welfare programs. In an economy of scarcity, access to these goods and services could be made available only through work units and was more important than cash income (Huang & Jiang, 2009). In the housing sector, such inequality was expressed mainly through the quality and size of apartments (Wang & Murie, 2000; Zhang, 2008). Employees working in resourceful work units, mostly large, state-owned and high-ranking work units, can access heavily subsidized housing from their institutions. In contrast, employees in small, low-ranking, or non-state-owned work units who have no capability of providing housing, often have to rely on municipal housing bureaus for shelter. They were provided old housing inherited from the pre-1949 period, often dilapidated bungalows in inner cities (Huang & Clark, 2002).

However, some scholars believe the level of inequality was not high enough to lead to social polarization or differentiation of classes. Huang (2006) suggests that considering the overall low level of housing consumption prior to the reform, the magnitude of inequality was significantly smaller compared to Western standards. Rather than facilitating a separation between "inside" and "outside," the function of gating in the work unit was mainly to deliver the public services and exert political control. Zhang (2008) further argues "such concepts as 'poor working class neighborhoods' or 'upscale neighborhoods' were virtually nonexistent in most Chinese cities under socialism."

It might be arguable that if socialist gatedness in a Maoist city sharpened the social differences or was directed toward more egalitarian purposes; however, all of this has changed in the post-reform metropolis. The rapid rise of the gated community unambiguously expresses social polarization in urban landscape (Lum, 2006; Xu, 2008). Urban studies prevalently posit that gatedness intentionally mask the realities of social problems such as poverty and crime (Pow, 2009; Zhang, 2007), and result in further segregation and inequality (Lum, 2006; Miao, 2003).

Lum (2006) suggests that 30 years of economic reform has created a two-tiered society of have and have-nots. To the new middle class, property has become the most important form of family asset and is a critical indicator of personal socioeconomic status. Newly built gated enclaves respond to social self-adjustment and self-segregation of the newly affluent (Xu, 2008), and match their lifestyle preferences emphasizing exclusivity, privacy, and prestige (Pow, 2009).

Another remarkable and inevitable factor of housing development in China is the rapidly surging housing prices. In the city of Shanghai, for example, a report on property values in the year of 2011 found that, in Shanghai, the average housing price has increased nearly 5 times in 10 years from 2001 to 2011. The average housing price therefore was over 12 times the average annual salary in the year of 2011 (Yang & Liu, 2012), which leaves more than 80 percent of households unable to move up in the housing market by buying a better housing unit without substantial state subsidies (Douglass, Wissink et al., 2012). However, housing subsidies are still awarded through an implicit political process to higher-level state workers according to seniority, which precludes most of the urban population (Douglass, Wissink et al.,

2012; Huang, 2005). Work units continue to provide subsidized housing to their employees. In 2000, more than one third of housing completed was built by state-owned enterprises and government agencies for their employees (State Statistics Bureau, 2001). Thus, housing inequality based on individual political status and the nature of work units continues. Institutions and market forces work together to aggravate existing housing inequality.

It is clear that boom in property prices and a lack of state subsidies create massive residential inequalities in the form of gatedness between those who can and those who cannot afford to live in enclaves (Mak, Choy et al., 2007). However, the question here is the role of gated form itself – to what extend it further contributes to social segregation in urban China?

Abundant sources in the literatures have suggested that the urban structure of commodity housing enclaves in China becomes more similar to those seen in the Western market, which creates similar patterns of segregation of different social groups basing on the sorting of market-based allocation, and intensifies social inequality (e.g. Glasze, 2006; Huang, 2005; Miao, 2003; Pow, 2006; Wu, 2005). Some of the negative consequences may even be worse when taking the local characteristics into consideration. For example, Miao (2003) pointed out that in China, residents more heavily rely on public spaces and public services for conducting social activities compared to those in the West where many social activities happen in personal backyards. Thus, gating is more problematic to Chinese urban life, in terms of reducing social activities on public streets, creating the dilemma of locating pubic facilities, and generating inconvenience and inefficiency in

people's daily functions.

Zhang (2008) interpreted gatedness from a culturalist perspective, and argues that, compared to the West, gatedness in China plays a crucial part in shaping the new emerging middle class. This is partially because in China today, it is hard to pinpoint the exact source of personal wealth or to simply estimate one's income by knowing his/her occupation. Instead, people's positions in the social structure is constantly cultivated and performed through everyday consumption activities. Homeownership and one's subsequent spatial location in the city have become the most significant component of social differentiation. Gated communities, particularly, directly associate with a certain degrees of consuming power and are related to certain life styles. By living in a gated community, residents often feel obliged to engage in the proper kinds of consumption in order to validate their status and gain respect from their peers – in another words, to learn how to be middle class. Gatedness therefore has had profound impact on urban China by cultivating the newly rich and fostering their class-consciousness. More than enabling spatial segregation, gatedness justifies the segregation at a moral level during the transformation from a socialist to capitalist society (Pow, 2007).

Some other scholars have pointed out the role of gating for dispossession of disadvantaged groups (Hsing, 2010; Lum, 2006; Zhang, 2007) along with the widespread mega-construction. A large share of the lands for new-gated housings was acquired from peripheral rural area and traditional inner city neighborhood. It has caused dispossession of tens of millions of Chinese of their landed assets (Zhang, 2007). Dispossessed are ripped off with diminished assets both in terms of self-

provisioning and commodity production (Hsing, 2010). Thus, dispossession is one of the direct evidences showing how the massive development of the gated housing accelerates social polarization in urban space.

Alternatively, after examining the role of gating in the specific Chinese urban context, some scholars suggest that less negative interpretations are possible as well (e.g. Douglass, Wissink et al.., 2012; Huang, 2006; Pow, 2009; Xu & Yang, 2009).

In one of the review articles, Douglass et al.. (2012) summarized three issues to explain the less negative potential of gatedness in China: "(1) the spatial pattern of endless residential enclaves does not necessarily inhibit contact among different groups; (2) the private provision of amenities through gated commodity housing estates does not necessarily produce exclusion; (3) perceptions of the importance of generally accessible public spaces for everyone may differ from culture to culture" (Douglass, Wissink et al.., 2012). They argue that compared to international gated communities, Chinese estates generally are much larger in size and accommodate households with various income levels. Xu and Yang (2009) also find that large residential populations in the gated communities substantially support the commercial development in the periphery and generate considerable job opportunities. Those shopping spaces have become the main locus of encounters and integration between different social groups. The degree of segregation therefore may not be as intensive as we observe in the Western context.

Moreover, some researchers address a different interpretation of gating in Chinese culture compared to the West (e.g., Huang, 2006; Lu, 2006). Huang (2006) argues that collective culture is deeply embedded in Chinese society and gating

actually helps to define the sense of collectivism and foster social solidarity. Additionally, opposite to Miao (2003)'s arguments about who Chinese rely on public space for social activities, Douglass et al.. (2012) suggest that in China, meetings are generally organized through existing contacts; whereas the open encounters in freely accessible public spaces may not be a major means to organize social integration/interaction. Thus, limited accessibility to gated communities should not be accorded as the main reason of reduced social life. Therefore, the straightforward assumption of social segregation caused by gatedness may not be valid without contextual and empirical examination of each case.

Given these arguments above, it is reasonable to conclude that, in China, development of gated communities directly expressed the rapidly rising social inequality and segregation by residential differentiation. Gating development patterns may also intensify socioeconomic exclusion by, for instance, dispossession of disadvantaged populations or cultivation of the newly rich's class-consciousness. Some scholars, such as Miao (2003) and Douglass et al.. (2012) discuss the socio-spatial relationship on the basis of local context. However, their interpretations are based on general observations without in-depth investigation, and which even come out with contradictory conclusions. The extent to which specific forms of gating are involved in the creation or maintenance of those social consequences still need to be examined contextually and empirically.

Community cohesion and other related residential experiences

Another focus of the existing literature is to gatedness in relation to the residential experience, including the meaning of the neighborhood and the sense of

community, perception of privacy, and associated residential satisfaction.

Strong community cohesion in the traditional work unit neighborhood is somewhat self-evident. As "a spatial container for work, leisure, residence and social life," work units provide all-inclusive relationships as the basis of close neighborly relations and control (Zhu, Breitung, & Li, 2012). Whyte and Parish (1984) attribute the close-knit neighborhood ties to the distinctive nature of the work unit, which is characterized by stable families, lower mobility, lower income inequality, and critically, the control of neighborhood activities by the state. Households living in these enclosed neighborhoods share the same strong attachment to their work unit, experience more active social life and less pronounced social inequality "than in the presocialist and postsocialist period" (Ma, 2002); no matter whether this cohesion is voluntary or not (Wu, 2005). Some recent empirical studies in China show that even after 15 years of housing reform, the social cohesion in work unit neighborhood still remains substantial (Forrest & Yip, 2007; S. M. Li et al., 2012).

However, in urban areas, these types of place-based social ties have been significantly weakened along with the massive development of commodity housing and the gradual dissolution of work-unit compounds. Substantial studies on gated communities in big cities have observed less frequency of interaction, less social solidarity, less cohesion, and more social conflict in the neighborhood (Fleischer, 2007; Li, 1998; Miao, 2003; Pow, 2009; Tian, 1997; Wu & He, 2005). Weaker cohesiveness in gated communities can be explained by broken ties between workplace and residence (Ma, 2002; Wu, 2003); residents' increasing demand for privacy and purposive retreat from the intensive collectivism lifestyle mandated by

the work-unit system (Pow, 2009; Wu, 2005a); and people's increasing fear of crime and loss of mutual trust arising from rampant marketization and population growth (Ikels, 1996). Whyte and Parish (1984) suggest that the neighboring tend is more intense and intimate in homogeneous working class neighborhoods than in more heterogeneous and higher status areas; thus, to some extent, decline of neighborhood intimacy in Chinese gated communities is inevitable and in fact consistent with much evidence in Western cities.

However, some recent empirical studies have alternative findings or more positive interpretations on social cohesion in Chinese gated communities (e.g., Forrest & Yip, 2007; Li, 2007; Li et al., 2012; Read, 2003; Tomba, 2005; Zhu et al.., 2012).

Read (2003) first suggests that newly established home associations in gated communities actually have enhanced community co-operation and cohesion in highly urbanized cities, such as Beijing and Shanghai. Home associations in gated communities are established to co-opt district government with regard to general administrative duties as well as political control (Huang, 2005). However, because the common concern of home associations is to defend their legitimate rights and uphold the value of their properties, it has become the vehicle with which to launch collective action against the developers and management companies, and in some cases even against the local government (Li, 2007; Read, 2003; Tomba, 2005). Instead of neighborly interactions, these common interests and grassroots political movements bring residents together and foster not only community identity, but also attachment to place. In this sense, community cohesion in the gated communities

may actually be transformative instead of fostering decline. Li (2007) declares that it "bring[s] community in the social sense back to urban life".

More empirical studies further examine this argument on neighborhood relationships in urban China. Forrest and Yip (2007) produced a comparative study of neighborhood life based on a survey in the city of Guanzhou in 2003. Three neighborhoods are included in this study – an area of older, inner city housing; an area of predominantly work unit housing; and a newly built gated community. They found a general decreasing level of community attachment and neighborly ties from inner-city neighborhoods to the work unit districts on to gated communities. Also in the city of Guangzhou, another comparable survey study conducted in 2005 suggests a rather alternative finding (Li et al., 2012; Zhu et al.., 2012). The result still indicates weaker neighborly interactions in the gated community when compared with traditional and work unit neighborhood. However, a higher community attachment and neighborhood satisfaction is reported in the gated community than in the other two neighborhoods. More specifically, research found that neighborhood attachment in the gated community is primarily based on property ownership and satisfaction with the physical environment. The availability of professional estate management and the provision of clubhouses and other amenities outweigh the relative lack of neighborly contacts, and enhance community satisfaction and identity. The social environment instead is often not about personal contacts, but about status and social quality (Li et al.., 2012; Zhu et al.., 2012). This finding indicates that neighborhood attachment is not necessarily declining but rather it is changing in the content.

In urban China, when the traditional neighboring relationship has been

fundamentally changed in the newly built gated communities, the pleasant built environment and the communal facilities play an important role in bringing satisfaction and community attachment to residents. More research and practice focusing on physical attributes is necessary for improvement of satisfaction and community spirit in gated communities. The content of the "sense of community" may vary strongly between different types of neighborhood. It may be defined as a spatial area, or refer to a specific social relationship, or is in relation to some physical or cultural attributes. It is necessary to be mindful of these significant variables when discussing, especially when comparing the "sense of community" in different residential settings.

2.2 Theoretical Frameworks

As discussed before, this study's intent is to establish (1) a multi-faceted conceptualization of gatedness with formal, perceptual, and social components; (2) an experience-based investigation of place reflecting place users' values and objectives; and (3) a bridge between practices of gated communities and related theories. For this purpose, this part is based on a theoretical framework built on models and theories related to three themes: the theories of place enable a multidimensional investigation of gatedness; the theories of environmental perception facilitate the research on residents' mental perceptions of the built environment and related values; and the model of environmental consciousness is adopted for evaluating the quality of place from users' perspectives.

Theories of Environmental Perceptions and Environmental Consciousness

In his influential book, *"The Image of the City,"* Lynch (1960) suggests that physical settings are understood by human beings through a set of interactions: information input, interpretation with meanings and values attached, and resulting in an output such as action. He introduced the concept of imageability to explain a two-way process between the observer – the human being and the observed - the environment itself. This process involves what one sees based on exterior form, and what one interprets based on meanings, values, uses, and symbols of environments.

Arguments from an action-theoretical perspective (Canter, 1983; Garling & Golledge, 1991) enrich the literature of environmental perception. They suggest that environmental perception, cognition, and evaluation are not only based on people's previous environmental experience, but also on current environmental motivation and future environmental expectation. From this perspective, place is considered as the "major context for actions and interaction," and place experience is a component of place recognition (Garling & Golledge, 1991). Individual perception of place is influenced by his/her purpose and intentions of acting in certain ways – whether a place is suitable to choose, stay, and engage in for desired activities. People also distinguish between places with the purpose of suitable actions (Genereux & Spelke, 1983).

Thus, actions are not merely the consequence but also the intention of perception. Places can be evaluated with respect to whether they facilitate a person's objectives (Canter & Rees 1982; Canter, 1983; Kaplan, 1983). These arguments have been supported by some empirical studies. For example, a research of community attachment (Twigger-Ross & Uzzell, 1996) found that, residents attached to the neighborhood would discuss their relationship with the local environment in ways that supported or developed the identity of the neighborhood; whereas nonattached residents would not consider the environment in this way. Thus, residents' attachment to a place is value-based. They purposively associate with the community using place identifications to differentiate themselves from others.

Models of environmental consciousness further examine the purposive-oriented perception/assessment of the place. The theories are originally built on

Maslow's model of human needs (1954), and followed by Barrett's model of individual/organization consciousness (1998). Groat (2000) further developed this theory to evaluate the design value of physical environments.

Maslow proposed his well-known "hierarchy of human needs" in his 1943 paper *"A Theory of Human Motivation."* His pyramid-shaped model depicts humans' fundamental needs as consisting of five levels, from basic physiological to advanced psychological needs. There are physiological needs, safety, belongingness and love, esteem and self-actualization, from the lowest to highest levels. Maslow further argued that the higher needs in this hierarchy only come into focus when the lower needs are satisfied. But once the higher need has been achieved, even though a lower set is no longer being met, the individual will temporarily re-prioritize those needs, but will not permanently regress to the lower level.

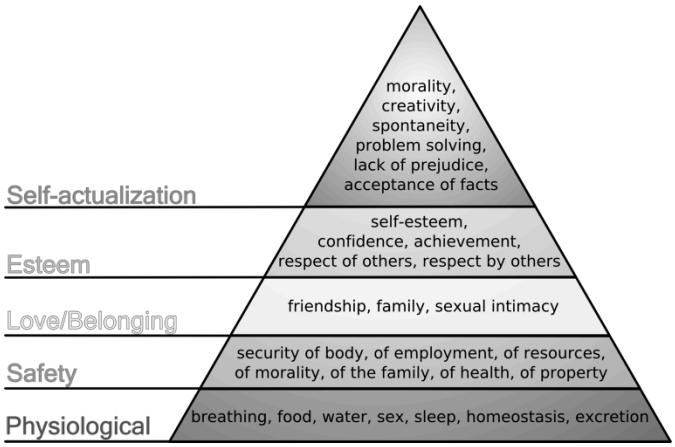


Figure 2-2: Maslow's hierarchy of Human Needs (Maslow 1954)

Maslow's arguments have been intensively criticized by later scholars. First, the fundamental human needs are not necessarily hierarchical as he proposed in

most actual situations (Wahba & Bridgewell, 1976). Second, his theory was essentially developed from Western cultures with a tradition of individualism and autonomy. Whether this theory is valid in the Eastern context has not been concluded (Murphy-Berman & Berman, 2003). However, the notation of "human needs" has made a significant improvement in understanding human personality and motivations, and has provided a new research perspective to relate the built environment to human behavior. For example, Jon Lang (1994) adopted this model to evaluate how human needs would be fulfilled through design of built environments. In particular, one can analyze urban design schemes in terms of their function as an image of a city and /or its people's need for esteem.

Based on Maslow's work, Barrett (1998) suggested a seven-level framework for assessing the levels of individual and organizational values. He compressed Maslow's model in the first three levels as representing the basis of self-interest, and added another three levels beyond that, describing the focus on the common good. Between them is a transformation level where humans begin to move from self-interest to the common good. He presents the levels of consciousness in terms of individual and organization respectively. It provides a method to assess the relationship between employee and employer, whether or not inconsistency of value happens.

Groat (2000) suggests that Barrett's model also provides a compelling device in designed environments, for instance, evaluating whether the physical setting can support the collective values of citizens. She extends Barrett's consciousness model to environmental scope, showing the relationship between organizational values and

both design values and physical design elements. She argues that physical elements of urban environments should support the values of the organization and community "as it moves from a self-interested perspective towards a more holistic one." (Groat, 2000) Accordingly, if the designer fails to understand the context and culture, a successful outcome of a project is unlikely to happen. She further links environmental consciousness with the notion of "civic meaning," suggesting that successful community environments are the ones that satisfy all levels of values, especially the common-good. Civic meaning, referring to "sense of citizenship, civic engagement, and community cohesion" (Groat, 2000) can be fostered in such communities.

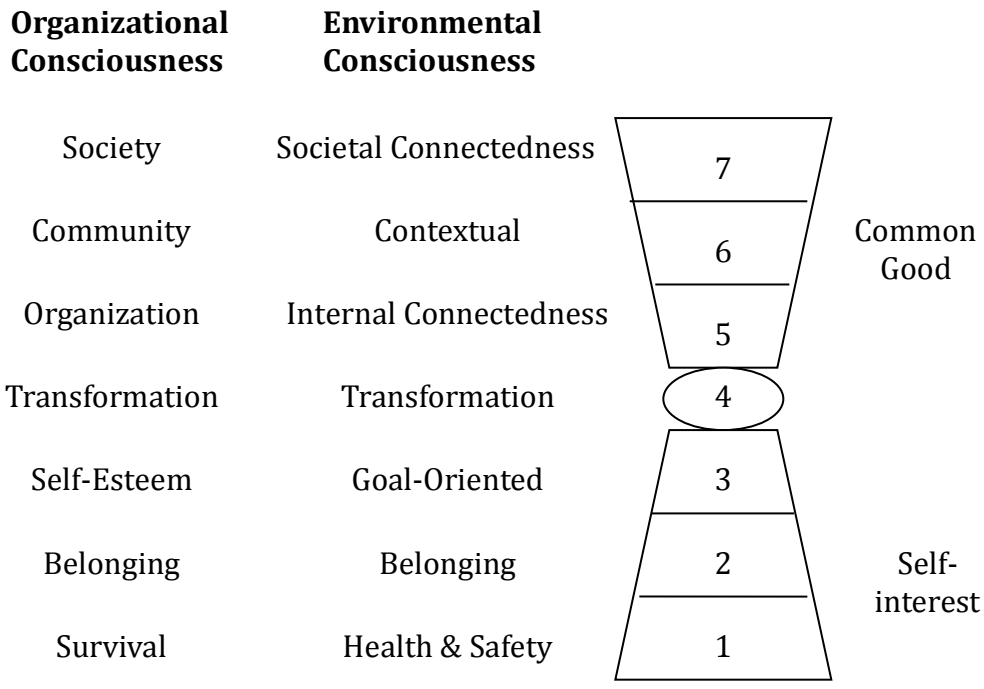


Figure 2-2: Model of the Environmental Consciousness (Barrett, 1998; Groat 2000)

The model of environmental consciousness provides a categorical level of environmental meanings. For this study, it provides a powerful instrument to assess the civic meanings and social implications of gatedness and how they reflect the

values of users, culture and context. This approach is also highlighted for bridging the gap between the realm of theory and practice, which meets the interest of this study.

Theories of Space and Place

The theory of space or place is always the conceptual foundation of the research on socio-physical environment, especially in urban settings. The aim of this section is to review two influential theories and discuss how they would relate and establish this research on gated communities. These are Hillier and Hanson's space syntax focusing on architectural and urban settings, and Canter's place model from the psychological point of view.

Theory of Space Syntax

Elaborating the relationship between social order and space, Bill Hiller and his team developed the theory of space syntax in the 1980s (Hillier & Hanson, 1984; Hillier, Penn et al.., 1993; Hillier, 1999). The basic argument is that space and society are fundamentally indivisible. Space is both a product and a producer of society.

Space syntax introduces the theory of "natural movement" (Hillier, 1999) to explain how space embodies social or cultural meanings and how a space itself is able to generate or inhibit social interactions in built environments. The concept of "spatial configuration" is the key pillar of this theory, which refers to the relational system of all spaces and their linkages. Accordingly, urban settings are understood as configuration logic systems. The attributes of each specific element (e.g., a street) are described according to its configurational relationship to other elements (e.g., other

streets) and to the whole system (e.g., the grid). The theory of space syntax argues that spatial configuration primarily defines pedestrian movement patterns in urban settings, and the movement generated by this basic physical feature termed "natural movement" (Hillier, Penn et al.., 1993). Natural movement further generates opportunities of co-presence in urban settings and impacts the patterns of social interactions. Therefore, on the one hand, space is a producer of social order. On the other hand, Hillier (1999) argues that social patterns are also embedded in the built environment through the logic of spatial configuration, and thus space is also a product of social order. In his book, *Social Is the Machine,* Hillier demonstrated the social nature of space using considerable real-world cases in traditional cities, post-war housing estates, and building interiors. The concept of "natural movement" uses human actions to associate physical forms with social and cultural meanings in urban settings (See figure 2-3). This social-spatial relationship has been proven to be fundamental by many researches in the area of architecture and urban design, such as studies on crime rates and street images, accessibility and urban land use and pedestrian density, etc.

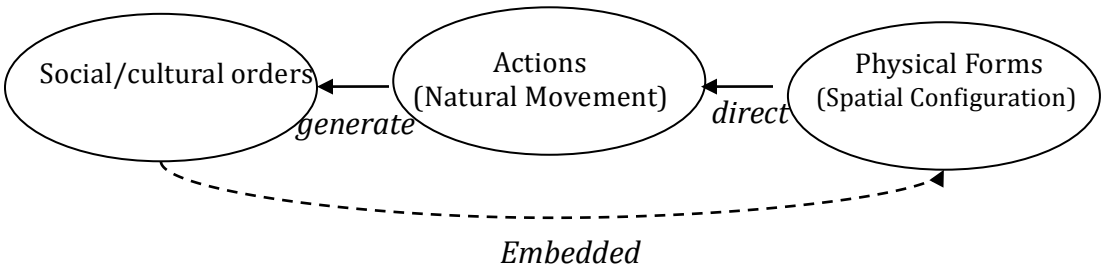


Figure 2-3: Relationships between Spatial, Social, and Behavior Factors in Space Syntax

One of the highlights of space syntax is that it interprets space through "morphologic language," which renders the intricate formal features in urban settings fairly simple, knowable, and describable. Technically, space syntax introduces a set of numerical values of syntactical configuration to describe each space element and the whole system. It also enables space syntax to take advantage of computer systems to capture the most basic describable elements and reveal their relationships, using statistical measures to discover the underlying rules of urban space. Another highlight of this concept is that it emphasizes a globalist interpretation of urban place. As Hillier argues, it is not an urban place's local qualities but its configurational qualities, manifested through pathway layout and degree of permeability, that are the foundation of the place's degree of vitality (Hillier, 1999). It provides a holistic view to understand the successes and failures in place making practices.

However, the theory of space syntax also has limitation on explaining many political, economic, and cultural issues in the built environment. As Letovuori (2005) pointed out, the social in space syntax seems to become reduced to the patterns of encounters between people and overestimates the explanatory power of spatial and social configurations. It has difficult to describe the cultural impulses, commercially produced lifestyles, and many other actors and factors affecting both the social pattern and place attachment far beyond the physical configuration. Although space syntax holds that social information has been imbedded in the spatial configuration, there is not sufficient evidence to prove that this link is total and absolute. By standing alone as a single explanation, space syntax is not always able to grasp all of the different actors and causes in an urban situation.

Canter's Theory of Place

David Canter (1977) developed the theory of place from an array of empirical-based studies in environmental psychology. His model interprets place as a combination of (1) physical environments, referring to physical locations and features of the place; (2) actions, referring to the activities available in the place; and (3) conceptions, referring to and the blatant or hidden meaning of the place (See Figure 2-4). Components in Canter's model are not mutually exclusive but always overlap where various elements are nested in each other, depending on and influencing each other. The center position of "place" is highlighted where all elements are incorporated and meaningful. It shares the common argument with space syntax that in human society, social and physical settings are inseparable.

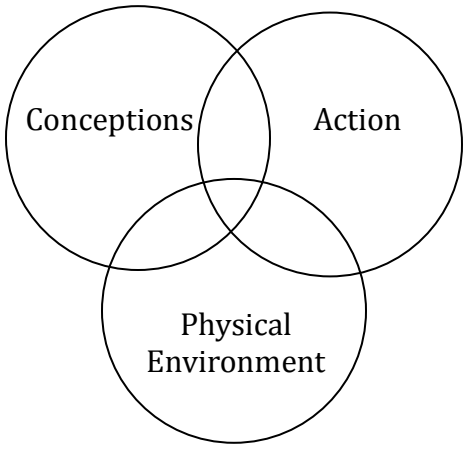


Figure 2-4: Canter's Model of the Place Theory (Canter, 1977)

Canter's model of place is also remarkable for its empirical-based and users' perspective oriented nature (Groat, 1995). The purpose of this theory is to "provide a integrative model … open to direct empirical test" in the field of environment,

behavior and design (Canter, 1987). Three components of place enable this abstract concept evaluable, measurable and analyzable. It arms researchers with a practical study technique to structure scientific measurements of the relationship between people and physical settings. Moreover, Canter's place theory derives from a place users' perspective, studying environmental perceptions, activities, expectations, and the production of meanings. Evaluations of built environments based on this model are therefore goal-oriented and purposive – with respect to whether they facilitate user's objectives and well-being. In recent researches on built environments, Canter's model has been applied to investigate environmental meanings (Groat, 1985), and building user's evaluation of place (Hacket & Foxall, 1995).

Comparison of the Two Theories

Both theories of Canter's place and space syntax interpret the concept of space/place through person-environment relationship. Space syntax promises to "overcome the often subjective nature of traditional architectural practice," and to "provide objective, evidence-based advice" (www.spacesyntax.com). In the system of inquiry, Hillier & Hanson's arguments obviously adopt the postpositivism standard, which believes that there is a reality of space "out there" that can be known. Canter's notion of *Place* has a naturalism tendency. This is reflected in his description of *Place* - "a term for describing the system of experience that incorporates the personal, social and culturally significant aspects of situated activities"(Canter, 1987). In this notion, place is a multiple socially constructed reality, and understanding of such a reality requires a researcher's interpretation.

Another common feature of the two theories is that they are both established

in the real world of environmental and architectural experience. The quantitative procedure in space syntax arises out of real cases of urban structures, and Canter's place is derived from an array of empirical researches in environmental psychology. The real world nature enables both theories to establish connection between conceptual argument and empirical confirmation and practice. Both theories can be effectively adopted to frame empirical research such as environmental evaluation or direct practical applications in urban settings.

Comparing the scope of the concept, these two theories are far from unrelated. Both theories describe the space/place from a structuralistic approach. They all agree that social space / place is complex with multiple issues involving four aspects: physical, perceptual, behavioral, and social factors, and try to incorporate and categorize them into explicit models.

The physical factor in space syntax refers to the spatial configuration that is a conceptualized interpretation from the researcher's perspective. It views the physical environment as abstract objects by describing the numerical relationships between space units, but leaves aside other particular environment features that contribute to and reflect the particular human worlds manifesting in a particular place. On the contrary, Canter's model describes physical settings from place users' perspectives, referring to features that are tangible, perceivable, and meaningful to individuals in specific sites. Considering that, physical factors in space syntax and Canter's theory of place are largely complementary and can be used to achieve a more holistic description.

The perceptual component goes to the conception in Canter's model, dealing with the emotional systems that a person brings to settings and associated cultural attributes. Space syntax is not interested in individual's concrete perception of physical settings; rather, it focuses on human's collective cognition of spatial system. It suggests that social and cultural meanings has been embedded in the urban fabric and reflected by spatial configuration.

The social component in Canter's model is placed as the subclass of the *actions*, referring to the detailed real-place social interactions of real people. To some extent, it also associates with the *conceptions* dealing with cultural issues. Space syntax discusses social attributes by the notion of social configuration, which describes aggregate generalizations of social order and culture garnered from quantitative evidence.

Canter's model of place and Hiller and Hanson's social space both raise the question of on human activities in relation to social meaning and physical attributes. Hillier and Hanson understand human behavior as an observable object that serves as a bridge to link social and spatial components. Such activities are basically patterns of encounters and random group behaviors with no emotion and purpose attached. On the contrary, activities in Canter's concept are goal-oriented. Human agency is the subject that positively and directly contributes to the establishment of place. In a word, in Canter's model, differences in behaviors and measurements actually have meaning for the particular pace, style, and tenor of everyday environmental and place experience, whereas space syntax provides minimal probing of these differences – actions are considered spontaneous and purposeless.

Theoretical Framework

The preceding review introduces and compares two place theories. When applying to empirical studies, Canter's model of place and the theory of space syntax are largely complementary to each other in terms of their analytic strength. Space syntax is highlighted on its powerful tools on spatial description and analysis to reveal the latent correlation between spatial and social structures. Canter's model, on the other hand, focuses on environmental experience incorporating personal, social and cultural constituents of person-place transaction, which provide lived concreteness missing from space syntax.

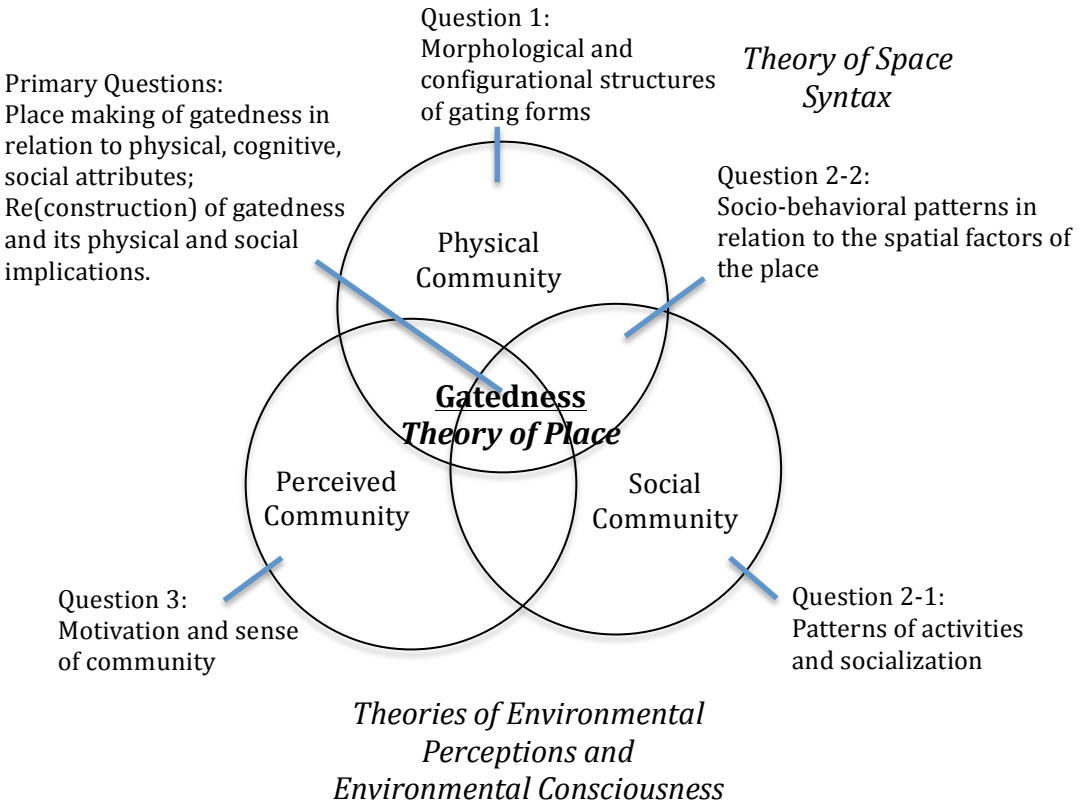


Figure 2-5: Theoretical Framework and Research Questions

This research is aimed to achieve a holistic investigation of gatedness discussing its shifting forms, meanings, and significance to urban life. This requires the research to build on a theoretical model which (1) offers a comprehensive framework for exploring the interrelationship among formal factors, human experience, activities, expressions and social implications in the place; (2) supports inquiry from a naturalistic approach and deals with environmental experience and the everyday lived dynamic in built environment; (3) provides measurable variables for empirical research practices; and (4) is repeatable and testable with good generalization potential for to relevant future studies.

The theoretical framework of this study is fundamentally developed from Canter's theory of place, and also integrates the theory of space syntax, environmental perception, and environmental consciousness. This model sheds light on the three aspects of the research: namely, physical community, perceived community, and social community, which corresponds to Canter's three aspects of the place: *physical environments*, *conceptions*, and *actions,* respectively (See Figure 3-5).

The theory of space syntax, and the theories of environmental perception and environmental consciousness will be integrated to examine each aspect of gatedness and guide the inquiry into specific research questions (See Figure 3-5).

Specifically, theory of space syntax will be applied to portray the physical aspect of the community, and also to reveals the potential socio-spatial relationship in the place. Theories of environmental perceptions and consciousness provide insights on the study of cognitive and behavioral/social aspects of place. These theories especially helpful to unfold the psychological structure of motivation and the

sense of community, and to assess the quality of place making, and reveal its relationships with the physical attributes and the social atmospheres of place. The study will conclude that the nature of gatedness integrates physical, perceptual, and social attributes of the community. The environmental, cultural, and social well-being of both types of gated residence will be discussed.

The theoretical framework embraces research models from both qualitative and quantitative approaches, and evaluates the quality of place through both objective and subjective measurements. This model requires use of combined methodologies of analysis through appropriate tactical instruments. The following section will discuss the design of the research of this study in detail.

CHAPTER THREE: RESEARCH METHODOLOGY

This research adopts the case study as its primary research method and also combines multiple research tactics. Figure 3-1 shows the overall structure of the research design and its relationship with the theoretical framework. This chapter describes the rationale for choosing the specific research methodology and tactics.

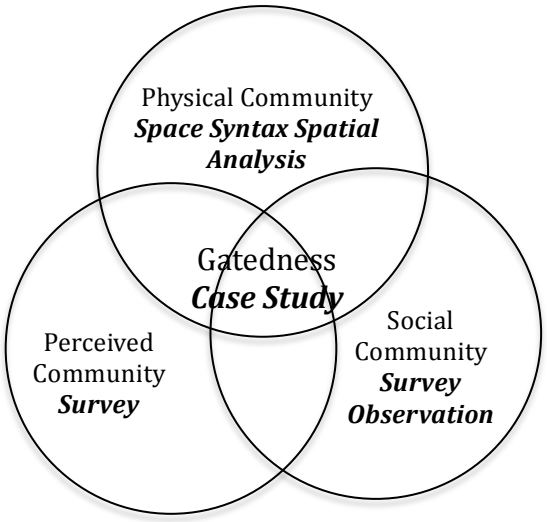


Figure 3-1: Research Design in Relation to the Theoretical Framework

3.1 Case Study as the Primary Research Method:

Case study, according to Robert Yin (1984), is "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident." Groat and Wang (2002) argued that this methodology allows for a more integrative approach to research and has five essential characteristics: 1) inquiring into real life context; 2) the capacity to explain causal links; 3) the importance of theory development in the research design phase; 4) a reliance on multiple sources of evidence; and 5) the power to generalize to theory.

Based on the nature and advantage of the case study, this research adopts it as the primary strategy for following reasons: First, this research focuses on the real-world phenomenon - the social and cultural implications of gatedness in the Chinese urban area; and this phenomenon has been embedded in a specific context – we could not discuss gated communities conceptually without relating to context, from Chinese culture of gating in its history to the political influences over time. Second, the findings from this research are aimed to development patterns of physical forms of gatedness and its social complications. Thus it is both explanatory and exploratory in purpose. Third, case study strategy enables this research to utilize multiple tactics in data collection and incorporates multiple sources of evidence in analysis. Fourth, this study expands the theoretical study of gated communities and also contributes to

the realm of practice by suggesting design guidelines. The structure and findings of this research can be generalized or tested in other studies.

Case Study Selection

This research is a comparative study of two types of gated neighborhoods in China: work unit compounds and commodity gated communities. One case study site is selected representing each type of neighborhood respectively: the residential court of Xi'an University of Architecture and Technology (XAUAT) as the work unit case, and New Maple Town (NMT) in the city of Xi'an as the gated community case.

This study examines the residential landscape in the city of Xi'an, China. Xi'an is the capital of Shaanxi province, and has a population of 8 million. Xi'an is one of the larger cities in China and is characterized by a moderate speed of economic development, migration, and urbanization. A great number of work-unit compounds have been established in the city and fringe areas since the 1950s, including government entities, industrial enterprises and education/research institutions. The private housing sector has been developing since the 1980's, expanding from the inner city to the suburbs. Unlike in the biggest cities such as Beijing and Shanghai where the real estate market has been surging due to investments and migration, the moderate housing prices in Xi'an ease the financial burden of the middle class and allows more possibility to evaluate other factors in home buying. All of these situations enable Xi'an to be a good site to study urban residential environments for the middle class.

This study chooses a university as the study case for the work-unit, because this type of neighborhood consists of groups with comparable income levels of the

middle class in gated communities. While considerable manufacture enterprise work-units declined in the last decade, university work units still maintain a good status and keep developing. This also ensures the availability of historical and current information either from archives or field study.

More specifically, three principal criteria were involved in the case selection:

First, both of cases are in a similar relationship to the center of their city, for the purpose of controlling the potential influence of residential location factors. XAUAT and NMT are located in the urban area at a similar distance to their city center, and with similar zoning patterns – both sites are within the residential development area and close to secondary commercial centers of the city.

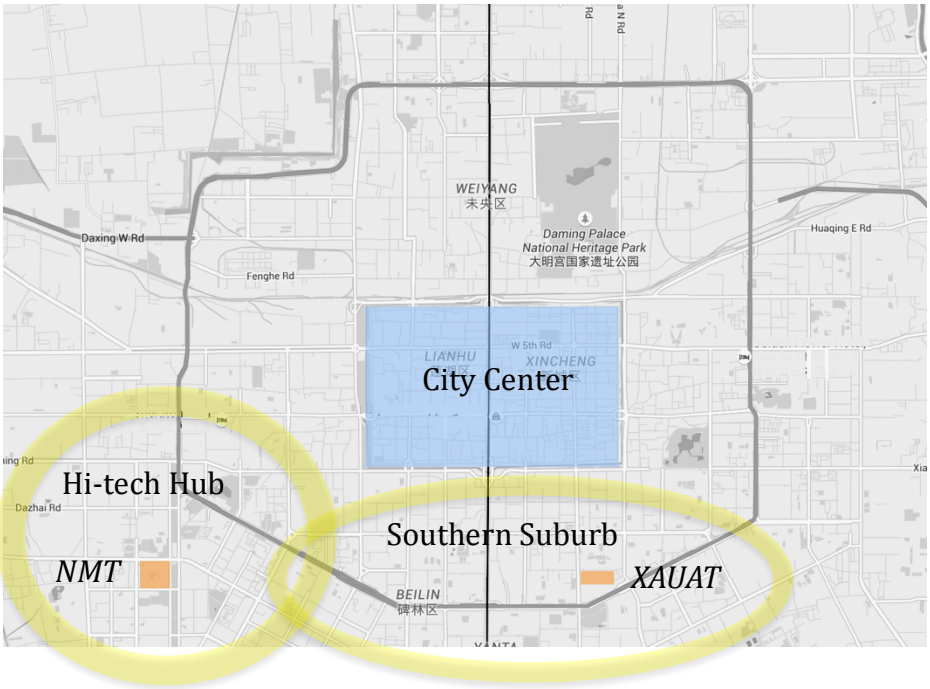


Figure 3-2: Locations of the Case Study Neighborhoods in the City of Xi'an

Second, two case study neighborhoods accommodate comparable bodies of households and comparable socio-economic backgrounds. In addition, the population

scales are large enough to provide a basis for samples for the survey. Findings from the field study confirmed that XAUAT and NMT both hosted more than 2,000 households at the time of the investigation. The population size is large enough for statistic sampling. As well, the demographic structures of two neighborhoods are fairly comparable in terms of residents' income and education backgrounds (Refer to the Chapter Four).

Third, each of the neighborhoods should typically represent its residential type in terms of physical and social characteristics. XAUAT and NMT incorporate the most critical features of the two types of gating neighborhood respectively. It ensures findings from this research have potential to generalize to theories that may be applicable to other comparable cases.

Brief Introduction of Case Study Sites

XAUAT

The residential compound of XAUAT was first constructed at the time of founding of the university in 1956. It is located in the southern suburb of Xi'an, approximately three miles from the city center (See Figure 3-2). During the socialist era, from the 1950s to the 1970s, the whole southern suburb was planned as the science and technology district, which was predominantly occupied by work units of government entities, colleges, and research institutions. These governmental, educational, and scientific work units were in higher priority of receiving development resources. This advantage became even more distinct in the post-

reform era after 1980s. Unlike many other manufacturing work units in the western and eastern suburbs of the city, the work units of southern suburbs have not had to deal with financial difficulties or with the pressure of decline. Instead, the overall living standard and housing quality in the work units has been remarkably improved over the last two decades. Today, work units still provide a large proportion of the housing supply for the southern suburbs. Meanwhile, due to its distinctive social and educational advantages, the southern suburb is the prime location of the residential development. A large number of newly built gated communities have been established in the remaining lots between work units and new expansion of residential lands, along with the success of the commercial and business sectors in the area.

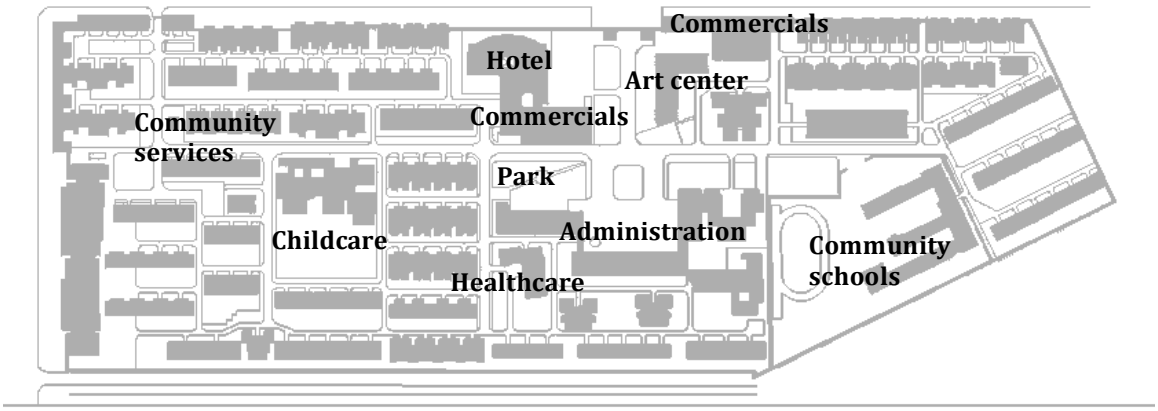


Figure 3-3: Neighborhood Layout of XAUAT

Bird's Eye View of the Neighborhood

Central Square

The Art Center

Apartment Buildings

Figure 3-4: Scenes from XAUAT

The work unit of XAUAT is composed of a university campus and a residential area on two sides of a street. Both parts of the work unit are gated. Only employees of the university and their families live in the residential court. The overall land area of the residential court is 32.42 acres, which accommodates 2,410 households. Various enclosed communal amenities are provided to its residents by the work unit, including attached elementary, middle, and high schools, childcare services, health services, parks and recreational centers, housing management, and other commercial facilities.

The only housing type in XAUAT is the apartment, which varies in unit area from 400 to 2,000 square feet. The oldest existing residential buildings were

constructed in the 1960s and remodeled in the 1990s. The majority of the apartment units were built after the late 1990s. Ownership of these housing units used to belong to the university which offered these residences to employees at a nominal rent. Since the launching of the housing reform program in the 1990s, these units were sold to households at the prices significantly lower than other residences in the housing market. Today, providing housing at low prices of high quality is considered an important social benefit offered by XAUAT and other similar work units. Generally speaking, the living standard of XAUAT has reached at or beyond the average level of the middle class in the city of Xi'an.

NMT

The New Maple Town is a newly developed gated community located on the "high-tech hub" of the southwest suburb of Xi'an, which is about five miles away from the city center (See Figure 3-2).

The "high-tech hub" was established in 1990 as one of the "national high-tech zones" for stimulating regional development of technology and business. After two decades of development, the "high-tech hub" has become a sub-center of the metropolitan area. It accommodates more than 1,700 enterprises in the industries of automotive, electronics, agriculture, and new materials, which have attracted more than 500,000 working and residential populations (http://www.xdz.com). The industrial growth further stimulates a booming housing market. Today, more than 40 residential developments of various sizes have been constructed in the area. Because the majority of the land resources were converted from agricultural lands, most residential developments occupy very large lots and have encountered less constraint

from the zoning regulation. Gated communities have become the only development form in this district.

High-Rise Apartment

Central Park

Multiple-Rise Apartment

Play Ground

Figure 3-5: Scenes from NMT

New Maple Town (NMT) is located in the center area of the "high-tech hub." The project was developed by Xi'an Gaoke Real-Estate – the biggest developer of the city. House sales began in 2002 right after the construction finished, and by 2006, all housing units had been sold out. The overall land area of NMT is 68.04 acres with

2,272 housing units. City streets with abundant offices, retails venues, restaurants, and recreational and cultural facilities surround the neighborhood.

NMT is a guarded with five highly controlled entrances and a 24-hour security detail patrolling. Non-residents are not allowed to enter without permission. NMT is an all-inclusive residential development including commercial, recreational, and educational services and facilities to cater to residents' daily living needs. The apartment unit is the only housing type provided in NMT, and the unit area varies from 900 to 2,000 square feet. Due to the skyrocketing market, housing prices in NMT have tripled from around ￥3500/sq.mt.in 2002 to around ￥11,000/sq.mt. today. The target homebuyers are middle class and young professionals who work in the high-tech hub and surrounding areas.

3.2 Data Collection and Analysis

Data collection in this study includes four sources of evidence: 1) archival records – neighborhood information regarding households, land-use, physical designs, and other related historical documents; 2) spatial analysis results from the space syntax methodology; 3) observation of residents' movements in public spaces; 4) data obtained from the survey instrument. The following matrix summarizes the research design regarding the areas of inquiry, sources of data, and data interpretation and analysis.

Domain of Inquiry	Sources of Data	Interpretation and Analysis	Chapters
Physical community	Archival records Space Syntax analysis results	Historical narrative Morphological analysis Descriptive statistics Logical argumentation	Chapter Five
Social community	Survey Space Syntax analysis results Observation	Descriptive statistics Correlational analysis	Chapter Six
Perceived community	Survey	Descriptive statistics Correlational analysis Logical argumentation	Chapter Seven
Gatedness	Integration of research findings	Qualitative interpretation Logical argumentation	Chapter Eight

Table 3-1: Sources of Data and Interpretation Strategies

Historical Narrative and Morphological Analysis

Historical narrative and morphological analysis are important components of the spatial analysis for the case study neighborhoods. The analysis examines the formal characters of the neighborhood at each stage of (re)development in relation to the social, political, and economic backgrounds. Analysis results outline (1) the physical attributes of the neighborhood, such as the land use, building volumes, residential density, building types and styles, open spaces, and degree of enclosedness; (2) morphological structure of the layout, and building-open space relationships; and (3) demography and other background information.

For the case of XAUAT, historical information includes historic maps and archival records obtained from the archival department of the University. The current master plan of the neighborhood was obtained from the University construction department. For the case of NMT, the master plan of the neighborhood was provided by the property developer – Xi'an Gaoke Real-Estate. Additional household information was obtained from the current home association and property management company.

Space Syntax Methodology

Space Syntax methodology is adopted to investigate the configurational features of place. It also contributes to the revealing the relationships between the spatial attributes and residents' behavior patterns in the public space.

Space syntax methodology "is a set of techniques for the representation, quantification, and interpretation of spatial configuration in buildings and settlements." (Hillier et al.., 1987). Spatial configuration interprets relations between

any two spaces, taking into account a third or all other spaces in the system. It provides the possibility of studying the relationship between a pair of related spaces locally, or in the reference of the whole complex.

This study assess the configurational properties of the settlements to investigate three aspects: (1) to compare the overall configuration structure of two neighborhoods; (2) to describe the syntactical relationship among the sectors of residential buildings, roads, open spaces and other public settings; (3) to conduct configurational measurements for individual spaces which are correlated to observed behavior patterns.

Space syntax uses computer technology to analyze spatial configuration. The *Depthmap* program is used in this study to analyze the neighborhood layouts, and to provide specific quantitative values for each spatial unit and for the structure of the complex. The outcomes include image representations and a set of configurational measures.

An axial map is the image representation of spatial configuration of the complex. Loosely, it consists of the longest lines of sight and access through open spaces, which normally represents the street network in the urban setting. The axial map considers line of sight as a significant unifying device, and the number of turns on a route are more crucial to spatial experience than distance covered, which potentially captures movement, options for mobility, and unplanned encounters in the urban setting (Bafna 2003). The axial map has been widely applied in empirical studies of urban settings and has been proven to be an objective and effective representation of spatial structure. A set of quantitative measures of the space is also

generated from the analysis, such as *depth*, *integration*, *connectivity* and *intelligibility.* Definitions and application of these measures will be elaborated in Chapter Five.

Various measures of urban configuration are correlated with movement patterns in urban settings to explain social life. This theory is based on the assumption of "natural movement," suggesting that movement within a spatial network is likely to be determined by the spatial configuration itself (Hillier, Penn et al..., 1993). It argues that the majority of human-pedestrian movement occurs along lines of sight, and that the more integrated (in terms of connection to other lines of sight) a line is, more movements exist alongside it. Highly integrated spaces offer more opportunities for random encounter and co-presence among individuals, thus providing potential of active use of public spaces and social interaction (Hillier, Penn et al., 1993; Penn, 2003). In this study, spatial configuration measures are correlated with the observation results of residents' behavior patterns on the public space. Correlation results of these two variables answer the question of about the how the physical settings potentially influence on residents' social interactions.

Observation

Non-participant activity observation in two case study neighborhoods was conducted to record resident's movements in public spaces. Information obtained from observation is used to understand (1) how the public spaces are utilized by people's purposive actions; (2) the likelihood of the occurrence of different types of activities and their interrelationships; and (3) relationships between patterns of activities and spatial attributes of place.

Observations were performed at all the outdoors spaces (streets, parks, and

other common areas) throughout the neighborhood. Indoor public settings such as the community center and the clubhouse were not included. Outdoor spaces in NMT were divided into 63 observation sites, and 51 observation sties in XAUAT. These observations were conducted on four weekdays and one Saturday in both neighborhoods, and followed a standard data collection technique. First, days with unpleasant weather conditions (such as rain or high temperatures) were avoided to ensure sufficient outdoor activities to be recorded. Second, two sets of observations were taken in each observation day: once in the morning starting at 10:00 a.m. and once in the afternoon starting at 4:00 p.m. Three, each round of observation was finished within 20 to 30 minutes.

Seven types of the frequent occurring movements were recorded during the observations: walking, child/children playing with supervision, child/children playing without supervision, recreation activities (e.g. exercise, playing cards, dancing, etc.), talking, staying alone, and shopping. The recorded data included the number of people per type of activities that was observed within the boundaries of each observation site. More details of data interpretation are elaborated in Chapter Six regarding the use of the public spaces in both case study neighborhoods.

Survey

The most important data resource of this study came from the survey instrument, which covered inquiries of physical, social, and cognitive aspects of the community. Data obtained from the survey support the analysis and discussion of the majority of the chapters in this dissertation.

Survey questions in existing related studies were reviewed and borrowed

when designing the survey instrument in this study. They are (1) the quality of life survey instrument for Detroit Area Study, (2) a sense of community survey instrument in Kim's dissertation study comparing New Urbanism and conventional neighborhoods (Kim, 2001), (3) the survey instrument in Erkul's comparative study of New Urbanism in different countries (Erkul, 2009), and (4) the 12-item Sense of Community Index (SCI) (McMillan & Chavis, 1986).

The survey instrument applied in this study included five components. The first part inquires into the respondents' motivations for choosing their residences and their current residential status and previous housing experiences. The second part focuses on respondents' frequent social ties. The third part gathers information about daily activities - usage of the community public space/facilities and walking. The fourth part investigates and assesses sense of community. The fifth part collects information about respondents' socio-demographic backgrounds.

Two hundred random households were drawn from each neighborhood as research samples. In NMT, each household unit was coded with a unique number from 0001 to 2,272. The first sampling unit was the number 0001, followed by every 11th name thereafter, until the sample number reached 200. In the XAUAT, household coding was from 0001 to 2410, and selected samples were drawn from every 12th name until samples reached 200.

Distribution and returning of the survey instruments in both case study sites were executed through the administration authorities in the community. In XAUAT, the security department and the neighborhood committee first reviewed the content of the questionnaire before distribution started. After approval, the neighborhood

committee distributed the survey on behalf of the investigator. The first attempt was door-to-door delivery. If the first attempt failed, the survey package was left in the household's mailbox instead. Respondents were asked to complete the questionnaire within a week and return it back to the neighborhood committee's mailbox. A second round of distribution was planned if the returning rate were below 25% (50 copies). Collections of the returning surveys stopped on the 20th day after the distribution; 55 copies of the survey were received by the neighborhood committee. The returning rate was beyond expectation of 25%, which completed the distribution and collection procedure in XAUAT. Two copies of retuned survey were found to be invalid, which made the final valid response number 53.

Survey distribution and collection in NMT went through a similar procedure. Specifically, the homeowner association reviewed the content of the questionnaire, and approved the property management company to conduct the distribution/collection procedures. Surveys were distributed door-to-door and were collected in the "suggestion box" at the entrance of each apartment building. After a collection period of three weeks, 64 surveys were returned which had reached the expected 25% return rate. Within them, 9 copies were found to be invalid, resulting in 53 copies for later research analysis.

CHAPTER FOUR: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

This chapter summarizes and compares the demographic characteristics of the survey respondents from two case study neighborhoods, XAUAT and NMT. The purpose of this chapter is to portray the overall social composition as the foundation for understanding the similarities and differences of place experiences between the two neighborhoods.

Demographic information was obtained from the survey on personal background, including: gender, age, marriage status, occupation, and education; and their household information, including: family income, ownership, household composition, length of residence in the current neighborhood, and previous residence experience. The complete result is summarized in Table 4-1.

4.1 Summary of Demographic Features

This section compares the personal and household demographic features of respondents in two case study neighborhoods.

The samples from the two neighborhoods have similar composition in terms of gender, marriage, and ownership status. More female respondents participated in the survey than males. The majority of respondents were married or lived with a partner. As well, the majority of respondents were homeowners, and a small group of respondents were renters. In a few cases, people specified their residential status as "temporarily live in the cooperate housing", or "live in my son's house," or with other relatives. These responses are categorized as "others." However, considering the less likelihood for renting occupants to respond to the survey, it is reasonable to speculate the actual renting ratio in both neighborhoods is relatively higher than the survey result.

With regard to other key demographic items, some differences were found between respondents from two neighborhoods.

For examples, the age group of respondents distributes differently in XAUAT and NMT. NMT has a higher concentration of people in 20s, followed by 30s, and 40s. In XAUAT, the largest portion of respondents is in the age range of 30s and 40s, followed by the groups in 20s and 50s. Two communities have comparable portions of respondents in 60s and above.

Residents in NMT tend to have similar education backgrounds. The majority (51%) of the respondents reported college education as their final degree. Respondents' education background in XAUAT presents more diversity. More respondents reported less than a college education, whereas the portion with advanced degrees is also relatively larger (Considering XAUAT is a university work unit, higher number of residents with advanced degrees is not surprising). If considering college degree and above as a high level of education, then the portion of respondents with high levels of education in NMT (72%) is relatively larger than that in XAUAT (59%).

Regarding the factor of occupation, the most noticeable difference is that in NMT, 15% of respondents were self-identified as homemakers, whereas not one instance of homemaker was reported in XAUAT. If considering the homemakers and retirees as the home-centered group, then the portion of this group is relatively bigger in NMT (32%) than that in XAUAT (24%).

In the survey, respondents were also asked about their previous residential experiences and the length of their residence in the current neighborhood. Unsurprisingly, the length of residence in XAUAT (about 16 years on average) is significantly longer than that in NMT (about 6 years on average). However, considering NMT had only been in existence for 10 years at the time of the survey, the result suggests a fairly good residential stability in NMT. Comparing respondents' previous residence histories, apartment housing in urban/suburban areas is dominant in both cases. Meanwhile, it appears that a higher portion of respondents in NMT (47%) had gated community living experience compared to those in XAUAT

(29%); whereas a higher portion of respondents in XAUAT (29%) than that in NMT (18%) grew up in the rural areas and later moved to the city.

There were differences as well in respondents' household structures in the two neighborhoods. General speaking, the household size appears to be smaller in NMT than in XAUAT. In NMT, 80% of the households are small-size families with no more than three members. In XAUAT, this portion decreases to 67%; meanwhile 15% of the households are extended families with more than 5 members. Specific examination of the household structure uncovered that a significantly higher portion of households in XAUAT had senior members in the family (41%), whereas this number in NMT is much smaller (14%). A comparable portion of households in both neighborhoods had children and youth (under 18) (48% in XAUAT; 46% in NMT); XAUAT has a higher portion of households with youths (33%), while NMT had a higher portion of young children (22%). A larger number of households in NMT has neither senior nor child members (41%) than that in XAUAT (31%).

With respect to household yearly income, results from XAUAT present smaller variance compared to that of NMT: 88% of households in XAUAT had family income ranging between ￥20,000 to 199,999, with highest concentrations at the ￥100,000 to 199,999 (48%) level. In NMT, family incomes diverges widely, from less than ￥20,000 to 999,999, with 64% of households making more than ￥200,000 yearly. Roughly speaking, household income in NMT tends to be higher than that of XAUAT.

4.2 Potential Implications of Demographic Features to the Community Life

Based on the discussion above, the two communities are demographically comparable in terms of residents' income, age, education, home ownership, household structures, and the like. The result supports the assumption that the two case study neighborhoods have similar middle class backgrounds.

However, there were differences discovered between the two communities. Different social composition may have had potential influence on community values and way of life.

NMT's residents appear at greater variance in terms of the occupation, income, and previous residential experience. Based on the demographic information from each questionnaire, respondents can be identified as young professionals, housewives, retirees, the newly-rich, rural immigrants, and relatively lower income individuals who co-rent an apartment unit with other tenants. Meanwhile, a greater concentration of young age respondents with high levels of education is found in NMT. There the household size tends to be smaller. The majority of the households are either single or nuclear families without members of the grandparent generation. Senior residents are found to be mostly empty nesters.

In a word, NMT has been quite successful in accommodating residents with a wide range of social backgrounds, and is especially favored by well-educated young professionals. Theoretically, it is easier for households with similar structures and

educational backgrounds to share a common lifestyle and reach an agreement on the community value. Practically, however, a great range on incomes, careers and other personal background aspects may make communication not as easy. Moreover, seniors who act as the main force of neighboring interaction are absent from the majority of households. Without senior members as the communicating bridge, socialization opportunities are very limited among nuclear families with two busy working parents. Therefore, we argue that in NMT, the demographic features facilitate commonness among residents in terms of shared values rather than shared lifestyles. We may also expect a considerable difference in socialization patterns and lifestyles between senior and younger age residents, and between families with senior and without senior members.

Comparatively, as an employment-based neighborhood, social composition in XAUAT is significantly less diversified. The majority of the households are affiliated with the university as employees or retirees with comparable levels of income. However, there is more diversity found in terms of age groups, education backgrounds and household structures. Contrary to NMT, demographic features of XAUAT establish a strong foundation of shared lifestyles (income and household structure related); whereas it is less likely to support shared values among residents (education and age related).

In a summary, demographic characteristics in two neighborhoods present different potentials for facilitating lifestyles, a sense of community, and social interactions among residents. Their particular influences on people's place experience are demonstrated in the following chapters.

			XAUAT		NMT	
Gender	Male		19	38%	14	27%
	Female		31	62%	38	73%
Marriage	Married/living with a partner		38	76%	38	73%
	Single/divorced/widowed		12	24%	14	27%
Age	Under 20		1	2%	0	0
	20-29		6	12%	13	38%
	30-39		14	29%	7	20%
	40-49		11	23%	6	18%
	50-59		6	13%	2	6%
	60-69		6	13%	1	3%
	70-79		2	4%	4	12%
	Above 80		2	4%	1	3%
Occupation	Student		3	8%	2	4%
	Full-time work		23	60%	26	57%
	Part-time work		2	5%	0	0
	Homemaker		0	0	7	15%
	Self-employed		1	3%	3	7%
	Retied		9	24%	8	17%
Highest education level	Less than high school		5	12%	3	7%
	High school		8	19%	5	12%
	Technical school		3	7%	4	9%
	Some college		1	3%	0	0
	College		11	26%	22	51%
	Advanced degree		14	33%	9	21%
Previous residential experience	Location	Urban	32	67%	18	46%
		Rural	14	29%	7	18%
		Suburban	8	17%	14	36%
	Neighborhood	Work-unit	25	60%	19	44%
		Commercialized gated community	12	29%	20	47%
		Traditional neighborhood	10	24%	8	19%
		Shanty town	1	2%	2	5%
		Others	1	2%	2	5%
	Housing	Apartment	37	82%	28	70%
		Single family	10	22%	8	20%
		Shared housing	5	11%	8	20%
Average length of residence			16		6.25	

Household size	1	5	9%	8	18%
	2	11	29%	14	31%
	3	11	29%	14	31%
	4	6	18%	8	18%
	5	4	12%	1	2%
	6	1	3%	0	0
Household structure	With children under 5	6	15%	9	22%
	With children 5-18	13	33%	10	24%
	With seniors above 60	16	41%	6	14%
	Without senior or child	12	31%	17	41%
	Seniors only	2	5%	3	7%
Household income	Less than ￥20,000	0	0	2	7%
	￥20,000 – 49,999	3	12%	2	7%
	￥50,000 – 99,999	7	28%	4	15%
	￥100,000 – 199,999	12	48%	4	15%
	￥200,000 – 299,999	2	8%	5	19%
	￥300,000 – 499,999	0	0	7	26%
	￥500,000 – 999,999	0	0	5	19%
	More than￥1,000,000	1	4%	0	0
Ownership	Own	45	85%	44	83%
	Rent	4	7.5%	8	15%
	Others	4	7.5%	1	2%

Table 4-1: Comparison of Demographic Characteristics of XAUAT and NMT

CHAPTER FIVE: THE PHYSICAL FORM OF GATEDNESS: MORPHOLOGICAL AND CONFIGURATIONAL ANALYSIS

5.1 Introduction

This chapter examines the characteristics of the built environment of the two case study neighborhoods, XAUAT (the work unit residential compound) and NMT (the commodity gated community). With these two cases as examples, this chapter is aims to portray the overall physical features and spatial organization of the two types of gated development and to illustrate their similarities and differences in the light of their historical and cultural contexts. Analysis results from this chapter also support the discussion in the next chapter, which looks at the associations of the built environment and the residents' patterns of socialization and movement in the public settings.

Findings will be presented in two sections. The first section looks at the morphological description of the neighborhood layout and other land use factors, which includes residential density, the built/unbuilt ratio, and types of buildings/open spaces and their arrangement. The second section focuses on presenting the configurational structure of the neighborhood layouts based on space syntax analysis. Axial modeling is applied to the street networks of the

neighborhoods to illustrate their integration patterns and other configuration properties. Using the configruational structure as a reference, this chapter further unfolds the relationships among residential buildings, communal spaces/facilities, the circulation system, and other physical components.

5.2 Morphological Description of the Neighborhood Layout

Land use patterns of two neighborhoods are examined and compared in terms of three aspects: (1) building intensity (built area/total land area) and residential density (the number of households/acre); (2) building/open space types and arrangement in the neighborhood layouts; and (3) the morphological structure of the neighborhood layout.

Building Intensity and Residential Density

XAUAT

The XAUAT neighborhood was planned and constructed in 1955 as the residential and administration court of the university. The overall land use area is 32.42 acres. It is composed of clusters of different building types from administration offices, apartment buildings, to community educational, medical, and other services facilities.

Due to the continuous expansion of the university over the last seven decades, the number of households living the residential court had increased from around 400 in the 1950s to 2,410 until in 2012, while the overall land use of the neighborhood remained basically same. In order to accommodate the continuously increasing number of households and the footage of each household, the residential court has gone though several phases of re-planning and reconstruction. All of the low-rise (three stories) apartments that were originally built between 1955 and 1966 have

been gradually replaced by multiple-rise (four to seven stories) buildings during the 1980s and the 1990s, and high-rise (24 to 30 stories) buildings after 2000. XAUAT has developed into a high-density neighborhood in terms of both residential density and construction intensity. By 2012, the residential density had reached 73.34 households per acre in the total area of the neighborhood, and 218.89 households per acre in the built area. A big portion of the open spaces in the original plan have also have been gradually squeezed and are occupied by new constructions. Various types of buildings have covered more than one-third of the total site area. As a result, the outdoor open space for each household is as little as 386 square feet. Excluding the areas of neighborhood roads and the sports field for the attached schools, shared public green is less than 200 square feet for each household.

After decades of development, XAUAT has almost reached its land use capacity. Increasing building height is the new trend and almost the only solution to accommodate more settlements.

NMT

NMT is a master-planned gated community that was completely developed in one construction phase in 2002. It occupies a total land space of 68.04 acres – about twice the area of XAUAT, with a built area of 13.77 acres, which is 2.6 acres more than that of the XAUAT. The neighborhood consists of 31 medium-rise (5 or 6 stories) apartment buildings and 21 high-rise (16 or 24 stories) apartment buildings. The residential area for apartment units ranges from 1,399 to 2,325 square feet. The community also provides facilities, including the 113,021 square feet for the elementary school, 31,215 square feet for the childcare center, 53,820 square feet for

the clubhouse, 129,167 square feet for the community service and commercial buildings, and around 300,000 square feet for the underground parking garages that provide 3,000 parking spots.

Compared to XAUAT, NMT is featured with abundant outdoor open spaces including public greens, paved area for exercise, community gathering, playgrounds, and European-themed landscapes. The overall area of open space is 52.27 acres, and the green space ratio is around 40%. The building intensity is 20%, which is significantly lower than the 34% of XAUAT.

NMT has 2,172 households living in the community, which is slightly less than that of XAUAT. With abundant land usage, the residential density in NMT is about 31.91 households per acre, which is lower than half of that of XAUAT (74.34 households/acre). In addition, the outdoor open space per household in NMT is significantly higher (1,089 square feet) than that of XAUAT (386 square feet).

In summary, XAUAT is much more dense than NMT with regard to both residential density and construction intensity. NMT in general has obvious advantages on providing spacious residential areas and outdoor open spaces.

	XAUAT	NMT
Total Area (acres)	32.42	68.04
Building Intensity (Built Area/Total Area)	Built Area: 11.01 acres Open Space: 21.41 acres Building Intensity: 34%	Built Area: 13.77 acres Open Space: 54.27 acres Building Intensity: 20%
Residential Density (Household Unit/Acre)	Household Units: 2410 Residential Density: 74.34 Units/Acre Residential Density in Built Area: 218.89/Acre Open Space per Capita (Acres/household): 0.009 acre	Household Unit: 2172 Residential Density: 31.91 Units/Acre Residential Density in Built Area: 157.73/Acre Open Space per Capita (Acre/Household): 0.025 Acre
Residential Buildings	Medium-rise Apartments: 42	Medium-rise Apartments: 31
	High-rise Tower Apartments: 4	High-rise Tower Apartments: 21
Community Facilities	Parking Lot/Garage	Parking Lot/Garage
	Outdoor Recreation Facilities	Outdoor Recreation Facilities
	None	Indoor Recreation Facilities
	None	Clubhouse
	Community Center	Community Center
	Elementary School/Childcare Center	Elementary School/Childcare Center
	Art Gallery/Education Center	Art Gallery/Education Center
	Office Building	None
	Farmers Market	None
	Retail Shops	Retail Shops
	Community Medical Clinic	None
	Restaurants	Restaurants
	Hotel	None
Outdoor Open Spaces	Public Greens	Public Greens
	Playgrounds	Playgrounds
	Community Common Court	Community Common Court

Table 5-1: Summary of Land Use Factors in XAUAT and NMT

Building Types and Open Spaces

XAUAT

The residential court of XAUAT primarily provides employee housing and other related services, and also includes a building to accommodate the majority of the university administration.

The neighborhood had gone through four construction phases in the six decades of development with continuously change of the community layout (Figure 5-1 presents the original neighborhood planning in 1955; Figure 5-4 illustrates the four development stages from 1958 to 2012.).

Original planning of the neighborhood in 1955

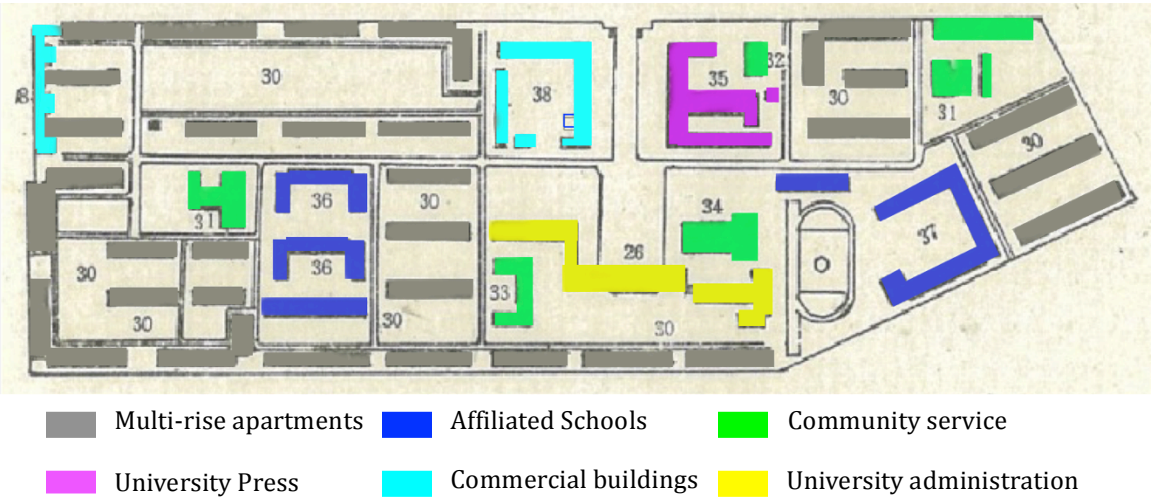


Figure 5-1: Original Site Planning of XAUAT (1955)[1]

In 1955, the residential court of XAUAT was planned and started construction along with the establishment of the university in the suburb of Xi'an. The original site planning of the neighborhood primarily adopted the Soviet *microdistric* schema - the

[1] Historical documents and information regarding site planning and construction phases were provided by the Archive Department of XAUAT.

dominant residential planning paradigm in China since the 1950s. It featured the typical spatial structures, elements, and characteristics of the work unit compound, which includes:

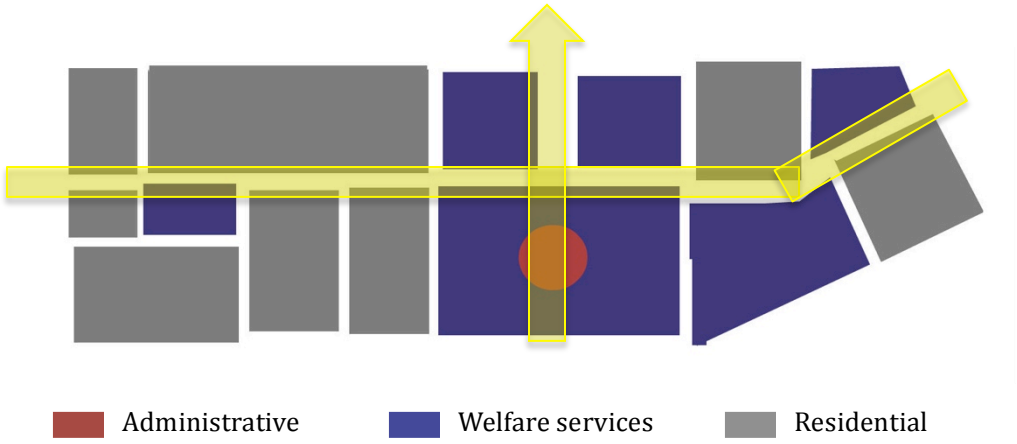


Figure 5-2: Zoning Structure of the XAUAT (Site Planning in 1955)

(1) A spatially enclosed territory adjacent to the university campus.

(2) Centripetal and hierarchical order of the layout: Arrangement of open spaces and buildings presented a remarkable hierarchical and centripetal order. The street system divided the whole neighborhood into a set of sectors (blocks), with each sector serving as a functional component of the community. Sectors are positioned along two central axis lines. The core area at the crossing of the axis lines is the administrative sector, symbolizing the absolute power over the whole territory; with a central common space and several services facilities arrayed in an orderly fashion surrounding it (See Figure 5-2). The physical layout of the individual sector was also centripetal. Most of the sectors had a landscaped open space at the core area. Buildings were largely arranged around the periphery of the sector with the main facade facing the central open space. In some sectors, residential buildings were arranged in parallel

rows. However, these row buildings were still grouped at the periphery of open spaces to create a series of semi-public domains.

(3) The street system is a passive circulation space: In the original planning, due to the inward facing layout of each sector, main streets of the neighborhood were essentially isolated from the buildings. Street was designed as an independent circulation element, with the primary function of defining the boundary of sectors and connecting the sector “entrances" along two axis lines.

(4) Self-contained, all-inclusive services and facilities: The work unit was originally planned with affiliated education institutions from the childcare center to the high school; community services included a medical clinic, two dinning halls, a recreational center, a community bathhouse; two commercial sectors for the post office, a barbershop, grain/meat distribution stations, and grocery stores; and also a few facilities such as boiler rooms, storage buildings, and a parking garage for the university fleet. It was planned as a semi-autonomous entity with work, habitation and services integrated for the exclusive use of their own employees.

Four development phases from 1955 to 2012

Development of the XAUAT neighborhood went through four phases.

The first construction stage was accomplished in 1958. A part of the residential buildings along the periphery were built to establish the neighborhood boundaries. Some living facilities were also built to provide basic services to residents.

The neighborhood gradually grew and matured in the following two decades. By 1977, construction of the neighborhood, according to the original site planning, had been basically completed.

The shift from the planned to the market economy since 1978 has created new opportunities for the development of the university. The neighborhood was under a great pressure to supply more settlements to an increasing number of employees and to improve the residential quality. The Construction Department of the university therefore made certain adjustments based on the original planning.

Massive construction happened during the late 1980s. By 1990, more than one third of the apartment buildings were either newly constructed or rebuilt/remodeled with additional living areas. A university hotel was established on the original site of the commercial court that was adjacent to the neighborhood main entrance. Some of the commercial services, such as the post office, bookstore, farmers market and small diners were relocated to the newly opened shops along the city street. Community services, such as the barbershop, convenient stores, and the grain distribution center, were still exclusively provided to the community but relocated to the central street. Many family-owned small businesses, such as breakfast food stands and window shops, started emerging along the central street.

Alterations of the physical plan, especially of the commercial sector, brought active community lives to the core area of the neighborhood. Meanwhile, the work unit started exploring the city commercials and service as an alternative to the community welfare. It helped to break the physical and social barriers between the work unit and outside society.

The most aggressive phase of re-development occurred after the Chinese Housing Reform policy was enforced in 1998. The university ended the welfare housing allotment policy and commercialized its housing stocks to employees. As a subsidy, the homebuyers in XAUAT purchased the property at prices far below market costs. Meanwhile, homebuyers only had partial ownership of the house, including a right of occupation, a right of use, and a partial right of profit and transfer. All rights may be inherited. The policy remarkably stimulated employees' housing demand. The Department of Construction, for the second time, emended the site planning to accommodate more residential units. This phase of construction was completed in 2007 (as seen in Figure 5-4 (d)). It contributed to about two-thirds of the residential buildings that are currently in use, and the majority of infrastructures for commercials, educations, administration, landscapes, recreations and community services.

Re-planning and construction since 1998 has fundamentally reshaped the physical form of the XAUAT neighborhood in the following four ways:

(1) New construction significantly increased the building density and scales. Almost all of the 3-to-5-story apartments were demolished and replaced by 7-story multiple-rises, or 24-30-story high-rise buildings. New construction also occupied a large area of the open space.

(2) Formal structure of the neighborhood was changed along with the new construction. The new arrangement physically and functionally opened up the enclosed form of building groups. More streets penetrated through and connected multiple building groups (blocks), which increased the spatial

integration of the whole neighborhood. Open spaces within the residential block gradually vanished, which significantly increased the usage of greens, common areas along the central streets. The central area became the administration, commercial, cultural and social core of the community. In a word, redevelopment of the neighborhood had largely dissolved the original community-block-building hierarchy. The whole neighborhood was more spatially and socially integrated.

(3) Another critical change in this phase of redevelopment appeared on the public sector. More service and recreational facilities took over the original administration building. For example, the University Press building was renovated into a community art center. The west wing of the administration building became a recreational center primarily serving retirees. Moreover, many community facilities disappeared or merged into the city public services, such as the post office, the grain distribution center, the bath center, and several dining halls. Meanwhile, most of the apartment buildings around the neighborhood periphery were built as residential-commercial complexes. More stores, restaurants, and services venues boomed around the fringe of the neighborhood. The farmers market was relocated into the neighborhood but kept accessibility to the outside. XAUAT provides the space and maintains service to the farmer market, which benefits surrounding city areas. These changes reinforced the social, cultural, and economic connection of the neighborhood to the peripheral city area.

Transformation of the physical layout of XAUAT reflects the shift from a

political to an economic order in the post-reform era. Increasing spatial openness and integration is evident within the neighborhood. Meanwhile, communication has been growing between those inside and outside of the neighborhood. The work unit has lost the advantage of providing premium employee welfare compared to the city public services. The residential court is also gradually shifting form a collectivist all-inclusive social structure to a more residential-focused community.

Apartments (the 1980s)

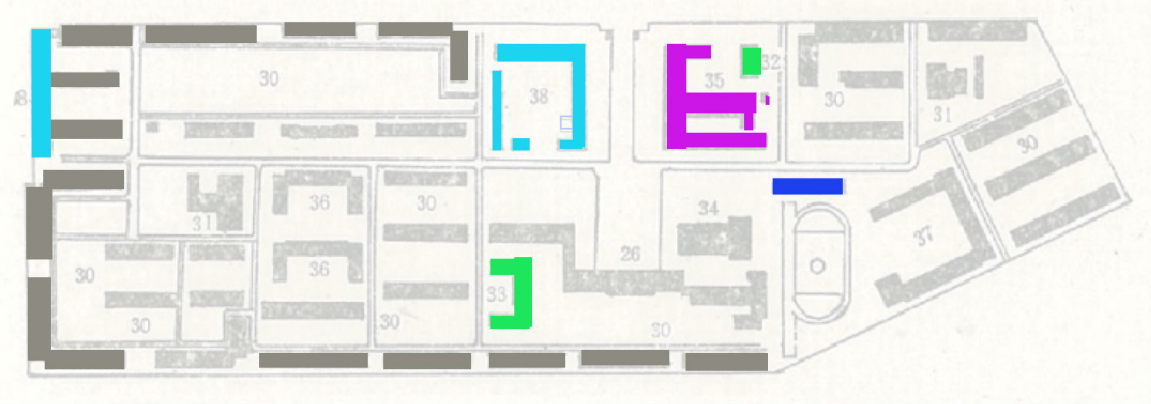
Apartments (the 1990s)

Farmer Market

Elementray School

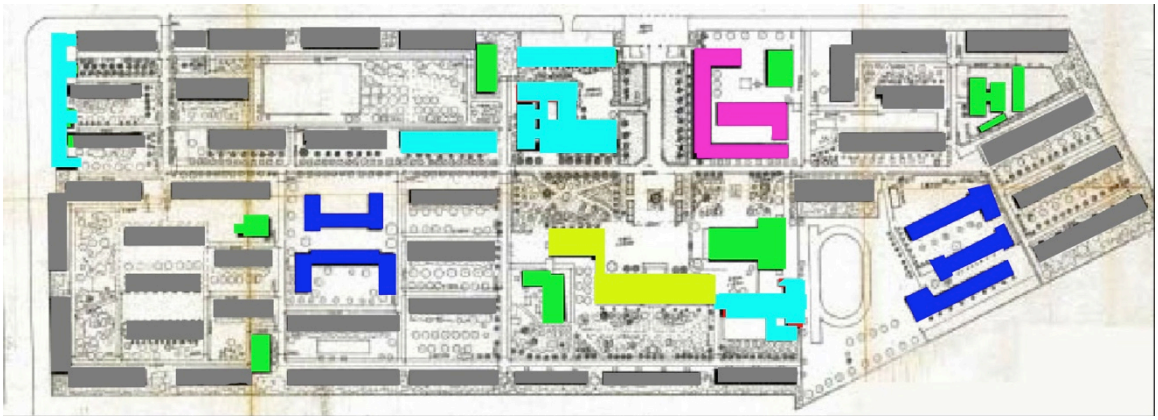
Community Park

Figure 5-3: Scenes in XAUAT



(a) Constructions Completed in 1958

(b) Construction Completed in 1977

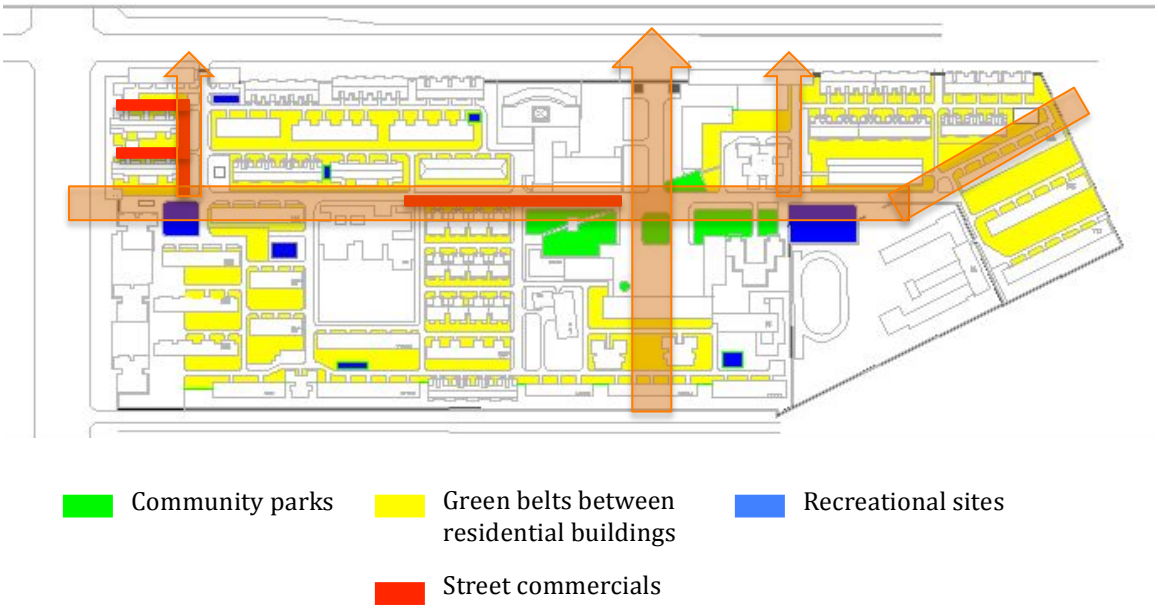


(c) Re-planning and Construction Completed in 1990

(d) Re-planning and Construction Completed in 2012

Multi-rise apartments
Attached schools
Community service
High-rise apartments
Commercial buildings
University administration
University Press

Figure 5-4: Development of XAUAT (1955-2012)



Community parks
Green belts between residential buildings
Recreational sites
Street commercials

Figure 5-5: Distributions of Open Spaces in XAUAT

NMT

The urban fabric of the surrounding area

NMT is located in the Hi-Tech Hub of Xi'an - a newly expanded district established in the 1990s. After two decades of development, the Hi-Tech Hub has grown into an urbanized area containing industrial zones, business centers, and housing projects.

As many newly developed suburbs in China, the hi-tech hub was established at the city outskirts, thus encountering minimum land use limitation and limited planning regulations. The spatial layout of the district consists of a series of superblocks and large-scale street networks. City streets with broad sidewalks and a mix of medium-rise building and high-rise towers gradually arose into the regional commercial and business center. The superblocks surrounded by city streets are used for industrial or residential developments. Most superblocks are taken by individual developers or institutes, and are gated to prevent trespass. The urban fabric of the high-tech hub is featured with low-density gated superblocks surrounded by high-density urban streets (See Figure 5-6, 5-7, and 5-8).

Figure 5-6: Urban Fabric around NMT (source: Google Maps)

Figure 5-7: Bird View of High-Tech Development Zone of Xi'an

(source: http://www.xdz.com)

Figure 5-8: Street Views from Outside of NMT

Types of buildings and open spaces

NMT occupies a 68-acre land parcel for development. Residential buildings in NMT include 31 multiple-rise row buildings and 21 high-rise towers. They dominantly accommodate large size units varying from three bedrooms to four bedrooms. The development targeted the homeowners with a relatively homogeneous socioeconomic background.

NMT was planned with approximately 327,500 square feet of retail and service facilities, including an elementary school, a daycare center, community clubhouse and a property management service center, a commercial center, restaurants, underground parking, and other amenities. As a large-scaled gated community, NMT intends to provide amenities for most of the daily needs and activities.

NMT is featured with plenty of outdoor spaces to meet a variety of recreational needs. The main park at the center of the neighborhood occupies around 1/8 of total land use. It consists of a European-themed garden, a large area of landscape, several biking and walking trails, playgrounds, and shaded sitting areas. A sink-style plaza at the heart of the park is designed for special events and neighborhood gatherings. Some hard-surfaced yards are provided at the center of residential blocks, featuring sitting areas and playground structures. Outdoor spaces between buildings are also featured with landscapes for recreational needs. The community also provides outdoor sporting facilities such as tennis courts and basketball courts to residents.

Neighborhood Gate

Community Commercials

Community Club

Open Space in the Residential Block

Tennis Court

Childcare Center

Figure 5-9: Scenes in NMT

NMT employs a hierarchical design of the street system. The main road goes through the core area of the neighborhood layout. It draws the boundary between the community center and residential sectors, and directs traffic and flows from main entrances to each building cluster. The secondary roads further define the boundary

of building clusters. Pathways and walking trails organize the pedestrian flows within the cluster. Motor traffic is strictly controlled in the neighborhood. Vehicles normally are only allowed to enter the underground parking structures. It brings certain inconvenience to residents and visitors, while it makes NMT a pedestrian-friendly neighborhood.

As in many other newly built gated communities, streetscape design of NMT adopted Western architectural motifs. Western style decorations can be seen on the landmark buildings, landscapes, and the façade of the residential buildings. Developers and designers intend to use the exotic visionary concept to create an image of the "new good life" and maintain an atmosphere of "community".

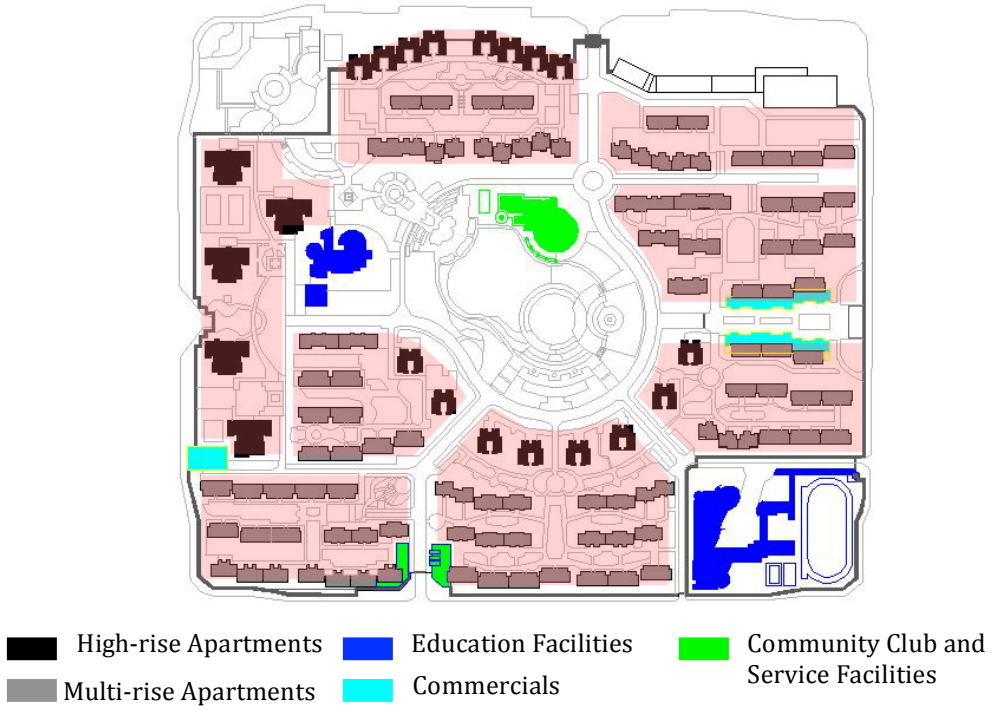


Figure 5-10: Distribution of Buildings in NMT

Figure 5-11: Distribution of Open Spaces in NMT

Arrangement of the neighborhood layout

As discussed in the literature review, the neighborhood unit has become a dominant schema of urban housing development in modern China. NMT is a typical example featuring the following three design logics and morphological characteristics.

First, the whole neighborhood layout is designed into a hierarchically differentiated space system - from the level of the community to the level of residential blocks to the level of residential buildings. Buildings, streets, and landscapes are space elements in the system, and are labeled as public, semi-public, and private spaces accordingly. At the community level, NMT arranges a large central area to accommodate the majority of the communal facilities. Surrounding dwelling

clusters are those at the semi-private level, consisting of a group of residential buildings with central landscapes; followed by dwelling in buildings with the small parcel of green spaces in between as a more private area shared by residents close by.

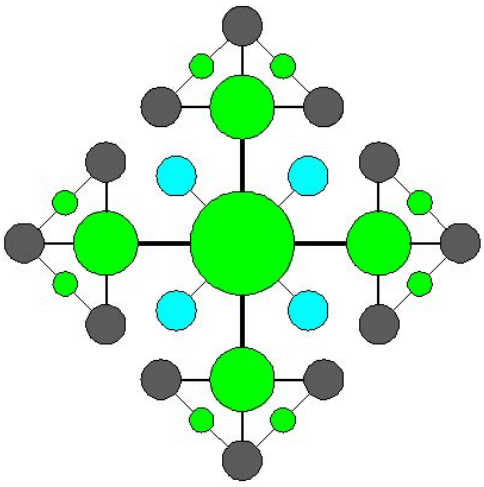
Second, the hierarchical system consists of a series of spatial segments. These segments are spatially detached but functionally dependent on each other. The community center area with amenity facilities and open spaces is spatially separated from the dwelling sector. Residential buildings are arranged in parallel rows, which seem to create a visual continuity. However, row buildings and towers are grouped together, and form a series of inward facing blocks.

Third, the road system serves as a circulation element to direct traffic flow and to divide spatial segments. The placement and dimensions of roads are decided according to their relative position in the spatial hierarchy.

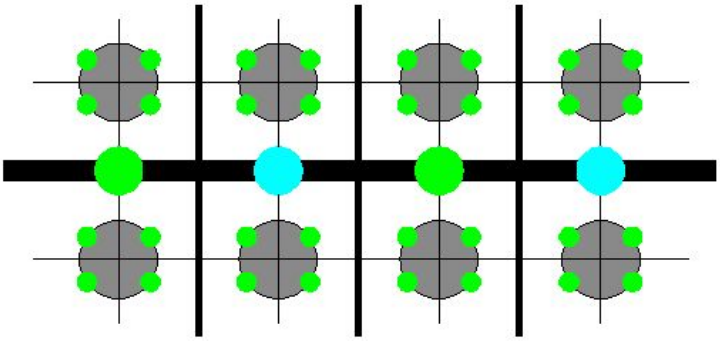
This design of NMT reflects the rationale that intends to systematically differentiate, program, and facilitate a common pattern of residential life in a hierarchical spatial order.

Comparison of the Morphological Structure of XAUAT and NMT

Based on above elaboration of physical arrangements in the two study cases, the following diagrams illustrate two types of morphological structures.



(a) NMT and XAUAT (Original Planning): Green-Centered Hierarchy Structure



(b) XAUAT (Current Layout) Street-Centered Network Structure

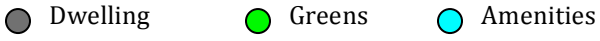


Figure 5-12: Morphological Structures of XAUAT and NMT

Figure 5-12 (a) represents the planning schema of NMT and the original planning of XAUAT. Despite substantial differences on the neighborhood scale and facilities, the two developments present an almost identical morphological structure

with five typical characteristics: (1) rigid spatial hierarchy ranging from "public," "semi-public," to "private"; (2) inward-facing segments as the basic spatial component of the layout; (3) communal faculties gathered together as the center of the community; (4) a system of green areas assigned as the center at each level of the hierarchy; and (5) streets as the instrument of circulation and division of the spatial segments. This study names this type of formalistic layout as the "green-centered hierarchy structure."

Essentially, "green-centered hierarchy structure" represents the typical formalistic layout of the "neighborhood unit" model in China. It reflects a basic mentality that "pattern of life will be programmed in relation to the scheme of communal facilities and certain ideas about social organization" (Ye, 1999b). The formalistic model of the "neighborhood unit" was widely applied to the work unit, and is considered a powerful means of implementing state interventions (Lu, 2006; Ye, 1999b). Designed half a century apart, the original planning of XAUAT and NMT presented a rather identical formalistic structure. It demonstrates how the neighborhood unit model has gained in legitimacy in the realm of the residential development in urban China.

Figure 5-12 (b) illustrates the current layout of XAUAT. Several phases of re-planning and constructions gradually dissolved the green-centered segments. The center street acts as a linear core in the neighborhood, and has being heavily used as the "community center." A grid-like road network breaks through the boundaries between the spatial segments and substantially increases the permeability of the neighborhood. Instead of defining/dividing functional segments in the layout,

neighborhood streets become the positive space accommodating and connecting communal facilities and residential lives. This study therefore names the reformed layout of XAUAT as a “street-centered network structure.”

Changes of the life style and space functions have gradually converted the layout of XAUAT from a “green-centered hierarchy structure” to a “street-centered network structure.” In this process, we see a more integrated layout with less hierarchically differentiated spatial elements. Using the space syntax analysis, the next section will further examine configurational differences of the two types of structures in relation to their potential on the patterns of space use.

5.3 Configurational Analysis

This section uses the space syntax analysis technique to compare the spatial properties of the two case study neighborhoods. Discussion focuses on two aspects: (1) the spatial configuration structures of the neighborhood layout, and (2) the placement of public settings (amenity facilities, streets and open spaces) in the form of configurational attributes. Research findings from this section lead to the discussion of the next chapter to show the potential influence of the morphological features on pedestrian activities and socialization patterns.

Axial Maps and Related Measures

Among various spatial measurements of space syntax, the "axial map" is a commonly used, graph-based technique used to represent the formal structure of large-scale urban settings (Hillier & Hanson, 1984). The axial map is a planar connected configuration consisting of axial lines. The definition of axial lines has gone through a series of evolutions. However, in the urban settings, it is normally considered as the fewest longest straight sight-lines in a street space that are able to cover the whole measured area. Axial maps provide information about the patterns of connection between spaces and the connections of each space to all other spaces. In this regard, it develops measures for assessing the urban setting at both local and global levels: globally, it describe the spatial layout regarding the patterns of connections between local spaces; and locally, it quantifies the syntactic property of

each space with respect to its topological relationship within the global system.

This research uses the axial map as the instrument for representing the configuration of the neighborhood layout of the two case study neighborhoods. The axial maps are generated and analyzed using the *Depthmap* program. Outcomes include color-coded maps representing the configurational structure of the layout, and a set of quantitative measures that describes the syntactic properties of the spatial elements. These measures are *depth, integration*, *connectivity,* and *intelligibility.*

Depth is the foundation of all other space syntax measures. In the axial map it is defined as the least number of change in direction from one line to another. *Depth* can be mathematically expressed. This is denoted by *mean depth*, which is calculated as "… assigning a depth value to each space according to how many spaces it is away from the original space, summing those values and dividing by the number of spaces in the system less one (the original space) " (Hillier & Hanson, 1984). *Mean depth* can be used to measure the permeability of a spatial system. A system with high *mean depth* value is considered as *deep*, while a system with low *mean depth* value is considered as *shallow.*

Integration is the focus of axial map analysis. It is a global-level measure describing the average *depth* of a space to all other spaces in the system. We can therefore use *integration* to rank spaces of a system from the most integrated to the most segregated. The *integration core* is the set of the most integrated spaces of a system. In the axial map, it is conventionally formed by the axial lines with 10% of the most integrated values. It is considered to be the destination of natural movement

(Hillier et al, 1993), and thus configuration of the core (e.g., connectivity, shape, range, etc.) is an important property of the layout. The *integration core* can be quantitatively measured by its *strength*, which is defined as the ratio between the mean integration of the core and the entire system. The higher the value, the higher the likelihood of the core is to attract natural movements. The mean value of *integration* can also be used to compare different configured systems. In an integrated system, spaces are, on average, topologically closer to all other spaces. Or we can also say the system is relatively *shallow*.

Connectivity is another important space syntax measure. On the axial map, it refers to the number of other axial lines that are directly connected to any one line. C*onnectivity* is a local measure for it only considers connections within one depth.

Intelligibility is a second order measure. It is the correlation between *local connectivity* and *global integration*, which indicates how far the *depth* of a space from the layout as a whole can be inferred from the number of its direct connections. This measure describes the predictability of a system from the perception of the local configuration toward an understanding of global configurations. The concept of *intelligibility* is helpful to understand the relationships among configuration, cognition, and behaviors in the residential settings.

Configuration Structure of the Neighborhood Layout

Figure 5-13 and 5-14 display axial maps of XAUAT and NMT. Table 5-2 summarizes syntactic properties of two neighborhoods.

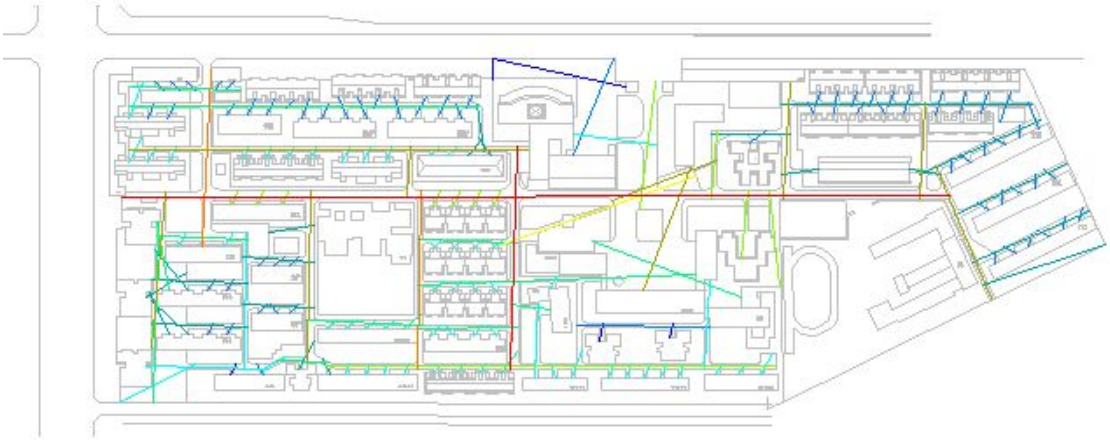


Figure 5-13: Axial Map of XAUAT (Global Integration)

Figure 5-14: Axial Map of NMT (Global Integration)

	Number of Axial lines	Mean Connectivity	Mean Integration	Mean Depth	Intelligibility	Length of Axial Lines (m)		
						Max.	Min.	Mean
NMT	377	3.011	0.69	10.63	0.24	240.06	3.29	37.36
XAUAT	188	2.667	1.45	4.60	0.64	556.26	7.40	35.82

Table 5-2: Summary of Syntactic Properties of NMT and XAUAT

XAUAT and NMT present obvious different syntactic features. Due to the difference in size, NMT contains about twice of number of axial lines compared to those of XAUAT. However, the mean connectivity value of NMT is only slightly higher than that of XAUAT.

The integration value of XAUAT (1.45) is significantly higher than that of NMT (0.69). The mean depth of the axial lines in XAUAT (4.60) is also significantly lower than that of NMT (10.63). Both measures indicate that compared to NMT, XAUAT is a syntactically more integrated and shallower system.

Figures 5-15 and 5-17 show the integration cores of XAUAT and NMT. Integration cores here consist of the 10% most integrated axial lines in each map. In XAUAT, the integration core overlaps with the geometric center of the layout. It lies on the central road that runs though the layout horizontally, with a set of vertical lines penetrating through most of the residential blocks and reaching the peripheries. The integration core presents a strong permeability throughout the whole layout.

The integration core of NMT is found on the main roads that go around the central communal area and directly to neighborhood entrances. The weight of the core remarkably leans southward, which separates the system into a more segregated northern half and a more integrated southern half. Therefore, although the arrangement of residential clusters is physically symmetrical surrounding the community central area, syntactically residential clusters of the south are closer to

the center, whereas ones at northwest are relatively distant and isolated. Compared to XAUAT, the integration core in NMT appears to have a relatively weaker controllability over the entire system.

	Mean integration of the core	Strength of the core	Number of axial lines within the core
NMT	0.969	1.412	37
XAUAT	2.185	1.503	17

Table 5-3: Summary of Syntactic Properties of Integration Cores in NMT and XAUAT

The syntactic properties of integration cores are summarized in Table 5-3. The results suggest a relatively higher strength of the integration core in XAUAT compared to that of NMT. It indicates that in the case of XAUAT, natural movements are more likely to flow into the core area; whereas the core area in NMT has less potential for attracting pedestrian flow.

Different permeability of the two spatial structures can also be shown through the length of axial lines. Despite the fact that the size of XAUAT is only half that of NMT, their average length of axial lines are about same value. Besides, XAUAT's longest and shortest axial lines are both twice as long as those of NMT. Hillier (2002) argues that "an axial line captures the overall sense of visual and/or permeable connections that are available to a potential observer or passerby moving about the street," thus longer lines potentially enhance the permeability, visibility, and perception of the overall pattern of the global structure; whereas shorter lines render the system localized. In this respect, the street network in XAUAT is a centralized system emphasizing connection to the core, while NMT creates a localized environment with more potential for isolation and privacy.

In summary, XAUAT's spatial system possesses comparatively higher integration and a stronger core-periphery dynamic. The integration core has good controllability of the entire system and is easily accessed from most parts of the layout. The configuration of XAUAT appears to be syntactically shallow, centralized, and symmetrical. Compared to that, NMT's configuration appears to be less integrated and syntactically deeper. The integration core has relatively less attraction on natural movement and weaker permeability to the periphery. A spatially based integration core also divides the layout into two parts, with one is more configurationally segregated than the other.

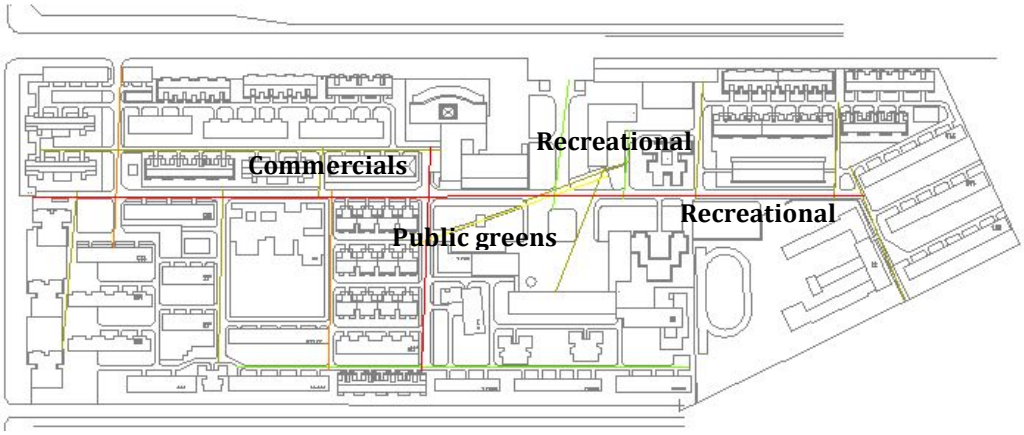


Figure 5-15: Integration Core of XAUAT

Figure 5-16: Longest Axial Lines in XAUAT

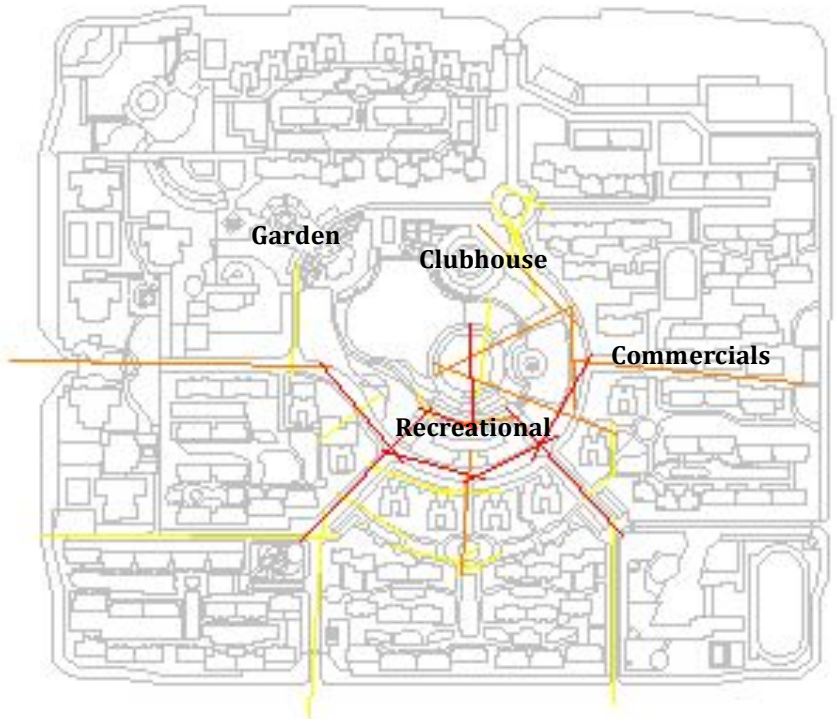


Figure 5-17: Integration Core of NMT

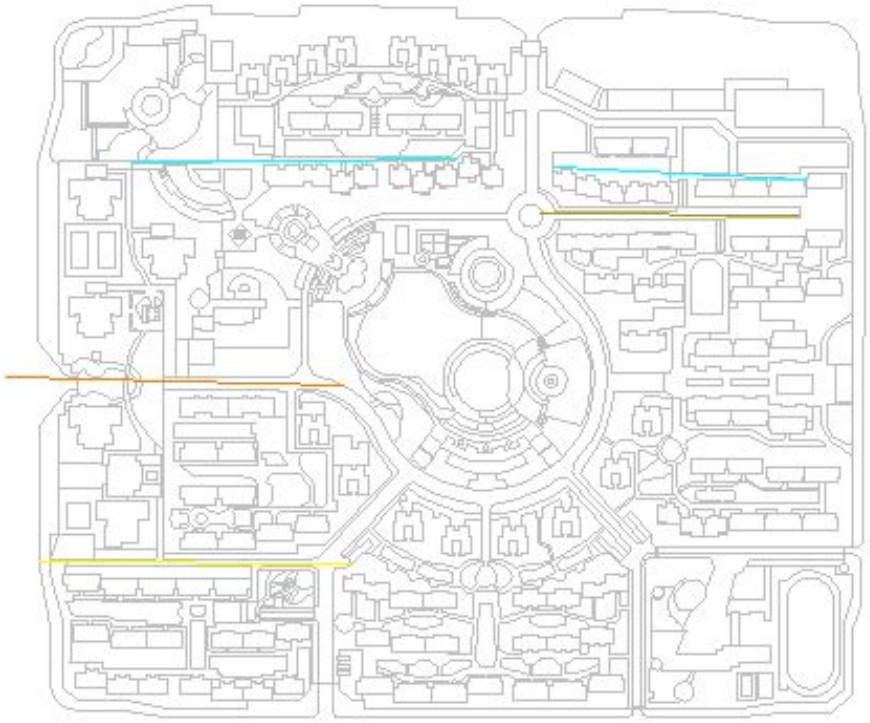


Figure 5-18: Longest Axial Lines in NMT

Street Networks and Intelligibility of Configuration

The differences of spatial configuration of the two neighborhoods are primarily determined by characteristics of the street system.

Looking at NMT, the circulation system presents a tree-like pattern. Traffic and pedestrian flow are distributed from the major roads to the secondary roads and then enter onto the building clusters. Direct connections between building clusters are very limited through a few hiking trails. The street network generates a relatively less integrated but deeper configurational structure. Dwelling clusters appear to have been deprived of pedestrian flow because of their relatively segregated position in the space hierarchy.

As the highly integrated core of the neighborhood, the primary road encircles the communal center and directly connects the north and west entrances to the neighborhood. It appears to have attracted most of the local traffic coming to and leaving from the neighborhood. Its curving trajectory at the southern part of the road also remarkably increases local connectivity, which results in a distortion of the configurational symmetry, with the integration core remarkably leaning toward south part of the layout. Thus, at the core of the neighborhood, the primary road appears to have less gravity in terms of the entire neighborhood. It splits the layout in north and south halves and intensively integrates the south half, leaving weak connections to the north. The residential sectors in the north, therefore, are more isolated from the core area, and their natural movements have a higher likelihood of being directed toward the city street outside of the neighborhood.

In case of XAUAT, rectangular grids dominate the circulation system, and

inflate the overall integration value of the layout. Higher grid regularity generally generates multiple route choices between destinations, which in turn decreases the mean depth of the configuration system and enhances the accessibility from periphery to the center. The long axial lines weaken the hierarchical nature of the street system and strengthen the connection among residential blocks. The symmetrical grid typology also results in the integration core concentrated in the geometric center of the neighborhood. Moreover, the main street of the neighborhood does not directly connect the main entrances but constitutes its main west-east axis. Rather than being a movement channel for coming and leaving traffic, it plays an important role as a residential core attracting the communal gathering activities and directing the natural movement in the neighborhood.

Distinctions of circulation structures in the two neighborhoods are also reflected in their intelligibility values. Intelligibility in this study is defined as the correlation between the connectivity and integration values of an axial line. According to the natural movement assumption, the higher the intelligibility of a system, the higher level of consistence that exists between the global and local spatial properties, and the higher the possibility of pedestrian encounters along the integrated lines (Hillier & Hanson, 1984). Empirical evidence on residential settings in London further finds that residents in more “legible” areas are more likely to perceive their “neighborhood” to be of a greater size (Kim, 1999).

Spatial analysis finds a significant high intelligibility value for XAUAT (0.64), which suggests a high predictability of its spatial system. Theoretically, the central street area in XAUAT, as the integration core, is more likely to play an important role

in influencing overall socialization patterns in the neighborhood. This statement is evidently endorsed by the spatial evolution of the central street over the last five decades. As we discussed earlier in this chapter, the central street has been naturally developing from a passive circulation channel into a civic center of the neighborhood, which houses a variety of communal venues and places for socializations. The high value of intelligibility also indicates a possibility for active socialization at the community level. More discussion in later chapters will elaborate on the relationship between residents' socialization patterns and conceptualization of "community".

NMT, in contrary, has a significantly lower value of intelligibility (0.24), suggesting a lack of consistence between local and global integration. The result is not surprising considering the layout in fact consists of a series of segregated and self-standing spatial segments, mostly in the residential clusters. The axial lines with highest connectivity are therefore largely found within the segments, whereas the integration core in found at the central street level. The low level of intelligibility may possibility result in a mismatch between design intentions and the actual usage of public spaces. High connectivity within the residential clusters may also potentially limit the physical range of resident socialization and their perception of the community accordingly. These hypotheses will also be tested in later chapters.

Placement of Civic Spaces

Placement of civic places in residential settings has an essential influence on the residents' dynamics of daily life. Space syntax analysis is able to capture the underlying logic sustaining these public settings. From a morphological perspective, it accesses civic places' role on "community making" from their potential of generating and attracting or fostering natural movements.

Civic places in this study include open spaces, such as public greens, play grounds, and outdoor sporting facilities; recreational facilities, such as the club house and gallery; and community service and commercial facilities.

Placement of these civic places in relation to the integration cores in the layout are shown in Figure 15 and 17. In the case of XAUAT, the majority of communal facilities and open spaces are distributed along the central street, the most integrated place in the neighborhood. As elaborated previously, most of these open spaces were not initially planed in the current location; instead, they were grouped and placed into various spatial components based on functional considerations. Growth of the neighborhood and lifestyle changes gradually concentrates these facilities along the integration core. In this regard, the dynamics of daily life have played a vital role in reshaping spatial configuration.

Looking at the case of NMT, the large-scale central area is the focus of the civic life. Most of the amenity facilities are concentrated at the center and ample open space is provided for public gatherings and the like. Landscapes and facilities are placed in the central area in three kinds of groupings. The southern part consists of playgrounds, a community square for public gathering and plenty areas for sitting.

This area is adjacent to the integration core, with a couple of lines penetrating into it. Syntactically, this area is highly integrated and engaged with the rest of the layout, and thus is expected to be a primary destination of pedestrian movements. The clubhouse and other recreational facilities are located at the northeast corner of the central area, which is close to moderately integrated lines. To some extent, this area has the location advantage of attracting pedestrian movement generated by configuration. The northwest part of the central park is occupied by a European style garden. To show a prestigious image of neighborhood, this garden probably has received the best treatment in terms of architectural design, landscaping, and maintenance. However, placement of the garden is syntactically distant from the integration core. It makes the whole garden area a fairly isolated place in the neighborhood that is able to attract very limited pedestrian flow. It is possible that creating a quiet and segregated garden was the developer's intention. However, researcher's on-site observations found that residents actually rarely visited the garden for any form of activity. Despite the premium location of the garden, its poor configurational dimensions play an important role in affecting the use of place. The correlation between the observational data and configurational properties of the place is seen in Chapter Six.

	NMT	XAUAT
Whole neighborhood	0.69	1.45
Central park	0.88	2.41
Central greens in residential clusters	0.72	N/A
Greens between residential buildings	0.57	1.21
Retails	0.94	2.18
Recreations	0.78	2.58
Community services	0.91	2.44

Table 5-3: Mean Integration Values for Civic Spaces

We can also quantitatively assess the configurational dimensions of each type of civic space by their integration values. Table 5-3 summarizes the mean integration value of civic settings, which are calculated as the mean value of all axial lines that go through the space. It is quite obvious that XAUAT presents a significantly higher integration for all types of public place. The following discussion focuses on each neighborhood, respectively, to compare the configurational dimensions between the different types of civic place.

In XAUAT, except for the greens parcels in front of the residential buildings, the majority of other civic spaces, including recreational and service facilities, commercials, and the community park, all have high integration values with a mean above 2.18. These values are significantly higher than the average of the whole neighborhood (1.45). It reaffirms that the civic spaces in XAUAT are highly integrated, and thus with a good potential for active community use.

In the case of NMT, the amenity facilities present a higher integration value compared to the neighborhood average - although the advantage is not as substantial as in the case of XAUAT. The result suggests a generally sound placement of amenity facilities in NMT in terms of their potential for attracting pediatrician flow and the ability to serve the whole community. Regarding the public greens, the mean integration value gradually increases from green parcels next to the apartment buildings (0.57), to the landscape in the center of the residential cluster (0.72), to the central park that serves the whole community (0.88). The design rationale of the hierarchical public – semipublic – private spatial system is very evident in this respect.

In summary, configurational properties of the civic spaces discover (1) the high potential of civic spaces in XAUAT to attract natural movement and social activities; (2) in NMT, the reasonable placement of most amenity facilities and communal places around the integration core that accommodates the needs of communal gathering and service; and (3) isolation of the community garden from the integration core which makes it a forgotten segment in the community.

5.4 Conclusion

This chapter unfolds the morphological and configurational features of both case study communities. The first part of the chapter summarizes basic construction features, and the social, historical, cultural and environmental contexts of the development of the two neighborhoods.

The original layout of the residential court of XAUAT adopted the Soviet *microdistrict* schema. It features a spatially enclosed territory adjacent to the working court, centripetal and hierarchical order of the building clusters, a street system of a passive circulation space, and self-contained, all-inclusive services and facilities that are exclusively provided for its residents. Four phases of re-development have significantly increased the building and residential density. More importantly, it has gradually dissolved community-block-building hierarchy and has increased spatial openness and the integration of the neighborhood layout. The street system becomes the focal point of the community. Spatially, it comprises the interaction core of the configuration; and socially, it accommodates most of the community services and socializations places. Development of the neighborhood has also increased the social, cultural, and economic connection with outside the neighborhood. Re-developments have been gradually shifting the neighborhood from a spatially differentiated system to a highly integrated entity; from a socialist organization to a residential-focused community.

NMT is a gated super block surrounded by highly urbanized city streets. It is a typical example of the suburban development in the post-reform era. NMT features relatively lower residential density, plenty of outdoor spaces, as well as a variety of community facilities and amenities, providing for a comprehensive package for meeting residents' daily living needs. The neighborhood layout presents a rigid spatial hierarchy in the order from "public," to "semi-public," to "private." Buildings, open spaces, and other physical elements are arranged in the layout accordingly. The system consists of a series of isolated spatial segments. Inward facing building clusters are the basic arrangement component of the layout. Communal faculties are concentrated at the central area, and public greens are assigned as the center at each spatial level. The road system is a detached circulation element with a function of directing the flow and defining the boundaries of the spatial segments. The configuration structure of NMT appears to be less integrated and syntactically deeper. Its integration core has relatively less attraction on natural movement and weaker permeability to the periphery. The whole layout is divided into two parts, and one is configurationally more segregated than the other.

Summarizing the characteristics of morphological forms of two neighborhoods, this chapter proposes two types of structures: (1) the *green-centered hierarchy structure*, found in NMT and the original planning of XAUAT, and (2) the *street-centered network structure*, representing the redeveloped form of XAUAT.

The *Green-centered hierarchy structure* creates an environment with high level of centralization at the global level, a lower level of core-periphery permeability, and a high degree of isolation at the local level. The significant lower value of

intelligibility suggests an inconsistency between the local and global configurations. The basic spatial unit, the residential cluster, is a globally isolated entity with high internal connectivity. This potentially restrains the flow of natural movement, and further influences residents' physical range of socialization and perceptions of community.

Compared to that, *street-centered net structure* is a syntactically shallow, centralized, and integrated system with a stronger core-periphery dynamic. The integration core presents great attraction of natural movement and controllability over the entire system. Less differentiated spatial order allows the pedestrian movement flows smoothly from one space to the other, thus significantly increase permeability of the whole system. The spatial configuration has a good potential of enhancing social interaction and community cohesion.

Comparison of spatial forms of XAUAT and NMT stimulate discussions of two interesting phenomena. First, the physical design of NMT and the original planning of XAUAT and NMT present an identical formalistic structure, despite that the two projects were constructed over half century apart. Both models present a particular form-function modernistic rationale, which assumes a programmable common form of residential life, while the physical settings are designed accordingly to cater to daily needs and direct socialization. This design rationale has gained legitimacy in the realm of housing development in China, and is favored by designers and planners for its advantages of feasibility and reproducibility. Meanwhile, it has also significantly shaped people's recognition of residential settings and is widely accepted as the standard form of urban residence. Without denying the connections of Chinese gated

communities to western residential experiences proposed in many other studies, this chapter demonstrates and emphasizes the unique transition path in China from the model of the work-unit to the current gated community.

Second, the spatial transformation in XAUAT illustrates how a self-sufficient and strictly constrained organization has gradually shifted to an open and mixed-used residential community. Re-developments of the neighborhood have significantly improved the integral integration as well as communication with surrounding urban areas, which has transformed the original master-planned fortress it into a genuine urban community. This case illustrates an alternative to the common narrative of gatedness in China. It represents the spatial transformation and fragmentation of spatial gatedness under the influence of various dynamics and mechanisms.

CHAPTER SIX: EXPERIENCES OF GATEDNESS - Use of Public Spaces and Socialization

6.1 Introduction

Chapter five focused on the physical and morphological features of two case study neighborhoods, and suggests their potential influence on social activities in public settings. This chapter looks at the practical use of public places, and examines the relationship between residents' social-behavioral patterns and the physical features of the neighborhood, and other factors.

Analysis in this chapter is based on two data sources: observation of movements in public settings, and survey results regarding respondents' use of pubic spaces, walkability, and socialization patterns. Findings in this chapter will be presented in two parts. The first part focuses on patterns of movement and public space use; and the second part focuses on patterns of neighboring socialization. Each part will conclude with a discussion of its relationship with the morphological features of the settings and demographic features of the user groups.

6.2 Use of Public Spaces

Types of Movements in Public Settings

Observations

Non-participant behavior observations were conducted at the sites of both neighborhoods to gather data regarding the types and patterns of movements in the public spaces. Observation sites include all the outdoors spaces (i.e., streets, parks, and other common areas) throughout the neighborhoods. This study uses the *convex spaces*[2] as the measurement unit for defining observation sites. It ensures a spatially homogenous environment for all observed at each site. Accordingly, NMT has 63 and XAUAT has 51 sites for observation and recording.

Based on an informal pilot observation in the two case study locations, a series of predominant activities are identified, including walking, child/children playing under supervision, child/children playing without supervision, recreation activities (e.g. exercise, playing cards, dancing, etc.), talking, staying alone, and shopping. Data obtained from the observation was the number of each type of activity at each observation site. Considering the different sizes of observation sites, the observation result was further converted into the form of density – observed

[2] Convex space is a concept used in the Space Syntax. It is defined as a space where no line between any two of its points crosses the perimeter. A layout is to be fully covered by the least number of convex spaces. Convex space is considered spatially homogenous for its full visibility and accessibility within the boundary. For that reason, it is widely used as a basic element for spatial analysis in Space Syntax.

number of activity per 1,000 square meters.

Table 6-1 presents the average numbers of activities that were recorded in one round of observation. Figure 6-1 and 6-2 show the proportion of each type of activity in all observed movements. Some remarkable differences between the two communities are presented.

	NMT		**XAUAT**	
	Mean	Density (in 1000 sq.mt)	Mean	Density (in 1000 sq.mt)
Walk	75.5	0.89	102.9	3.50
Child/children play with supervision	18	0.21	30.1	1.02
Child/children play without supervision	18.5	0.22	27.5	0.93
Recreation activities	10.2	0.12	4.7	0.16
Talk	13.1	0.15	53.9	1.83
Stay alone	6.9	0.08	15.1	0.51
Make a purchase	7.7	0.09	69.1	2.35
Total	149.4	1.76	303.3	10.31

Table 6-1: Mean of Observed Activities

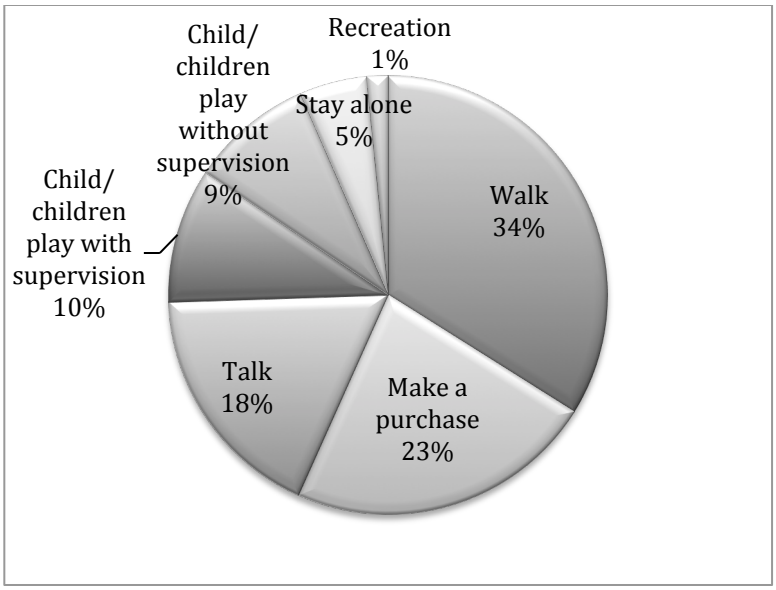


Figure 6-1: Percentages of Types of Activities in XAUAT

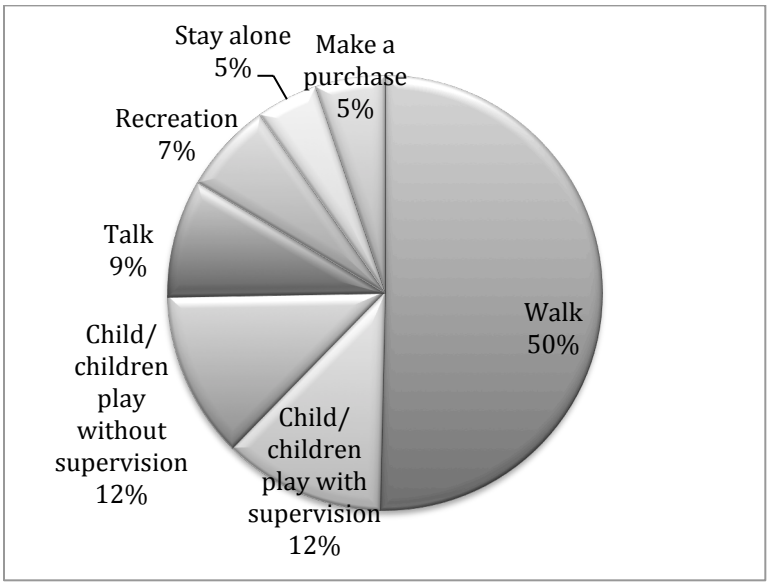


Figure 6-2: Percentages of Types of Activities in NMT

First, significant higher numbers of movements were recorded in XAUAT compared to that in NMT, despite the fact that the two neighborhoods had a comparable number of households. This difference is notable for all types of activities. General speaking, residents in XAUAT are more likely to have outdoor

activities compared to NMT's residents. Moreover, because outdoors spaces in XAUAT are substantially smaller than that of NMT, the density of observed activities is about 5 times higher than that in NMT. We may conclude that usage of outdoor places in XAUAT is significantly more intensive than that in NMT.

Second, the nature of observed activities appears to be quite different between the two neighborhoods. In NMT, half of the movements were found to be walking. In XAUAT, the proportion of walking decreases to 34%. On the contrary, proportions of socialization activities (e.g., talking, recreational activities, children playing) in XAUAT are significantly higher compared to those in NMT. It is not surprising to find more active social interaction in XAUAT, considering that the work-unit has been an acquaintance community with stronger and multiple layers of social ties among its residents. However, this evidence does not necessarily suggest that NMT is not socially active. Instead, we would argue in the later sections that due to the different natures of the two neighborhoods, social interactions involve different expectations, are constructed through different approaches, and present in different patterns.

This research also found other similarities between two communities from the observations. For example, we observed that frequency of the child/children who played without supervision is an important indicator of the perceived neighborhood security. In both neighborhoods, a considerable number of young children, either as individuals or in groups, were found in the park, playgrounds, green areas between residential buildings, and on the street. Most of these activities were observed in the afternoon. Because both communities have attached elementary schools within the

neighborhood, many parents felt comfortable to let their children walk back home or to play in the neighborhood after school hours. NMT and XAUAT are both considered safe and child-friendly neighborhoods in this respect.

Survey

The survey also inquired about residents' patterns of using the public spaces. Respondents were provided with 8 possible activities for which to indicate the frequency within the neighborhood (several times a day; daily; at least once a week; less than once a week; or, not applicable). These activities included: "grocery shopping, dining out, outdoor sport events, meeting friends, taking your child to play, walking the dog, community services/gatherings, and indoor recreations." Respondents were also asked to provide answers that were not listed, but only two alternative answers were found in the returning questionnaire: one is "playing chess" and the other is "volunteering to pick up trash in the park." We will not include these two answers in the following discussion for they contribute little statistical significance for the result.

Information obtained from the survey supplements the observation results in three ways: (1) it examines individuals' activity patterns, which reveals the connections between various types of activity; (2) it provides demographic factors through which patterns of movement can be identified with different user groups; and (3) it covers other types of activity that were not included or fully recorded during the observation, such as dining out, indoor recreational activities, morning exercises, and community gatherings and services.

Figure 6-3 compares two neighborhoods in terms of distribution of frequency

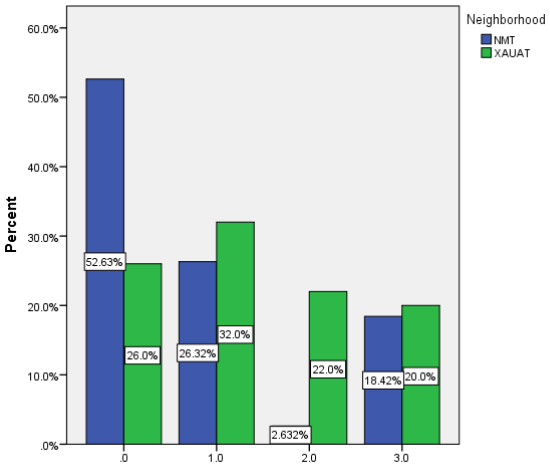
for each type of activity. Comparison of mean values of frequency is summarized in Table 6-2. Residents in NMT are found to be more active on dining out (1.684), indoor recreations (1.211), grocery shopping (1.105); and residents in XAUAT are found to be most active on dining out (1.780), grocery shopping (1.680) and meeting friends (1.560). The least frequently reported activity in both neighborhoods is community services/gathering (NMT: 0.368; XAUAT: 0.520).

	Neighborhood	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Grocery shopping	NMT	38	1.105	0.6893	. -3.633	0.000
	XAUAT	50	1.680	0.7677		
Dining out	NMT	38	1.684	0.7391	-0.538	0.592
	XAUAT	50	1.780	0.8873		
Outdoor sporting event	NMT	38	0.868	1.1430	-2.059	0.043
	XAUAT	50	1.360	1.0835		
Meeting friends	NMT	38	0.789	1.1427	-3.343	0.001
	XAUAT	50	1.560	1.0134		
Taking your child to play	NMT	38	0.921	1.1480	0.976	0.332
	XAUAT	50	0.700	0.9742		
Walking the dog	NMT	38	0.684	1.3174	0.583	0.562
	XAUAT	49	0.531	1.1384		
Community services/gatherings	NMT	38	0.368	0.7857	-0.970	0.335
	XAUAT	50	0.520	0.6773		
Indoor recreation	NMT	38	1.211	1.0438	2.151	0.034
	XAUAT	50	0.760	0.9161		

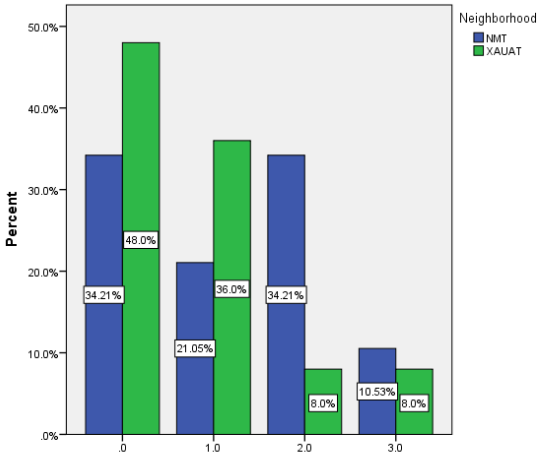
Table 6-2: Average Frequency of Activities for Using the Public Spaces (4: Several times a day; 3: Daily; 2: At least once a week; 1: Less than once a week; 0: Not applicable).

A t-test suggests significant differences between the two neighborhoods (statistical significance at a 0.05 level). These differences are: respondents from XAUAT were significantly more active in grocery shopping, outdoor sporting events, and meeting friends; whereas respondents from NMT reported more participation on indoor recreation. Analysis results suggest no substantial difference between the two neighborhoods regarding other listed activities, including dining out, taking child to play, walking the dog, and community gatherings/services.

Five findings are suggested from the above results: (1) Generally speaking, residents in XAUAT are more likely to use the neighborhood's public spaces, especially the outdoor settings compared to residents in NMT. (2) In both neighborhoods, meeting the needs of daily life (e.g., dining out, grocery shopping) is the primary reason of visiting public spaces. (3) Residents in XAUAT are found be relatively more active on informal social interaction (e.g., meeting friends) or activities related to community-wide encountering (e.g. attending outdoor sporting events, grocery shopping); whereas residents in NMT are relatively more active on club-style activities (e.g., indoor recreation). (4) No significant difference is found on activities regarding personal/family life (e.g., dining out, taking child to play, and walking the dog) between two neighborhoods. (5) Residents from both neighborhoods are found to be quite inactive in terms of organized community activities. These findings are consistent with results from observations.



Outdoor Sporting Events



Indoor Recreation

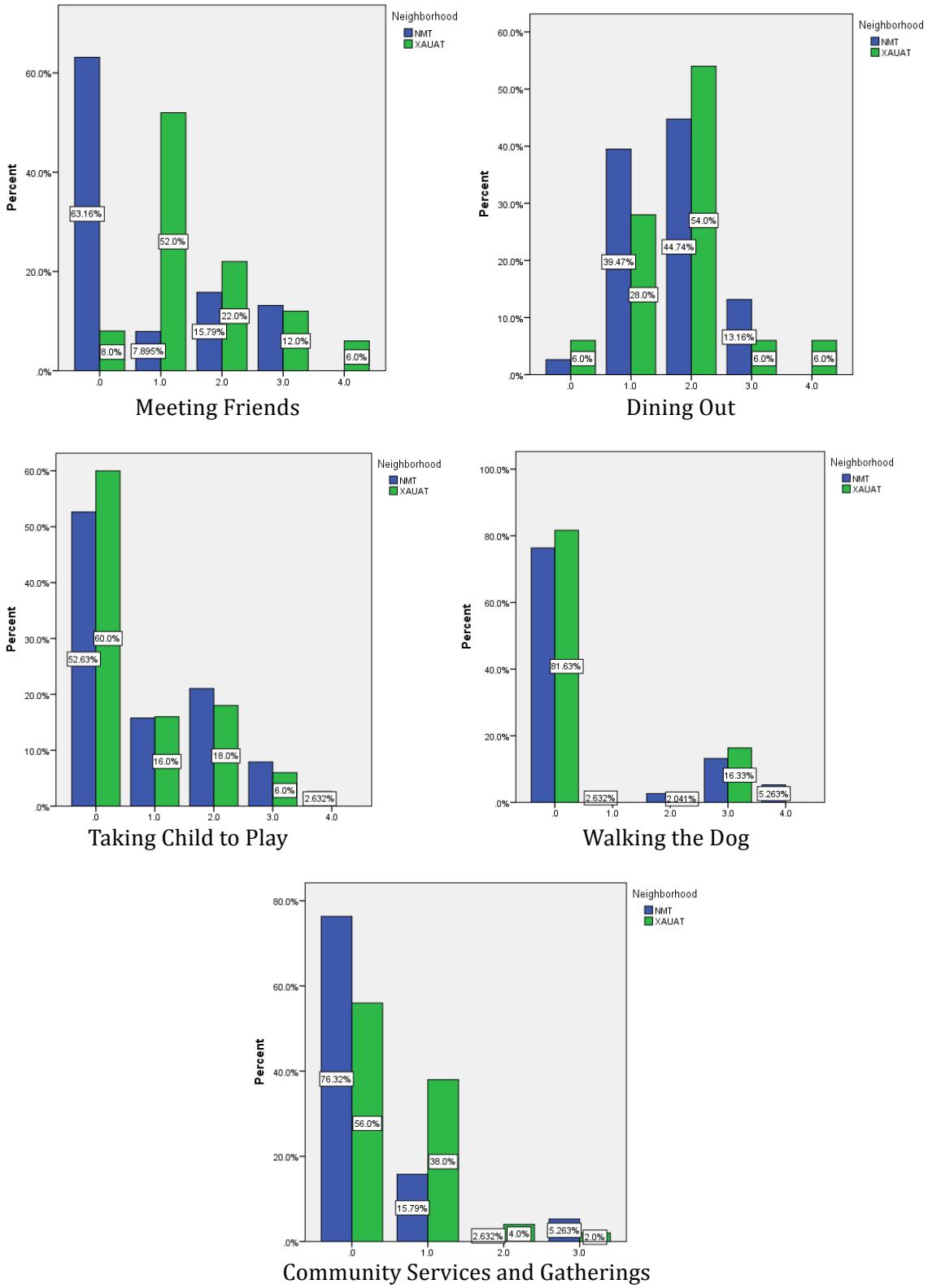


Figure 6-3: Distribution of Respondents' Frequency of Activities in the Public Space (4: Several times a day; 3: Daily; 2: At least once a week; 1: Less than once a week; 0: Not applicable)

Walking Movements

Purpose of walking

A question in the survey ("How often do you typically walk in the neighborhood?") inquires about the frequency of walking behaviors for various purposes (for leisure/exercise; to make a purchase; to go to public places; and to visit friends).

	Neighborhood	N	Mean	Std. Deviation	Chi-Square Test	Sig (2-tailed)
For leisure/exercise	NMT	39	1.615	1.0910	4.204	0.252
	XAUAT	49	1.673	0.9217		
To make a purchase	NMT	39	1.103	0.6804	15.818	0.001
	XAUAT	49	1.775	0.7226		
To go to public places	NMT	39	1.692	1.0299	1.545	0.841
	XAUAT	49	1.633	0.9507		
To visit friends	NMT	39	0.282	0.5104	38.512	0.000
	XAUAT	49	1.143	0.5774		
To go to work	NMT	39	2.026	1.3858	20.311	0.000
	XAUAT	49	1.673	1.6379		

Table 6-3: Purpose of Walking in NMT and XAUAT (4: Several times a day; 3: Daily; 2: At least once a week; 1: Less than once a week; 0: Not applicable)

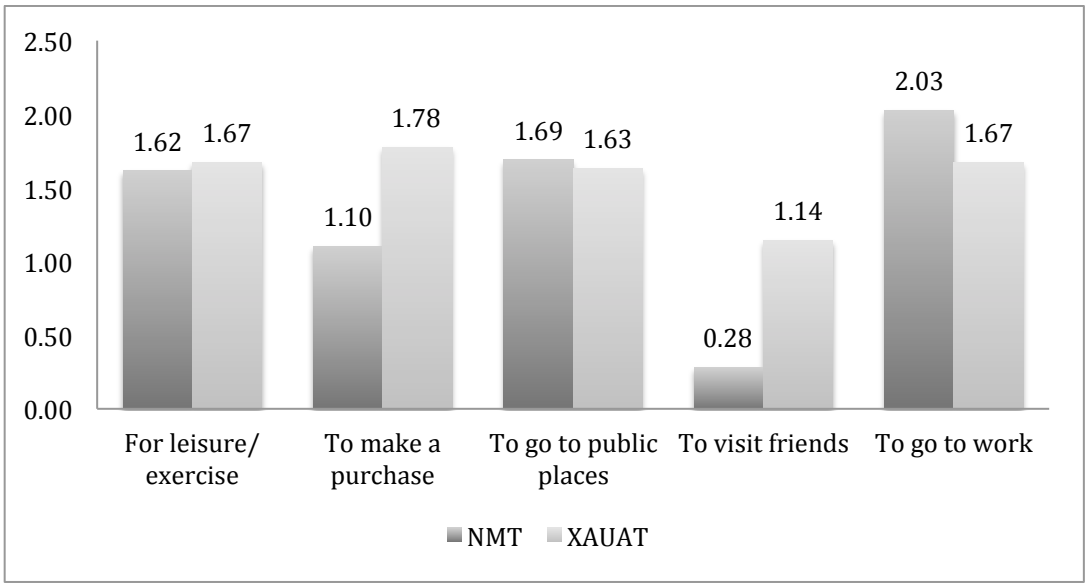


Figure 6-4: Purpose of Walking in NMT and XAUAT (4: Several times a day; 3: Daily; 2: At least once a week; 1: Less than once a week; 0: Not applicable).

Table 6-3 summarizes the mean values of the frequencies of walking behaviors for each specific purpose. Figure 6-4 illustrates the difference between two neighborhoods. For NMT's respondents, going to work is the primary reason for walking in the neighborhood. Visiting a public space and having recreational activities are the secondary purposes of walking. The chance of walking to visit a friend is significantly low. Respondents in XAUAT, on the other hand, are found to walk for all kinds of purpose at comparable frequencies.

Chi-Square tests further compare the distribution of frequencies between the two communities. Results find that significant differences exist on walking for the purpose of making a purchase, going to work, and meeting friends (statistical significant at the 0.01 level).

It is not surprising to find a difference regarding walking for meeting friends if one considers different social foundations of the two communities. For these two types of utilitarian purposes of walking, respondents from XAUAT reported a remarkably higher frequency of walking for shopping, whereas respondents from NMT walked more for going to work. This is partially due to the different neighborhood sizes and walkability to facilities, and partially due to the different lifestyles of two neighborhoods. NMT is a large-scale and pedestrian-only development. Commuters need to walk a considerable distance between home and the parking garage/public transportation on a daily basis. In the case of XAUAT, walking distances from home to the parking facilities/public transits places/offices are much closer or are even negligible for many respondents. Besides, some respondents who teach in the university may have flexible working hours and

locations. Frequency of walking to work therefore presents a large variance in XAUAT.

In terms of walking to make a purchase, the majority of XAUAT residents go to the neighborhood farmers market for daily needs of food. Going to the farmers market in the morning has become an important family routine in terms of informal community gathering. Despite the fact that the farmers market located at the west end of the neighborhood, people from the other side of the neighborhood seem not bothered by the long walking distance. However, in NMT, the retail area of the neighborhood is relatively less utilized. It is partially due to the large size of the neighborhood: the retail area is beyond a comfortable walking distance from many homes. More important, a big proportion of the residents in NMT are young professionals. Quicker pace of life and longer commuting time to work leaves them less time and the necessity to shop for fresh food on a daily basis. Chain grocery stores rather than community retails outlets are places to go. Different patterns of walking behaviors are fundamentally related to the different demographic profiles of two communities, which will be further discussed in the next section of this chapter.

The above results find that both of XAUAT and NMT are pedestrian-friendly neighborhoods where residents walk routinely for utilitarian and recreational purposes. Comparing the two neighborhoods, we may argue that walking behaviors in NMT tend to be more destination-related. Time efficiency is more of a concern when people choose to walk. The chance of walking for the purpose of informal socialization is relatively low. Compared to that, walking for leisure and socialization purposes are found to be much more common in XAUAT. Time efficiency is less of a concern in XAUAT, even for utilitarian walking.

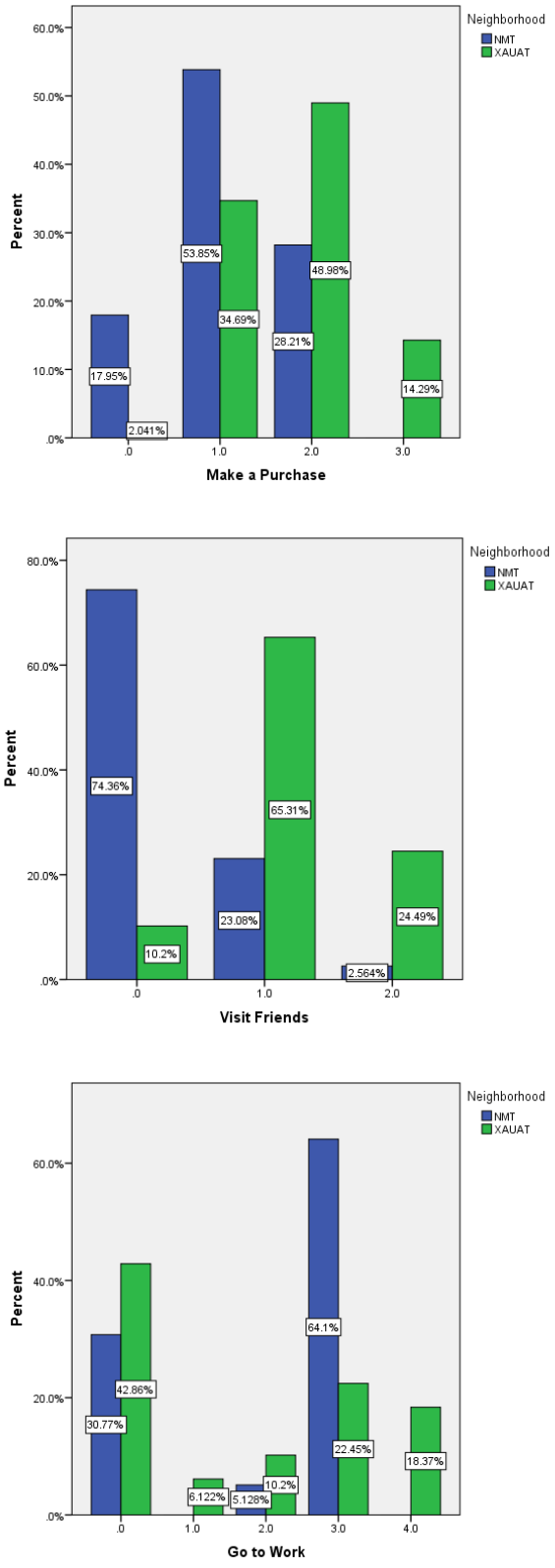


Figure 6-5: Frequency of Walking in NMT/XAUAT (4: Several times a day; 3: Daily; 2: At least once a week; 1: Less than once a week; 0: Not applicable).

Co-presence of walking and other activities

A growing body of literature, especially in the realm of New Urbanism, suggests that good walkability of residential environments increase the opportunity for interactions among residents, which is found to be positively associated with social capital (e.g. Leyden, 2003; Lund, 2002, 2003). In this study, results from observation and the surveys have concluded good walkability and a high level of pedestrian activities in both XAUAT and NMT. This section focuses on the relationship between utilitarian walking and other activities in each neighborhood: what is the potential of walking to enhance local social interaction? The analysis is based on observation results, and the Multi-Dimensional Scaling (MDS) [3] method performed by SPSS is applied here to illustrate relationships among the various types of movement.

MDS plots below (Figure 6-6 and 6-7) represent relationships between activities according to their likelihood of co-presence in observation sites. Closer proximity of points in the plot indicates a higher possibility that activities may take place in the same space.

In XAUAT's plot (Figure 6-6), various types of movements cluster in three parts. The cluster in the center of the plot is considered as neighborhood interaction. Shopping, as a utilitarian activity, is relatively distant from interaction activities. This is because shopping only took place in specific locations, primarily in the farmers market in XAUAT. Walking, another utilitarian activities, is also clearly separated from the interaction cluster. This indicates less overlapping between the place of walking

[3] Multi-Dimensional Scaling (MDS) is a multivariate analytical tool for finding underlying attributes or dimensions of variables. It visualizes the level of similarity among pair of objects in terms of their proximity in the plots.

and place of socializing in general. One may also conclude that socialization in XAUAT is less likely to rely on opportunities of spontaneous encountering generated from natural movement. However, in NMT's plot (Figure 6-7), walking and other activities are less separated, which indicates that people are, relatively speaking, more frequently socialize at places where utilitarian movements of pedestrian were observed. In another words, socialization in NMT is more likely to rely on co-presence opportunities generated by pedestrian movements. Compared to XAUAT, walkability in NMT plays a more important role in social interaction and community gatherings.

In addition, in NMT's MDS plot (Figure 6-7), we find that recreational activity is remarkably distant from other types of movements. This is due to the major body of recreational activities recorded during the observation hours (10:00 a.m. and 4:00 p.m.) were young people playing tennis at two tennis courts. Since these facilities are fee related and spatially isolated, we refer it as club-style activity. We argue that these club-style activities are less likely to promote community-wide encountering. However, other types of recreational activities happening at different time period during the day are not fully represented in observation results.

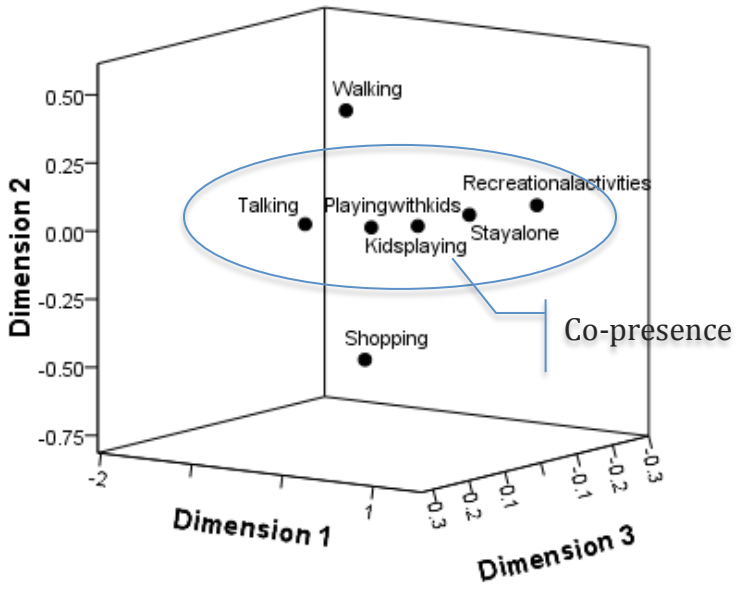


Figure 6-6: MDS Plot of Frequency of Activities in XAUAT

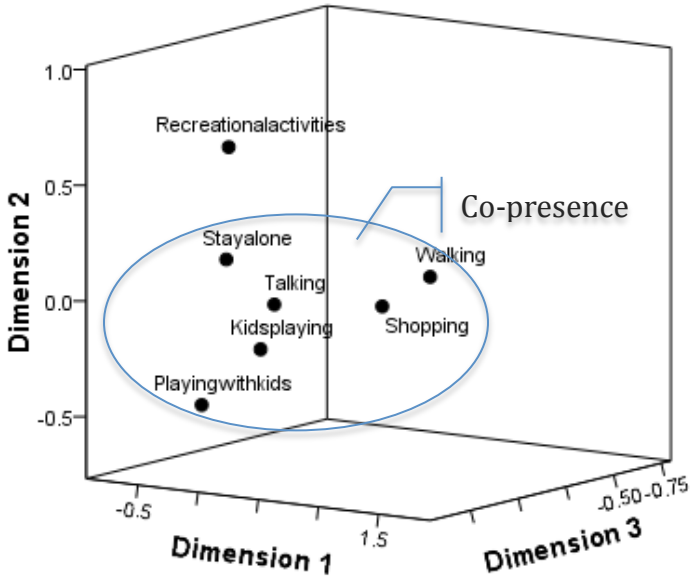


Figure 6-7: MDS Plot of Frequency of Activities in NMT

Summary

This section discussed types of activities in the public spaces of two neighborhoods. We can summarize the following findings based on the observation and survey results:

First, generally speaking, residents of XAUAT are found to utilize public places, especially outdoor settings, more intensively compared to residents of NMT.

Second, results found that both neighborhoods appeared to have a high frequency of activities involving utilitarian purposes or relating to personal/family life. However, no evidence suggests residents from either neighborhood are frequently involved in community organizations or activities. Regarding the types of socialization, NMT's residents are more actively involved in club-style recreations; whereas residents of XAUAT are more active on informal socialization.

Third, walking behaviors present different patterns in the two neighborhoods. Walking in NMT generally done for utilitarian purposes or to arrive at specific destinations; whereas in XAUAT, people are relatively more likely to walk for leisure and social purposes. However, MDS analysis of co-presence in walking movements with other activities in two neighborhoods reveals that people in NMT are more likely to socialize at the places where pedestrians are most observed. Walking is more tightly related to other social activities, and socialization is more likely to be generated from spontaneous encountering. Based on above findings we may infer that, in a community of acquaintance such as XAUAT, the pattern of pedestrian movement seems to be more influenced by the patterns of social life. On the contrary, in a non-acquaintance community established on strangers such as NMT, pedestrian

movements is less socializing initiated; however, it can be the fundamental generator of socialization in the community. Walkability therefore plays a more important role on community making in the case of NMT.

Spatial Configuration and Distribution of Movements

This section discusses the relationship between spatial configuration and use of public spaces. The correlation is examined between the density of observed movements[4] and the syntactic measures (integration value) of observation sites in both neighborhoods.

	Integration			
	NMT (N=62)		XAUAT (N=51)	
	Person Correlation	Sig. (2-tailed)	Person Correlation	Sig. (2-tailed)
Walk	0.482**	0.000	0.362**	0.009
Child/children play with supervision	0.314*	0.013	0.341*.	0.014
Child/children play without supervision	0.325**	0.010	0.248	0.079
Recreations	-0.032	0.806	0.012	0.931
Talk	0.345**	0.006	0.303*	0.031
Stay alone	-0.110	0.395	0.160	0.262
Make a purchase	0.067	0.605	0.003	0.984
All movements	0.491**	0.000	0.305*	0.030

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table 6-4: Correlations between Density of Movements and Integration Value of the Observation Sites in NMT and XAUAT

Table 6-4 summarizes the correlation results between integration values and various types of observed movement.

In the case of NMT, a prominent correlation is found between all observed movements and the integration value of the space (Pearson correlation=0.491, p=0.000). The most significant correlation exists between the integration and walking behaviors (Pearson correlation = 0.482, p=0.000). Moderate correlations exist between integration and activities that include talking (Pearson

[4] *Density of observed movements* in this research refers to the number of observed movements in every 1000 square meters. Considering various areas of observation sites, we use the density of movements instead of numbers movements as a variable for correlation analysis.

correlation=0.345, p=0.006), children playing with supervision (Pearson correlation = 0.314, p=0.013) and without supervision (Pearson correlation=0.325, p=0.010). Correlation results demonstrate an evident gravity of spatial integration to pedestrian and socializing activities. As a matter of course, no correlation is found between configurational properties and activities only happening at specific locations, such as shopping and recreational activities.

In the case of XAUAT, the analysis finds a slightly weaker correlation between the integration value and all observed movements (Pearson correlation = 0.305, p=0.030). Moderate correlation exists between integration value and walking (Pearson correlation = 0.362, p=0.009), children playing under supervision (Pearson correlation = 0.341, p=0.014), and talking (Pearson correlation = 0.303, p=0.031). Logic of the spatial configuration appears less predictable on distribution of both pedestrian movement and socializing activities.

As we have discussed in the last chapter, spatial analysis of the neighborhood layout concludes that is a significantly higher level of intelligibility in XAUAT compared to NMT. Theoretically, higher intelligibility indicates a better consistence between global and local spatial properties, so that natural movements are more likely to lead to around integrated spaces (Hillier et al,. 1987; Hillier & Hanson, 1984). However, observation in this study discovered an opposite result, finding the spatial system with a lower level of intelligibility (this is NMT) has a somewhat better predictability to movement patterns. In NMT, both pedestrian and socializing activities tend to flow to the spaces with higher integration values. In XAUAT, this pattern is still evident in pedestrian movements, but appears less effective for

socializing activities.

Morphological analysis of NMT in the last chapter discovered that most of the civic spaces such as parks, playgrounds and the clubhouse, are placed around the integration core of the layout. The overlapping of major facilities and the integration core helps to direct natural movement to flow toward the community center area. It explains the evident correlation between spatial attributes and distribution of the movement. The correlation results find that the spatial system in NMT support efficient usage of the majority of public places and is able to foster pedestrian movement and co-presences in streets and the civic center. More important, the result shows that in a non-acquaintance community like NMT, patterns of movement in the public spaces primarily follows the rule of "natural movement" theory, that is, spatial configuration generates the basic pattern of pedestrian movements, which further provides opportunities of social interactions.

Correlation results for the case of XAUAT are consistent with the finding of pedestrian movements in relation to other socializing activities. Spatial configuration is the primary generator of pedestrian movement patterns. However, socializing activities are less likely to rely on the opportunities offered by spontaneous encountering through natural movements. As a result, the logic of "natural movement" appears a rather weaker influence on the patterns of social life in XAUAT, despite the fact that spatial configuration with a higher intelligibility theoretically has a stronger potential of enhancing community-wide integration.

Comparison of two communities reminds us that the spatial-temporal regularity in real-world environments needs to be understood and described in its

own terms. David Seamon (2007) argues that place making is largely realized through a group of people's habitual patterns meeting in time and space – the habitual patterns that a person/group take for granted and of which they are typically unaware. Space syntax analysis provides one dimension to reveal the habitual pattern through the topological quality of the space. However, in the real-world environment, Seamon further argued that, phenomenological investigations provide another dimension to unfold habitual patterns through other lived qualities of space. Non-spatial factors such as the mode of encountering, the types of people who are involved in the encountering, and the way in which they have become attuned to each other are also essential parts of the habitual pattern, which both sustains and is sustained by the sense of the place. Seamon's "habitual pattern" can be advanced to Canter (1986)'s arguments about "roles and rules of place". Canter describes place as the "socially shared aspects of experience;" that is, activities occur in the physical settings according to a handful of place rules, many of which are socially constructed – such as norms, habits, and values, etc. These rules are rooted in a group's socially shared purpose of the place. In another words, studying activity patterns within a given physical setting indeed uncovers the underlying purpose(s) of the place as a whole.

Seamon and Canter's supplement to Space Syntax investigation explains the results from this study. Correlation findings confirm the spatial-perceptual dimension of the habitual pattern in both of neighborhoods. Configuration of pathways directs pedestrian movements, which provides the primary opportunity of encountering and co-presence. However, the extent to which spontaneous encountering may lead to

extensive interaction in the place varies in two cases. In another words, the habitual patterns of the two communities are distinguished in terms of the non-spatial dimension – the different socialization norms. In an acquaintance community like XAUAT, the purpose of socialization is to maintain prolonged, recurring, interpersonal exchanges and experiences among inhabitants. Interactions are established on existing and long-lasting social ties, such as working relationships and kinships, rather than residential proximity or the opportunity of spontaneous encountering. Community cultures (the place rule) play a more significant role in shaping the sense of place. For instance, a great number of residents go to the farmers market in the morning - not because of the location convenience, but for purposes of participating into the community life. On the other hand, in NMT - a non-acquaintance community, the essence of socialization is to establish residents' physical and mental relationship with a new environment and transformation of it into his or her own "place." People in NMT expect to construct social ties from scratch with or without intention of approaching intimate interpersonal relationship. The opportunity of encountering and co-presence in public settings therefore provides the primary foundation of socialization; thus patterns of interactions and use of public spaces can be largely unfolded through the topological features of space (the place rule). In a word, compared to XAUAT, configuration of the pathway in NMT plays more significant role in bringing people together and shaping the sense of place.

Demographic Factors and Use of Public Spaces

This section considers the demographic feature as another non-spatial factor that significantly influences the habitual patterns in the place. We profile different types of residents in relation to their ways of using the public places based on the survey findings.

NMT

Table 6-5 summarizes the correlation results between the demographic factors and frequency of activities in the public settings of NMT.

		Age	Household size	Education	Income	Residence length
Grocery shopping	Pearson Correlation	0.600**	-0.010	-0.484**	0.003	0.075
	Sig. (2-tailed)	0.002	0.956	0.005	0.989	0.706
Dining out	Pearson Correlation	-0.509*	-0.423*	0.560**	-0.303	-0.313
	Sig. (2-tailed)	0.013	0.013	0.001	0.171	0.105
Attending outdoor sporting events	Pearson Correlation	0.833**	-0.060	-0.265	0.091	0.246
	Sig. (2-tailed)	0.000	0.736	0.143	0.689	0.207
Meeting friends	Pearson Correlation	0.729**	0.025	-0.540**	-0.119	0.256
	Sig. (2-tailed)	0.000	0.866	0.001	0.597	0.189
Playing with child/children	Pearson Correlation	0.574**	0.673**	-0.652**	0.521**	-0.027
	Sig. (2-tailed)	0.004	0.000	0.000	0.013	0.892
Walking the dog	Pearson Correlation	0.214	-0.015	0.059	-0.042	0.292
	Sig. (2-tailed)	0.326	0.935	0.747	0.854	0.132
Community service/gathering	Pearson Correlation	0.796**	-0.005	-0.152	0.049	0.446*
	Sig. (2-tailed)	0.000	0.978	0.407	0.828	0.017
Indoor recreations	Pearson Correlation	0.282	-0.223	0.160	-0.305	0.242
	Sig. (2-tailed)	0.192	0.205	0.381	0.167	0.215

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table 6-5: Correlation between Frequency of Activities and Demographic Characteristics of Respondents (NMT)

In the case of NMT, we found that respondent's age was the most influential predictor, which significantly correlates to the frequency of grocery shopping (Pearson Correlation = 0.600, p=0.002), attending outdoor sporting events (Pearson Correlation = 0.833, p=0.000), meeting friends (Pearson Correlation = 0.729, p=0.000), and playing with children (Pearson Correlation = 0.574 p=0.004); it is negatively associated with frequency of dining out (Pearson Correlation = -0.509, p=0.013). Correlation results indicate that residents' likelihood of using outdoor public spaces and being involved in community life increases with age.

Another influential factor is respondents' highest level of education, which is negatively correlated with the frequency of grocery shopping (Pearson Correlation = -0.484, p=0.005), meeting friends (Pearson Correlation = -0.540, p=0.001), and playing with young children (Pearson Correlation = -0.652, p=0.000); and is positively related to the frequency of dining out (Pearson Correlation = 0.560, p=0.001).

Correlation among demographic factors (Table 6-6) suggests a strong covariance between education level and the age. Accordingly, respondents from NMT can be profiled into two groups: senior residents with relatively lower education levels and the young professional group with relatively higher education levels. Generally speaking, the senior resident group is likely to spend more time in the outdoor setting and involved in community life, whereas the young professional group is less likely to use the public settings or interact with others in the neighborhood; however, they tends to dine out more frequently.

		Age	Household size	Education	Income	Residence length
Age	Pearson Correlation	1				
	Sig. (2-tailed)					
Household size	Pearson Correlation	0.258	1			
	Sig. (2-tailed)	0.246				
Education	Pearson Correlation	-0.578**	-0.429*	1		
	Sig. (2-tailed)	0.006	0.023			
Income	Pearson Correlation	0.005	0.506*	-0.281	1	
	Sig. (2-tailed)	0.987	0.027	0.217		
Residence length	Pearson Correlation	0.302	0.257	-0.061	0.137	1
	Sig. (2-tailed)	0.223	0.195	0.782	0.626	

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table 6-6: Correlation between Demographic Factors of Respondents (NMT).

MDS plots of respondents according to their pattern of use of public space illustrated its association with respondents' ages and education backgrounds (stress = 0.107). Figure 6-8 and 6-9 display the distributions of ages and highest education level respectively based on their frequency of activities in the public settings. Each point in the plot represents one respondent, and approximation represents similarity of the activity pattern among respondents. It is quite obvious that respondents with similar ages and education levels tend to cluster together, indicating a similar activity patterns in the pubic spaces.

In Figure 6-10, MDS projection of types of activities illustrates the interrelationships between activities in terms of respondents' frequency of participation. We may see from the plot that all activities seem to split into two regions. The first region in the right lower part of the plot includes the indoor recreation and dining out, which can been seen as the cost-related activities in the neighborhood. The rest of the activities locate at the left upper part of the plot

including the grocery shopping, meeting friends, dog walking, community services/gathering, attending outdoor sporting events, and taking your child to play. These activities are tightly related to the necessities (e.g. grocery shopping) or routines in daily life (e.g. walking dogs, playing with kids, outdoor sports). And also, they are largely happen in outdoor settings and are more likely to promote in-depth social interactions and affirm the sense of community. Integrating it with demographic features, we argue that, in NMT, two typical groups of residents generally use public settings, but with very different purposes and patterns. Young professionals tend to spend more time in indoor facilities such as the fitness center and restaurants, and are more likely to prefer club-style activities. The senior group, on the other hand, is more likely to take advantage of the outdoor settings, tends to be more cost-sensitive, and spends more time on community- or family-oriented activities.

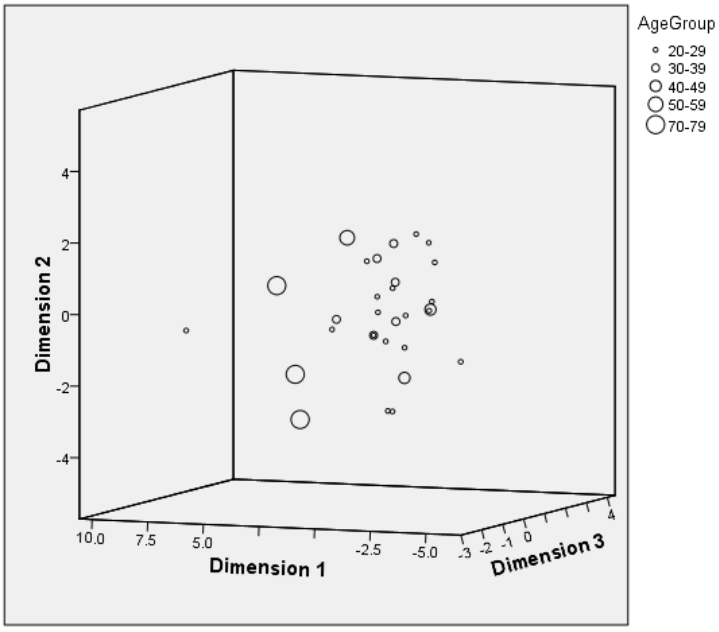


Figure 6-8: Distribution of Respondents' Age Based on Their Frequency of Activities in the Public Settings

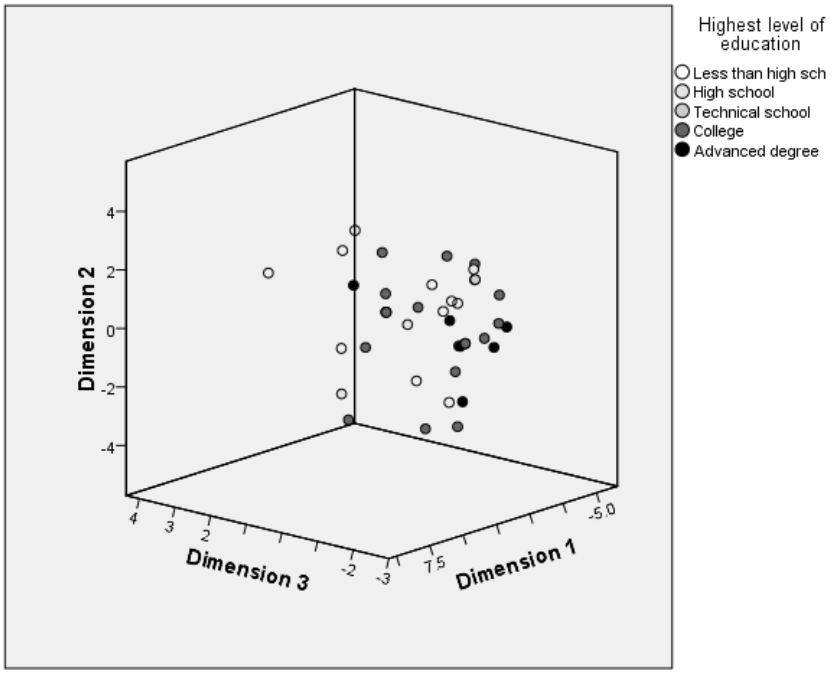


Figure 6-9: Distribution of Respondents' Education Levels Based on Their Frequency of Activities in the Public Settings

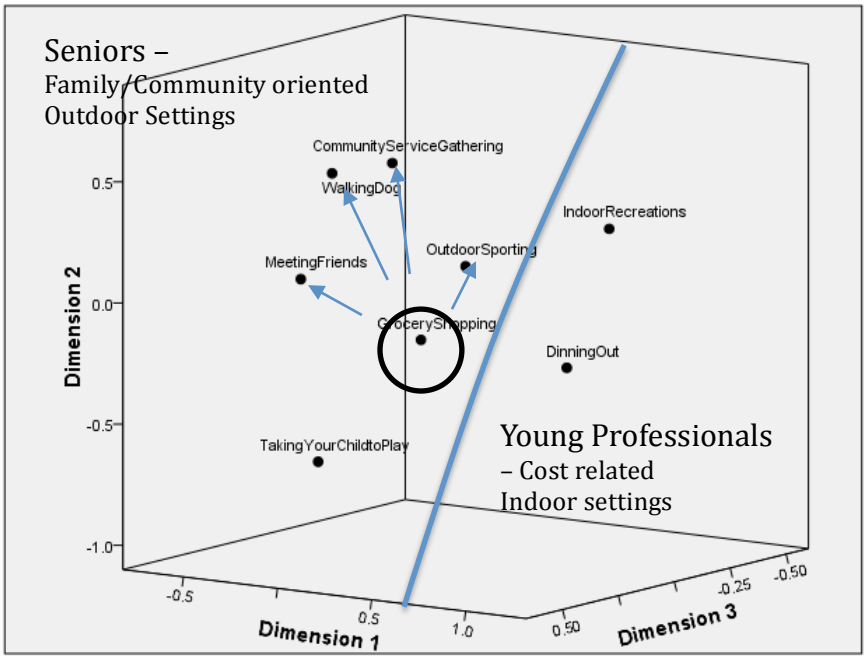


Figure 6-10: MDS Projection of Frequency of Activities in the Public Settings in NMT

It is also worth noting that grocery shopping can be seen as the focus point of all other activities in "senior region." Frequency of grocery shopping is highly predictably correlated to the frequency of meeting friends (Pearson correlation = 0.544, p=0.000), walking dogs (Pearson correlation = 0.425, p=0.008), community services/gathering (Pearson correlation = 0.425, p=0.008), and outdoor sports (Pearson correlation = 0.327, p=0.045), and is somewhat related to the chance of playing with kids (Pearson correlation = 0.284, p=0.084). However, no significant correlation has been found between any other pairs of these activities. The results imply that a utilitarian shopping trip may lead to many family and community affirming activities. This finding corresponds to a previous argument that social interactions in NMT largely rely on the opportunity of spontaneous encountering in public settings. It also highlights the commercial setting as an essential destination that creates opportunities of walking, communication, and other informal interactions, which potentially fosters the neighborhood socialization directly or indirectly.

XAUAT

Table 6-7 summarizes the correlation results between the demographic factors and frequency of activities in the public settings in XAUAT.

		Age	Household size	Education	Income	Residence length
Grocery shopping	Pearson Correlation	0.646**	-0.003	-0.575**	-0.040	0.486**
	Sig. (2-tailed)	0.000	0.987	0.000	0.851	0.001
Dining out	Pearson Correlation	-0.697**	-0.366*	0.513**	-0.138	-0.500**
	Sig. (2-tailed)	0.000	0.024	0.001	0.520	0.001
Outdoor sports	Pearson Correlation	0.275	-0.088	-0.368*	-0.257	0.272
	Sig. (2-tailed)	0.071	0.598	0.027	0.226	0.082
Meeting friends	Pearson Correlation	0.691**	0.056	-0.614**	-0.233	0.484**
	Sig. (2-tailed)	0.000	0.737	0.000	0.273	0.001
Playing with child/children	Pearson Correlation	0.032	0.372*	-0.204	0.074	-0.072
	Sig. (2-tailed)	0.835	0.021	0.234	0.731	0.648
Walking dogs	Pearson Correlation	0.018	-0.016	-0.161	-0.174	-0.081
	Sig. (2-tailed)	0.908	0.927	0.356	0.426	0.617
Community services/gathering	Pearson Correlation	0.193	-0.065	-0.246	-0.264	0.106
	Sig. (2-tailed)	0.209	0.698	0.148	0.212	0.505
Indoor recreation	Pearson Correlation	0.013	-0.322*	-0.164	-0.336	-0.065
	Sig. (2-tailed)	0.936	0.048	0.340	0.109	0.684

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table 6-7: Correlation between Frequency of Activities and Demographic Characters of Respondents (XAUAT).

Respondents' age, years of residence and education level are the three most influential demographic factors associated with the pattern of activities in the public setting. They are significantly correlated with three types of activities: shopping, dining out, and friend meeting. The correlations of demographic factors (Table 6-7) confirm a strong covariance among three factors. We accordingly suggest two distinct groups of respondents based on demographic features and patterns of activities: group one is senior residents with a lower level of education and more years of

residence in the neighborhood; and group two is younger residents with relatively higher levels of education and fewer years of residence. Like in NMT, group one tends to be active on grocery shopping and meeting friends, but does not dine out frequently. Group two tends to dine out more frequently but is not as active with grocery shopping and meeting friends within the same neighborhood. People with a higher education background also tend to attend fewer outdoor sports.

		Age	Household size	Education	Income	Residence length
Age	Pearson Correlation	1				
	Sig. (2-tailed)					
Household size	Pearson Correlation	0.165	1			
	Sig. (2-tailed)	0.344				
Education	Pearson Correlation	-0.698**	-0.142	1		
	Sig. (2-tailed)	0.000	0.445			
Income	Pearson Correlation	-0.058	0.154	0.328	1	
	Sig. (2-tailed)	0.802	0.506	0.118		
Residence length	Pearson Correlation	0.571**	0.421*	-0.442	-0.035	1
	Sig. (2-tailed)	0.000	0.020	0.016	0.886	

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table 6-8: Correlation between Demographic Factors of Respondents (XAUAT)

MDS projection of the frequency of activities further illustrates the relationship between demographic factors and patterns of activities (stress=0.054). Figures 6-11, 6-12, and 6-13 demonstrate the distribution of respondents' factors of education, age, and length of residence, respectively. Aggregations of respondents with similar demographic features are quite evident in the MDS plots.

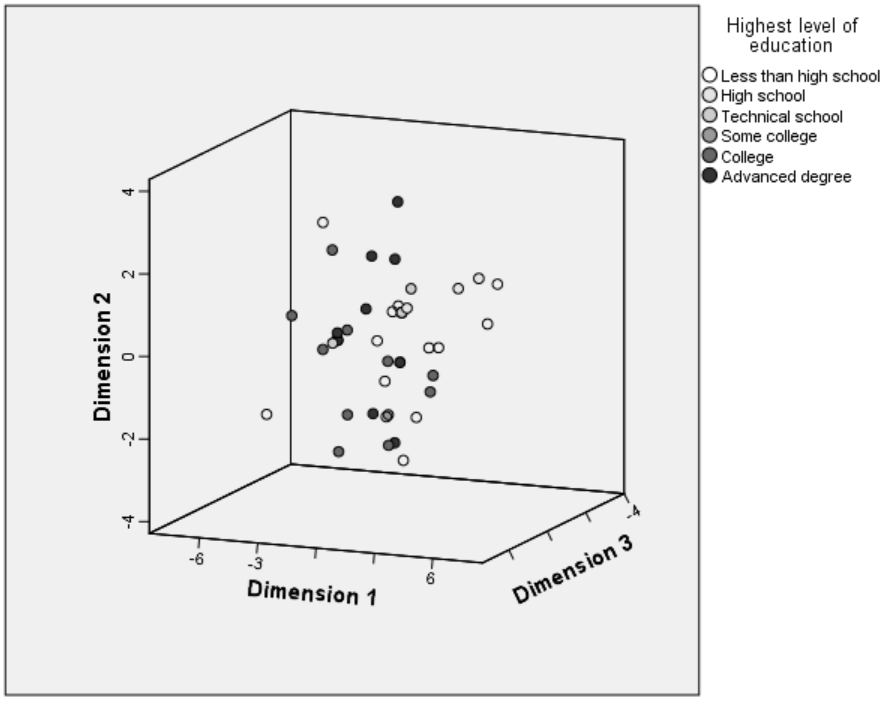


Figure 6-11: Distribution of Respondents' Education Levels Based on Frequency of Activities in the Public Settings (XAUAT).

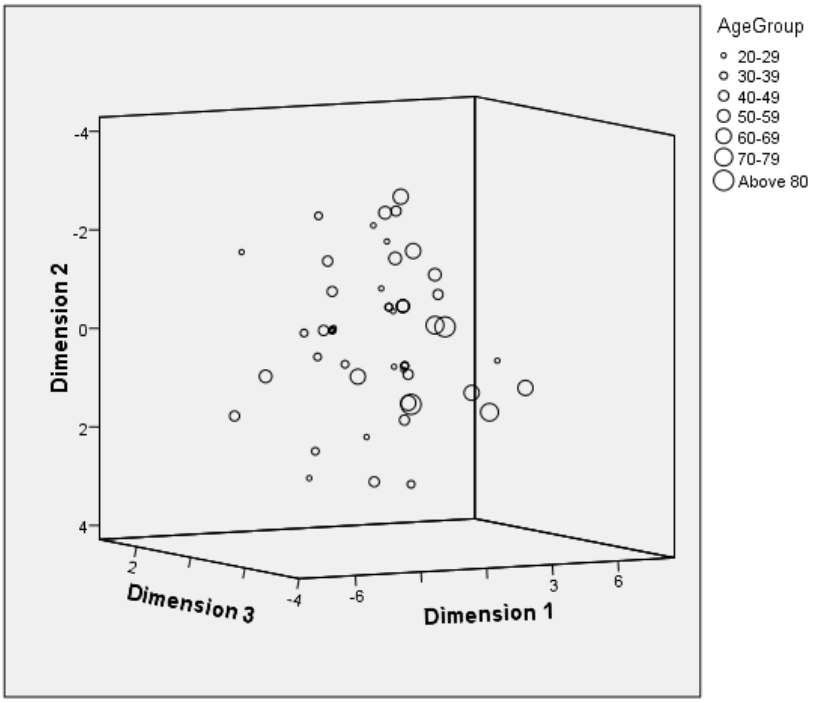


Figure 6-12: Distribution of Respondents' Age Based on Frequency of Activities in the Public Settings (XAUAT).

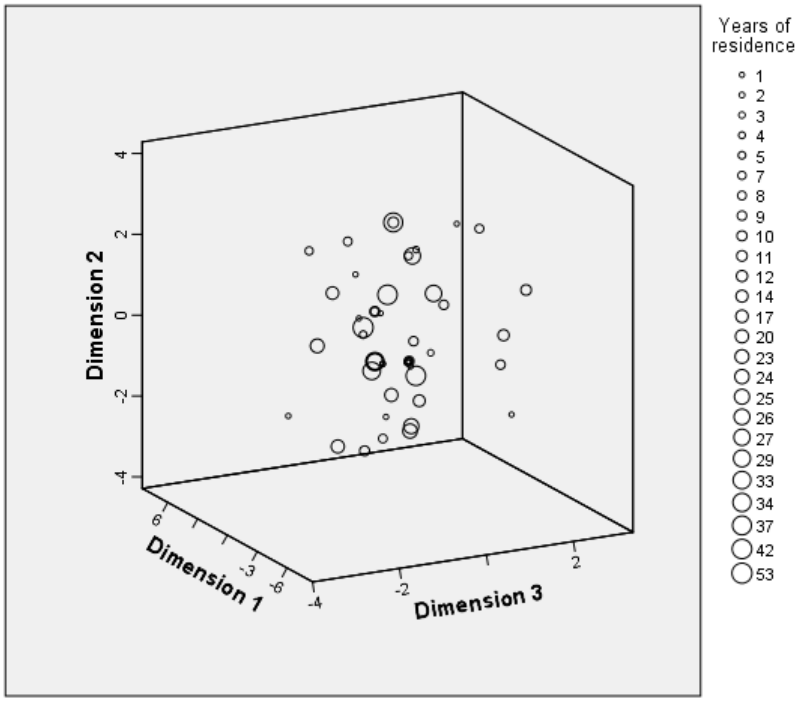


Figure 6-13: Distribution of Respondents' Length of Residence Based on Frequency of Activities in the Public Settings (XAUAT).

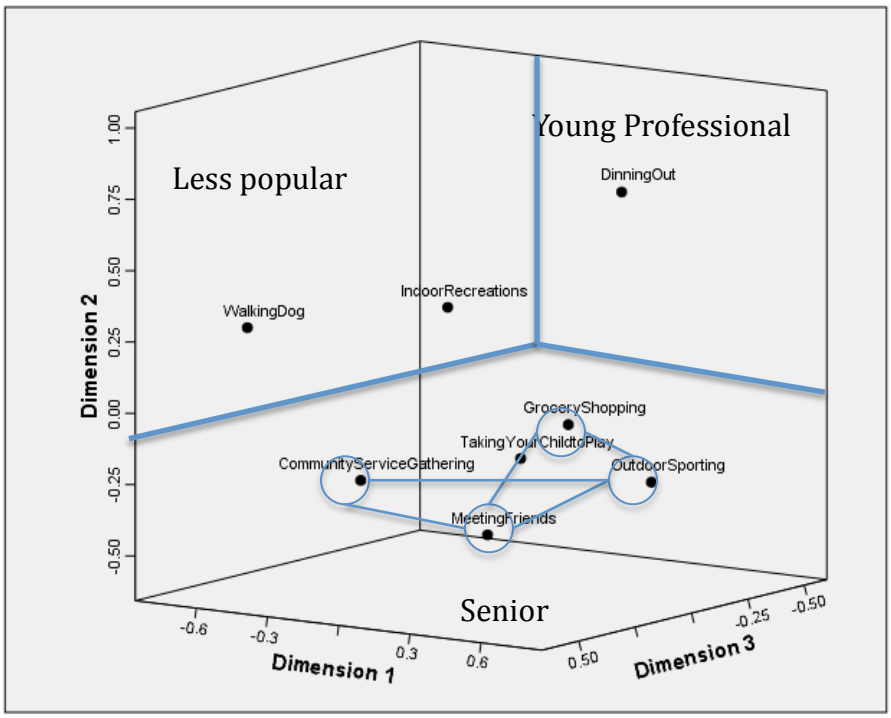


Figure 6-14: MDS Projection of Frequency of Activities in the Public Settings (XAUAT).

Figure 6-14 illustrates the relationships among different types of activities associated with demographic groups. In the projection, all items seem to cluster into three groups. The left upper group includes items of walking dogs and indoor-recreations, which has been found to be less popular in XAUAT. Dining out stands alone apart from other items. It is particularly favored by younger residents who generally spend less time cooking. The rest of the items cluster at the lower region of the projection map. These activities tend to be more favored by senior residents who are more active in socialization and community living.

Moreover, unlike in NMT, we do not find one identifiable center item as the "core" of the projection. Instead, grocery shopping, outdoor-sporting, community service/gathering and meeting friends are tightly interrelated to each other as a cluster. A strong correlation among these types of activities (see Table 6-9) indicates that public settings in XAUAT are more likely to accommodate a variety of activities in the same place and that the occurrence of one activity may also lead to another. This finding corresponds with the previous finding that, unlike in NMT where social interactions are largely initiated for specific purposes and takes place in specific locations, social interactions in XAUAT are rather informal, spontaneous, and mutually promoted.

Summary and discussion

This section discusses the patterns of activities in relation to demographic factors of respondents.

Results from XAUAT and NMT both found that *age* and *education level* are two key factors that split residents into distinct groups: senior residents with relative

lower education, who are found to be the main source of social interaction and participation in the community life; and young professionals, who spend significantly less time on socializing, but are more frequently utilizers of neighborhood facilities. It indicates that a resident's way of interaction with the environment is largely decided by his/her social existence - that is, who he/she is and what he/she wants.

Canter (1983) has argued that the physical setting is a "manifestation of the rule structures that exist across a set of social processes". Activity patterns are associated with multiple expectations/ place rules that are shaped by social constructs. Exploring all possible relationships in multiple facets is helpful in revealing hidden rules of place which might be otherwise overlooked. In the case of this research, overall impacts of physical and social forces are manifested by the different social interaction patterns between the two neighborhoods. Observations find remarkably higher amounts of socializing activities in XAUAT compared to NMT. Earlier sections have discussed contributions from the spatial configuration, and needless to say, the prolonged social ties among residents. In addition to that, this section discovers a striking similarity across the neighborhoods that respondents of similar age tend to have similar patterns of social activities. Based on that, the difference between neighborhoods might be directly explained by the different composition of generations. The vibrant community atmosphere in XAUAT, to certain extent, is related to a larger portion of senior residents living in the neighborhood.[5]

Moreover, MDS analyses discovers differences between the two neighborhood

[5] Senior residents here refer to those ones above 50 years old, considering 50 is the official retiring age for many female employees. Demographic analyses of the survey data find 24% of NMT respondents were at age of 50 and above; while this number increases to 34% in XAUAT.

regarding inter-relationships among activities in the public spaces. Shopping activities in NMT are found to be the prime mover behind many other social interactions. The MDS plots of XAUAT, on the other hand, find a cluster of socializing activities with tight interconnection and high likelihood of mutual promotion. This result is consonant with earlier arguments that, (1) in NMT, utilitarian movements (e.g., shopping and walking) play significant roles on generating socializing opportunities among residents; whereas (2) in XAUAT, social interactions less rely on encountering opportunities created by natural movement. Various types of socializing actions tend to be self-initiated and mutually promoted. We may therefore label the NMT pattern as the *reliant interaction,* and the XAUAT's pattern as the *initiative integration*.

		Grocery shopping	Dining out	Outdoor sporting	Meeting friends	Playing with child/children	Walking dog	Community service/gathering	Indoor recreations
Grocery shopping	Pearson Correlation	1							
	Sig. (2-tailed)								
Dining out	Pearson Correlation	-0.525**	1						
	Sig. (2-tailed)	0.000							
Outdoor sporting	Pearson Correlation	0.387	-0.065	1					
	Sig. (2-tailed)	0.006	0.656						
Meeting friends	Pearson Correlation	0.576**	-0.428**	0.500**	1				
	Sig. (2-tailed)	0.000	0.002	0.000					
Playing with child/children	Pearson Correlation	0.224	-0.267	0.182	0.256	1			
	Sig. (2-tailed)	0.118	0.061	0.206	0.072				
Walking dog	Pearson Correlation	-0.001	0.303*	0.058	0.066	0.119	1		
	Sig. (2-tailed)	0.995	0.034	0.694	0.653	0.415			
Community service/gathering	Pearson Correlation	0.248	0.024	0.407**	0.400**	0.087	0.208	1	
	Sig. (2-tailed)	0.082	0.866	0.003	0.004	0.550	0.152		
Indoor recreations	Pearson Correlation	0.063	0.185	0.356*	0.258	0.123	0.324*	0.304*	1
	Sig. (2-tailed)	0.665	0.199	0.011	0.071	0.393	0.023	0.032	

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table 6-9: Correlations Between Frequency of Activities (XAUAT).

6.3 Neighborhood Social Ties

This section examines the pattern of same neighborhood social ties in terms of the physical and social proximity. Discussion is based on survey questions inquiring about the five most frequent contacts of respondents in the last six months. Information collected regarding each frequent contact includes: (1) whether the frequent contact lives in the same neighborhood; (2) for the same neighborhood connections, the physical distance between their residences; (3) contact frequency; (4) length of relationship; and (5) emotional closeness for all five frequent contacts of the respondent. Through these questions, this section aims to profile and compare patterns of social ties in two case study neighborhoods, and further understand their relationships with spatial and non-spatial factors of the built environment.

Likelihood of the Same Neighborhood Socialization

Figure 6-15 and Table 6-10 compare the percentage of respondents who have 0, 1, 2, 3, 4, or 5 neighborhood social ties out of all of their five frequent contacts in NMT and XAUAT. The results discover a greater portion of respondents from XAUAT with the same neighborhood frequent contacts (SNFC). Specifically, about 36% of the NMT respondents reported **no** SNFC, while this number decrease dramatically to 7% for the case of XAUAT. Figure 6-11 shows that a majority (85.7%) of the

respondents reported 0-2 SNFC in NMT; whereas in the case of XAUAT, the majority (70%) of respondents reported 1-3 SNFC. The Chi-square test confirms the distribution difference between the two communities with statistical significance (Pearson Chi-square = 19.742, Exact Sig. (2-sided) = 0.001). Given the reality that XAUAT is an employment-based, all-inclusive community with more than fifty years of history, there is no surprise in finding a higher numbers of neighborhood social ties compared to the case of NMT.

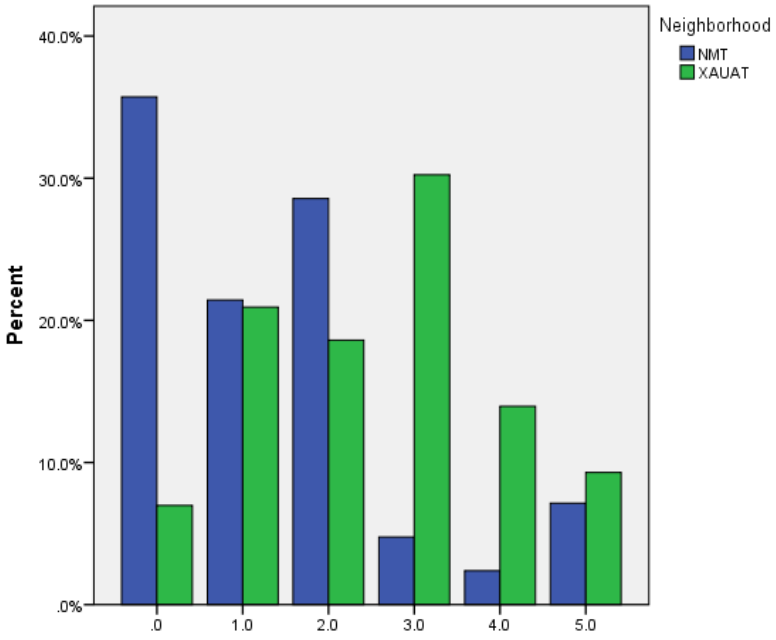


Figure 6-15: Distribution of Respondents' Numbers of Same Neighborhood Frequent Contacts (NMT and XAUAT)

	0	1	2	3	4	5
NMT	35.7%	21.4%	28.6%	4.8%	2.4%	7.1%
XAUAT	7%	20.9%	18.6%	30.2%	14.0%	9.3%

Table 6-10: Respondents' Numbers of Same Neighborhood Frequent Contact (NMT and XAUAT)

Demographic Factors in Relation to the Neighborhood Social Ties

Who are the individuals that are more likely to have active social ties within the neighborhood? Table 6-11 summarizes the correlation results between respondents' numbers of SNFC and demographic factors for NMT and XAUAT.

Number of SNFC		Age	Household size	Education	Income	Residence length
NMT	Pearson Correlation	0.532**	-0.055	-0.236	-0.328	0.259
	Sig. (2-tailed)	0.004	0.747	0.165	0.117	0.160
XAUAT	Pearson Correlation	0.610**	0.055	-0.513**	-0.329	0.441**
	Sig. (2-tailed)	0.000	0.765	0.001	0.135	0.007

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table 6-11: Correlation Between Respondents' Numbers of Same Neighborhood Frequent Contacts and Demographic Factors

For respondents from NMT, no significant correlation is discovered between the likelihood of same neighborhood socialization and factors of household size, education background, income levels, and surprisingly, even the length of residence. The only significant correlation that has been found is with the factor of respondent's age (Pearson Correlation = 0.532; p = 0.004).

However, when controlling the impact from the length of residence, even stronger correlations appear on the factors of age (partial correlation = 0.811, p = 0.015). In addition, negative correlation appears with the factor of household income (partial correlation = -0.897, p = 0.03). This result indicates that, in the NMT, residents' intimate social ties within the neighborhood are not very likely to be enhanced over years of residence. Or we would argue that residents might get acquainted with more neighbors over time, but not necessarily intend to develop

these relationships into intimate social ties. However, the factor of age matters to the likelihood of the same neighborhood socialization. For senior residents, same-neighborhood social ties tend to play a more important role in their personal networks; whereas younger residents appear to socialize in a physical range beyond the neighborhood. Residents' income level might be another predictor of socialization patterns. Higher income households tend to be unwilling to build up close social bonds with neighbors. Sense of privacy may be their primary concern.

In the case of XAUAT, no correlation suggests association between the number of same neighborhood social ties with factors of household size and income level. On the other hand, the length of residence positively correlates with the likelihood of the same neighborhood socialization (Pearson Correlation = 0.441; p = 0.007); so does the factor of the respondents' age (Pearson Correlation = 0.610; p = 0.000). The education level also negatively correlates with their likelihood of same neighborhood socialization (Pearson Correlation = -0.446; p = 0.010).

However, considering the long history of the community, covariance between factors of age and lengths of residence are significant (Pearson Correlation = 0.569; p = 0.000). As we have discovered before, remarkable covariance also exists between factors of age and education level (Pearson Correlation = -0.695, p=0.000). We therefore conducted partial correlations with controlling factors of age and residence length, respectively. Results find the correlation with the factor of age still exists when controlling for the length of residence (partial correlation = 0.448, p = 0.015). When controlling the factor of age, predictability of the length of residence

loses significance (partial correlation = 0.229, p = 0.232), as does the factor of the education level (partial correlation = -0.071, p = 0.720).

All the correlation analyses above indicate that, for XAUAT residents, age is the primary factor that differentiates patterns of same neighborhood socialization. Senior residents are more likely to build up close social ties within the neighborhood compared to younger residents. People with more years of residence and relatively lower education background also tend to interact actively with neighbors, but it is tightly associated with their belongingness to the senior group.

In summary, correlation analyses confirm the similarity between two communities: the factor of age is the primary demographic indicator on their socialization patterns. We have discussed previously that senior and young residents present distinguishing forms of activities in the neighborhood. Findings in this section extend the distinction to the experience of social engagements. Establishment of neighborhood socialization culture primarily relies on senior residents; on the other hand, senior residents' neighborhood bonds play an important part in their social life.

Meanwhile, this research is also aware a risk that the actual neighboring social connection may be slightly overestimated by the survey results. Some respondents may possibly receive suggestion from the survey question, and have listed the same neighborhood connections more than they would consider otherwise. However, this possible bias will not affect the comparison results between neighborhoods or age groups.

Spatial Distribution of Neighborhood Social Ties

To understand the spatial radius of their neighborhood social ties, respondents were asked to provide the approximate residences locations for all SNFC and his/her own home in the given neighborhood layout.

However, due to the tediousness of this question and also privacy concerns, some of the respondents chose not to provide the location information. The final missing ratios are lower than 50%, with 19 out of 28 respondents in NMT and 24 out of 40 respondents in XAUAT who listed SNFC also provided their residence location information. As well, the pattern of missing data is found to be random. Chi-Square test does not suggest significant difference comparing respondent groups with and without location information (See Table 6-12). We therefore argue that location information gathered from the survey is still valid to represent the spatial pattern of the socialization.

	NMT			XAUAT		
	Person Chi-Square Value	**df**	**Exact Sig. (2-sided)**	**Person Chi-Square Value**	**df**	**Exact Sig. (2-sided)**
Sex	0.333	2	1.000	4.587	2	0.085
Marriage	4.813	2	0.209	1.928	2	0.479
Age	6.965	7	0.485	3.204	6	0.820
Household Size	7.251	4	0.135	4.368	5	0.536
Work Status	3.986	6	0.31	5.537	6	0.849
Highest Level of Education	1.774	4	0.868	5.642	4	0.375
Household Income	3.419	5	0.717	2.206	4	0.786
Ownership	2.217	2	0.438	2.231	4	0.853

Table 6-12: Chi-Square Test Comparing Groups of with/without Location Information

In the data interpretation, distance between the respondent and his/her SNFC is weighted according to their belongingness to a set of physically defined boundaries, which are (1) the same building, (2) adjacent buildings, (3) the same block, (4) adjacent blocks, and (5) the same neighborhood. In the XAUAT, the residential block is considered as a group of adjacent apartment buildings that are designed in the same style and built at the same time. The whole neighborhood is divided into 10 blocks accordingly. In NMT, eight residential blocks were initially designed, built, and with given names in the master planning.

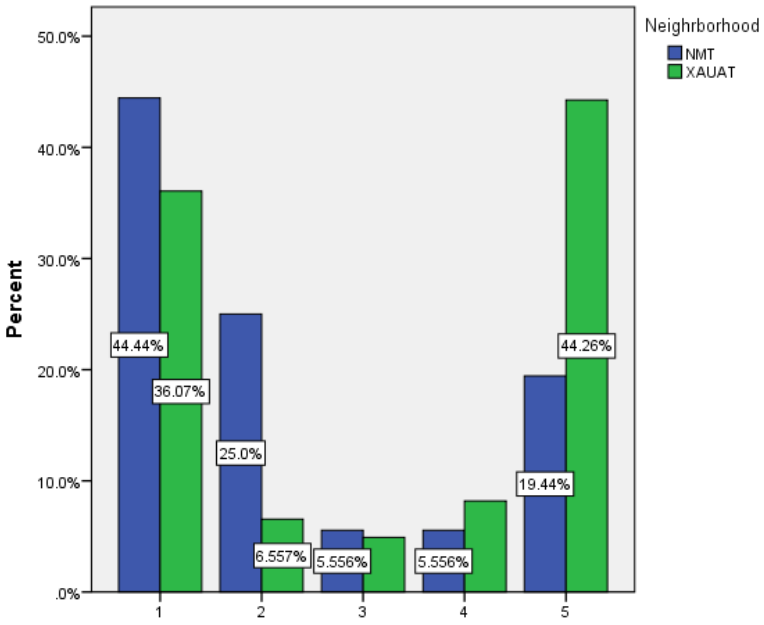


Figure 6-16: Physical Distance between Respondents and His/Her Same Neighborhood Frequent Contact (1: the same building, 2: adjacent buildings; 3: the same block; 4: adjacent blocks, 5: the same neighborhood)

NMT

Figure 6-16 presents the distribution of physical distance between respondents and their same neighborhood frequent contacts. In the case of NMT, the residents' frequent social ties are substantially related to their physical proximity. It is natural for residents to get acquainted with their close neighbors. However, the results find almost 70% of the SNFC either live in the same building (44.44%) or in the adjacent buildings (25%). This number drops to around 5% at the block level. Only 25% of the SNFC reach beyond the block of their residence. Apparently, social ties in NMT are established quite locally.

More correlation analyses on neighborhood social ties further associate the physical proximity with contact frequency (Personal correlation = 0.307, p=0.002) and length of relationship (Pearson correlation = 0.320, p=0.001). It indicates that physical proximity plays an important role to facilitate the socialization among residents – the closer they live, the higher the likelihood that they are able to establish long-term and active social ties.

Then we switch interest to the individual respondents' neighboring radius. We measure the respondent's range of socialization by taking the mean value of the physical distances to all his/her SNFCs, and correlate it with other demographic factors. No significant relationship has been found between respondents' neighboring radius and their age (Pearson correlation=0.172, p=0.613), size of the household (Pearson correlation=0.009, p=0.972), highest level of education (Pearson correlation=0.337, p=0.219), or household income (Pearson correlation=-

0.030, p=0.944). In the earlier discussion, senior residents are found to more likely to establish the same-neighborhood social ties. However, these senior social ties present no advantage on reaching out to a larger spatial range compared to other age groups. The only significant correlation is found between one's neighboring radius and length of residence (Pearson correlation=0.701, p=0.005). This indicates that residents do expand their physical range of socialization along with years of residence.

XAUAT

Data from XAUAT demonstrates that the neighborhood social ties appear to be much less spatially restrained. Although 36% of the active ties are found in the same building, 53% of connections reach out of the residential block to a wide range in the neighborhood. More correlation analyses suggest that physical proximity is only somewhat related to contact frequency (Pearson correlation=0.291. p=0.023), but is not related to length or closeness of the social tie.

Further correlation analyses do not discover notable association between respondents' neighboring radius to their demographic factors including household size (Pearson correlation=0.218, p=0.400), education level (Pearson correlation=-0.142, p=0.561), household incomes (Pearson correlation=-0.223, p=0.464), or length of residence (Pearson correlation=0.205, p=0.414). However, respondent's age seems to be positively associated to his/her physical range of socialization (Pearson correlation=0.443, p=0.050).

The above results indicate that in XAUAT spatial proximity does not facilitate socialization as significantly as we have found in NMT. Besides the next-door neighboring interactions, residents' intimate social ties are largely established in the workplace or through other community engagements. Senior residents, who are found to rely more on neighboring social ties, are also more likely to extend social ties to a larger physical range within the neighborhood.

Summary and discussion

This section explores the spatial distribution of the neighborhood social ties. Comparison of two communities discovers that residents in XAUAT tends to socialize in a wider physical range within the neighborhood; whereas residents in NMT are more likely to socialized with adjacent neighbors. In another word, physical proximity plays a significant role on facilitating neighborhood interactions in NMT.

This research argues that this socialization pattern is potentially influenced by the physical design of NMT. As we have elaborated in the morphological analysis, the spatial layout of NMT well represents the hierarchical planning schema of the residential settings in urban China. "Hierarchies," "centralization," and "enclosedness" are the themes of the master design, with public settings and green spaces together comprising a central ensemble to condition community life of the whole neighborhood down each residential cluster. The layout of the outdoor spaces and green areas presents the spatial "order" of gradual transition from the public domain to the privacy of the dwelling. At the level of the residential block, the

boundary is well defined by the landscape that is only shared by adjoining dwellers - traversers are permitted but are obviously not welcomed. The purpose of the "semi-public" communal spaces is to provide an easily accessible and safe environment to accommodate many outdoor activities to adjoining dwellers. Neighborhood watch and social engagements are expected in these places.

This study confirms the essential influence of spatial configuration to the socialization pattern. In a newly developed non-acquaintance neighborhood like NMT, the chance of encountering and interaction among residents heavily relies on arrangement of public facilities. The physical design of NMT affords various modes of encountering/interaction in a set of hierarchical enclosures according to the activity's nature of publicness – the larger the physical range, the higher the level of the publicness. As the result, the most intimate social ties are naturally generated among residents living close by. Such an influence from spatial from to socialization pattern is much less evident in the case of XAUAT, as prolonged social connections formed in the workplace and community, to a great extent, constitute the foundation of socialization.

Results in this section reveal other factors that are associated with residents' physical radius of the neighborhood social ties. Senior residents in XAUAT have higher likelihood to form intimate social connections in a larger physical range within the neighborhood. In the case of NMT, no evidence suggests that senior residents are more likely to reach out to a greater area compared to other age groups. However, residents tend to expand their physical range of socialization after

years of residence.

6.4 Conclusion

This chapter aims to explore the way that residents move about, utilize and interact with the public places, and to identify the underlying patterns of neighborhood socialization in relation to spatial and non-spatial characteristics of the residential environment.

Section 6.2 discussed the types of activities in the public spaces of the two neighborhoods with three major findings: First, residents of XAUAT utilize the public places, especially the outdoor settings, more intensively compared to residents of NMT. Second, the main theme of the public life appears differently in the two communities. NMT's social activities tend to be utilitarian purpose driven, destination targeted, or club style organized; whereas social activities in XAUAT tend to be more leisure-initiated, spontaneous, and mutually promoted (that is, one type of activity can promote the occurrence of other types of activities). Third, comparing the two communities, pedestrian movement presents different patterns and plays different roles in place making. In XAUAT, the pattern of pedestrian movements seems to be more influenced by patterns of social life, rather than contributing to shape or generate social interaction. On the contrary, in NMT, pedestrian movements are less socializing initiated, but rather are the fundamental generator of social life in the community.

Section 6.3 discussed the patterns of neighborhood social ties. Due to the different natures of two communities, a higher proportion of the active social ties are found within the range of neighborhood in XAUAT, whereas in NMT, the proportion of the neighborhood social ties shrinks remarkably. Meanwhile, spatial distributions of the neighborhood socialization present different patterns. XAUAT's social ties tend to spread widely over the neighborhood, whereas NMT's social ties are largely restrained within certain physical boundaries – people tend to socialize with close neighbors.

The above findings are further interpreted in relation to the spatial and non-spatial structure of the environment.

For a non-acquaintance community like NMT, the spatial structure of the neighborhood layout presents fundamental impacts on the patterns of activities and socialization. Spatial configuration generates and directs the majority of public activities and creates co-presence opportunities for neighborhood socialization. The logic of the spatial order also leaves an imprint on the patterns of socialization. Intimate neighborhood connections seem to be restrained (or promoted) within the range of enclosed residential sectors, and the other public life is directed towards the communal areas at the neighborhood center.

However, such an influence of spatial structure is less evident in the case of XAUAT. Neighboring socialization is primarily established upon existing social ties and community culture, whereas it relies less on the opportunity of spontaneous encountering. The spatial structure of the place plays a less significant role in

shaping the sense of place.

More investigation on demographic factors reveals substantial variation in patterns of activities and socialization depending on age groups. In both cases of XAUAT and NMT, MDS plots and correlation analyses demonstrated that, compared to a younger age group, senior residents are the active users of the public spaces and participators of neighborhood engagement. Meanwhile, neighborhood ties play more important role in the senior group's social life. The variations of social life between age groups is strikingly consistent across neighborhoods; we therefore ague that, to a great extent, a resident's quality of socialization is determined by his/her own intentions and environmental roles. On the scope of the neighborhood, residents' demographic composition potentially sets the tune for community social life.

CHAPTER SEVEN: MEANINGS OF GATEDNESS - Resident's Motivation and Sense of Community

7.1 Introduction

This chapter examines residents' perceptions of the residential life, and evaluates environmental factors that support residents' goal-oriented needs. Analysis and discussion are primarily based on information obtained from the survey. Findings from this chapter aim to answer questions including: What are residents' motivations in choosing a place to live? How is the sense of community perceived in the two case study neighborhoods? And what are the influential factors that affect perception of sense of community?

The first section of this chapter inspects the motivations of residents to choose the neighborhood they move to/remain in. It provides straightforward information to understand people's foci of attention in the residential settings. The second section focuses on the sense of community in both neighborhoods, in two steps. The first step is to identify the underlying components in residents' conceptualization of the *sense of community*, and then to compare and contrast the reference of the conceptualizations held by the residents of the two communities.

The second step is to access the psychological sense of community in each case study neighborhood. Further discussion relates people's demographic features, socialization patterns, and motivations in the context of their sense of community.

7.2 Motivations

This section explores people's motivations that drove them to choose their current residence. Practically, the gated residence has already dominated the housing resourses in urban China, which leaves almost no alternatives for homebuyers (refer to the introductory chapter). Therefore, this research does not explore the reason that people choose the gated neighborhoods over other types of residence. Instead, this research intends to compare two typical types of gated settings, and explores the primary reasons that attract residents or keep them from moving out. That is, the question here is not "why gatedness," but "why this type of gatedness rather than the other type."

Ranking of the Motivation Factors

One of the survey questions provided respondents with a set of possible motivations and inquired about the perceived importance of the each factor in their decision for choosing their neighborhood, using a five-point Likert scale (1=not important at all, 5=very important). The list of the motivations provided for the two case study neighborhoods are basically same, except the factor of the *reputation of the developer* was not included in the questionnaire for XAUAT.

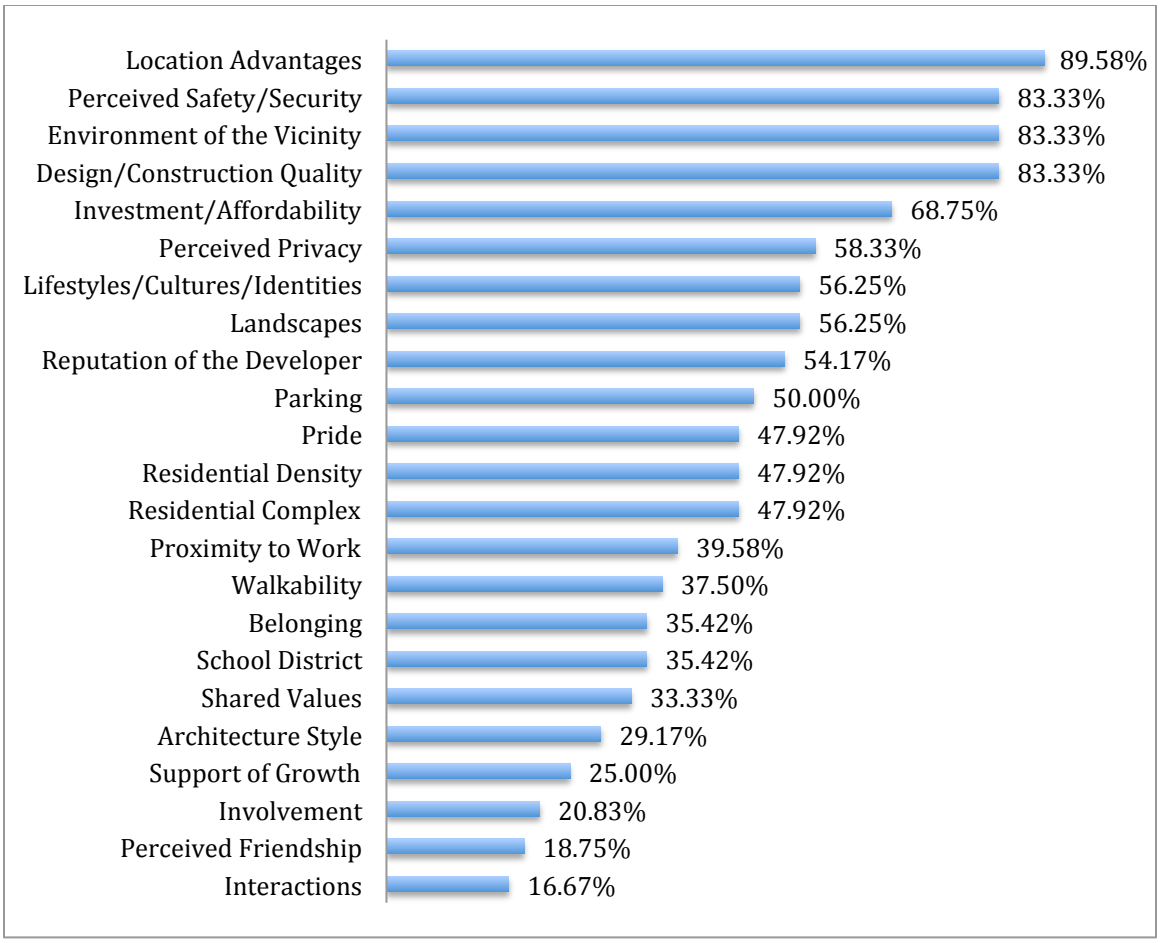


Figure 7-1: Percentage of the Respondents' Rated Importance of the Various Motivations from Very Important (5) to Somewhat Important (4) in NMT.

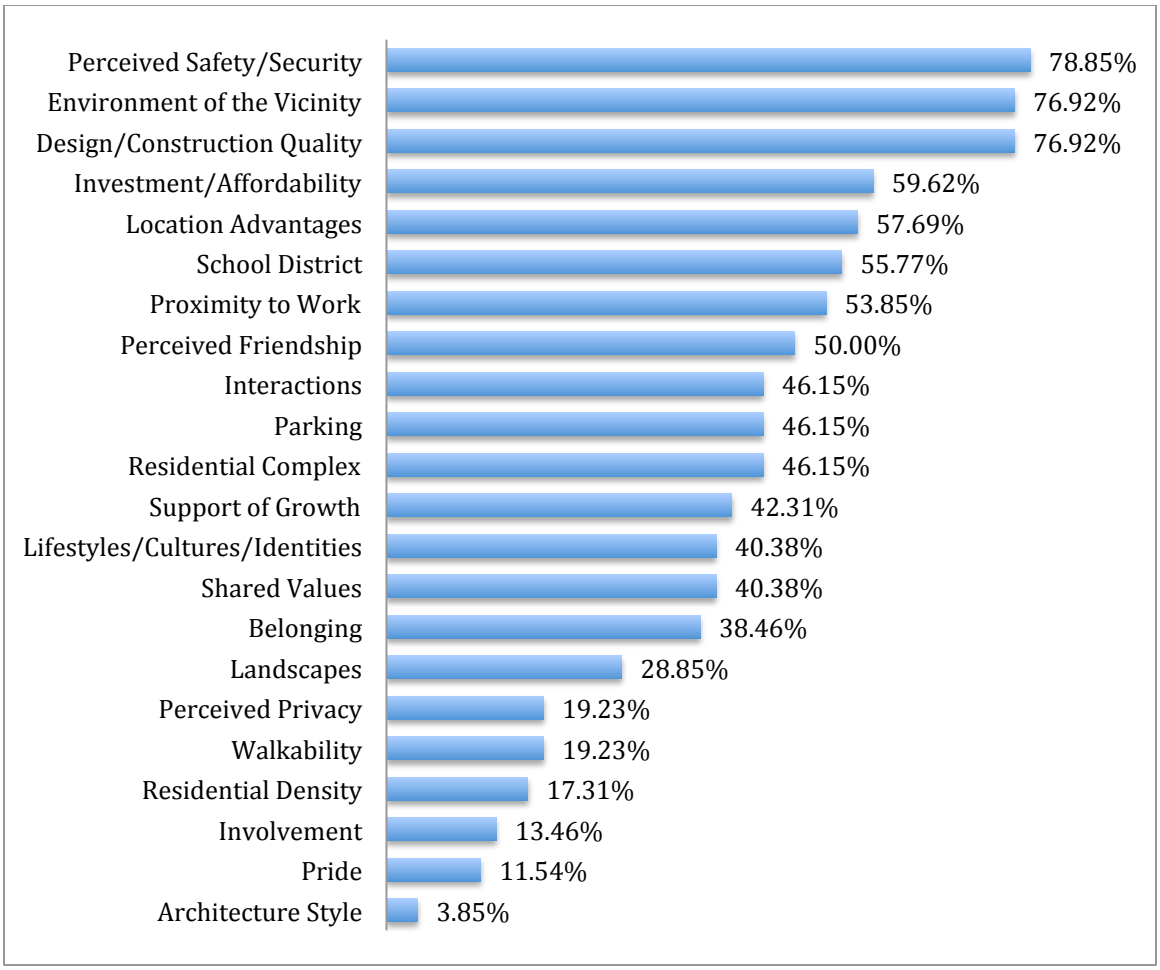


Figure 7-2: Percentage of the Respondents' Rated Importance of the Various Motivations from Very Important (5) to Somewhat Important (4) in XAUAT.

Figure 7-1 and 7-2 summarizes the percentages of respondents from NMT and XAUAT respectively, who considered the given factors as either very important (5) or somewhat important (4).

In the case of NMT, residents are primarily motivated by safety concerns, location advantages, and housing quality. The secondary motivations are factors regarding quality of the public places in the neighborhoods, and community

lifestyles. Relatively fewer respondents chose the factors about community attachment and walkability. Factors regarding social interactions were of the least importance. In short, residents are more likely to choose NMT for the quality of residential settings and associated lifestyles.

People chose to live in XAUAT primarily for housing quality and safety. The secondary motivations focus on various location-related advantages, such as being close to work and shopping areas and within a good school district. Friendship is also a major reason that was chosen by half of the respondents. On the other hand, residents in XAUAT are less likely to be motivated by the factors of the community attachment, lifestyles and especially the overall quality of physical environment in the neighborhood (e.g., landscape, architecture style, walkability, residential density).

Similarities and Differences between NMT and XAUAT

Figure 7-3 presents the preference pattern in various categories of motivation factors and displays the similarity and difference comparing two neighborhoods. Table 7-1 summarizes the mean value of the importance rating as the measure for each factor. Chi-square test results distinguish the factors with significant difference between two neighborhoods ($p<0.05$).

	NMT		XAUAT		Chi-Square	df.	Exact Sig (2-sided)
	Mean	sd	Mean	sd			
Pride	3.33	1.39	1.98	1.20	25.77	4	0.00
Shared Values	2.47	1.65	3.00	1.31	24.83	5	0.00
Perceived Friendship	2.11	1.40	3.25	1.34	23.68	5	0.00
Location Advantages	4.52	0.68	3.42	1.39	20.79	4	0.00
Perceived Privacy	3.38	1.42	2.51	1.14	19.39	5	0.00
Interactions	1.96	1.38	3.08	1.45	18.12	4	0.00
Residential Density	3.25	1.19	2.19	1.22	16.98	4	0.00
Architecture Style	2.40	1.48	1.42	0.81	16.11	5	0.00
Environment of the Vicinity	4.44	0.99	3.96	1.13	14.47	5	0.04
School District	2.64	1.89	3.38	1.78	11.36	5	0.03
Parking	3.17	1.82	3.04	1.55	10.39	5	0.06
Landscapes	3.48	1.29	2.79	1.23	10.15	4	0.37
Perceived Safety/Security	4.46	0.94	4.19	0.82	9.59	4	0.03
Investment/Affordability	3.98	1.42	3.85	1.32	8.87	4	0.06
Design/Construction Quality	4.17	0.91	3.83	1.31	8.86	4	0.06
Lifestyles/Cultures/Identities	3.19	1.61	2.90	1.45	8.07	5	0.14
Belonging	2.71	1.60	3.00	1.33	7.71	4	0.10
Walkability	2.71	1.66	2.33	1.32	6.85	4	0.15
Support of Growth	2.40	1.50	2.92	1.56	6.03	5	0.29
Proximity to Work	3.05	1.69	3.43	1.67	5.92	5	0.33
Residential Complex	3.28	1.60	2.98	1.61	4.39	5	0.51
Involvement	2.11	1.52	1.92	1.31	1.72	5	0.91

Table 7-1: Importance Values of the Motivation Factors and Chi-Square Tests Comparing XAUAT and NMT

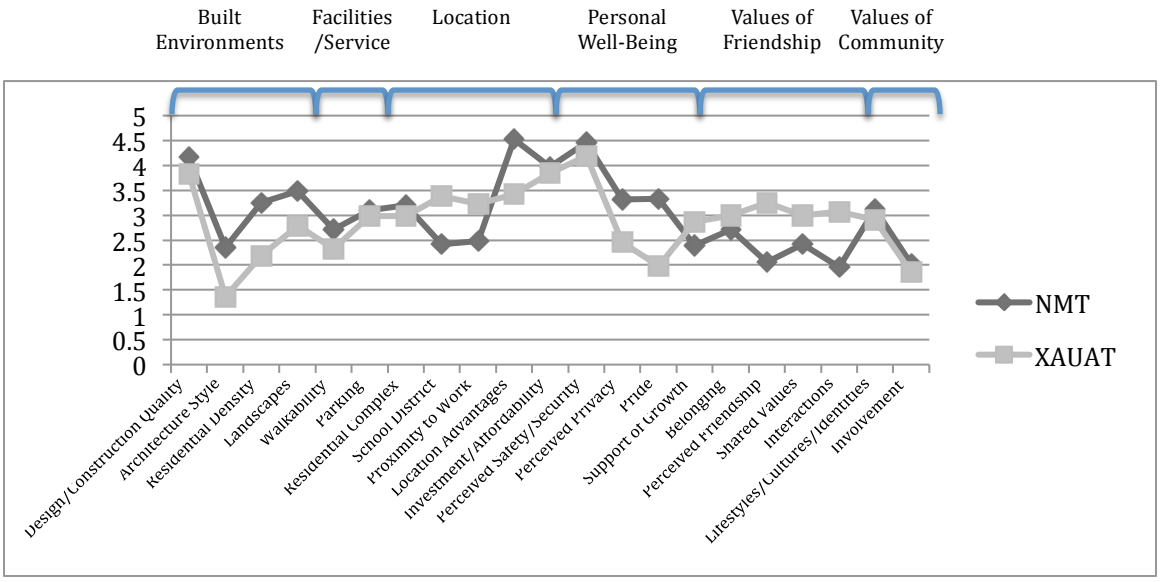


Figure 7-3: Mean Values of Importance of Motivation Factors

Similarities between the two communities are illustrated in the chart. In both neighborhoods, factors such as *safety, location advantages*, and *housing quality* are highly ranked, whereas the factors of *involvement of community issues, architecture style,* and *walkability* are the least motivating.

Both communities identified *perceived safety* as an overriding motivation, with NMT reporting a slightly higher value relative to XAUAT. Although XAUAT is a gated neighborhood with a security force monitoring each entrance and patrolling at night, practically it is only off limit to peddlers and visitors appeared highly suspicious. Other visitors have good accessibility to the neighborhood. Neighborhood-watch is the primary reliable mode of crime prevention. Compared to that, significant weaker social ties in NMT do not support a reliable neighborhood-

watch environment. Neighborhood safety primarily depends on various crime prevention facilities and the security force on duty day and night. Previous researches on gated communities in the western context argue that heavy reliance on a security force may exaggerate the feelings of insecurity and reduce residents' responsibility of mutual watch (Blakely & Snyder, 1998; Sanchez, 2005). However the reality is that in urban China, household burglaries have become the second largest recorded categories of offences (L. Zhang, Messner, & Liu, 2007). The insecurity is not imaginary and a strong need for crime prevention measures is essential for all urban residents. Although this study does not examine the recorded crime rate to evaluate the actual effect of gatedness on crime prevention, motivation results do find the residents from both gated settings are satisfied with their current neighborhood's safety/security. In addition, evidences obtained from behavior observations find that both neighborhoods are considered safe environments for children to play outdoors without intensive supervision. The field study in NMT experienced quite friendly responses from the residents but encountered constant queries from the security staff. All the evidence indicates that security mechanisms in gated neighborhoods, no matter whether through neighboring mutual assistance (XAUAT) or relying on an organized security force (NMT), provide a safe residential environment.

The data also reveals that people's attention is more on the functional quality of the built environment (e.g., residential density and housing quality) over the aesthetic features (that is, *architecture style*). This result is especially interesting for

NMT, for the architecture design elaborately borrowed European styles motifs to invoke the image of prestigious modern life. However, thus effort seems unable to strike a responsive chord with residents. Further studies are needed on the aesthetic features regarding the gap between the designer's intention and the place user's interpretation. Walkability of the community is another factor that was not largely a concern in either neighborhood, primarily because most of the urban and suburban residential developments in the area are pedestrian friendly. People tend to take it for granted rather than making it an issue for consideration.

The results also found a general low interest on the *involvement of the community issue* as a motivation in both neighborhoods. This corresponds with other findings from the assessment of the psychological sense of community,[6] which discovered a fairly low likelihood of participation in the community activities and low levels of perceived personal influence upon the community issues in both case study neighborhoods (refer to section 7.3). Residents' low interest on community issues is partially due to the long history of the top-down management tradition in Chinese communities. The resident committee, as a level of government authority, was established for neighborhood formation and organization during the socialist period, which is still in charge of citizen's registration and the community management in many traditional residential areas and work units. In the newly developed neighborhoods like NMT, the duty of property maintenance and

[6] Two survey questions are asked in the sense of community section, which evaluated community involvement. The questions inquired about the degree of agreement for the statement: (1) "I always attend club or organizational activities within this neighborhood," and (2) "I have almost no influence over what this neighborhood is like."

community management has been largely taken over by commercial property management companies. Homeowners have more rights to speak on the community issues; however, residents seem not consider this empowerment as an attractive advantage compared to the traditional work-unit neighborhood. Other recent studies also reveal residents' general low level of involvement on the community issues in Chinese gated communities (e.g., Chi, 2013; Han, 2014). To some extent, the traditional top-down governance has been accepted as the norm for the community management, which is transformed into paid service in today's gated neighborhood.

Ranking of the motivation factors presents more remarkable differences between two neighborhoods. The MDS plot in Figure 7-5[7] represents the relationships between NMT and XAUAT residents' motivation ranking. Each dot represents a respondent. Closer dots in the plot indicate a stronger similarity between two respondents' rankings of the motivation factors. The plot presents clearly clustering of respondents from two neighborhoods, which suggests different patterns of ranking the motivation factors.

[7] Figure 7-5 presents a two-dimensional MDS structure. The plot is a good presentation of the data with normalized stress as 0.07, and the proportion of variance accounts for as 0.93.

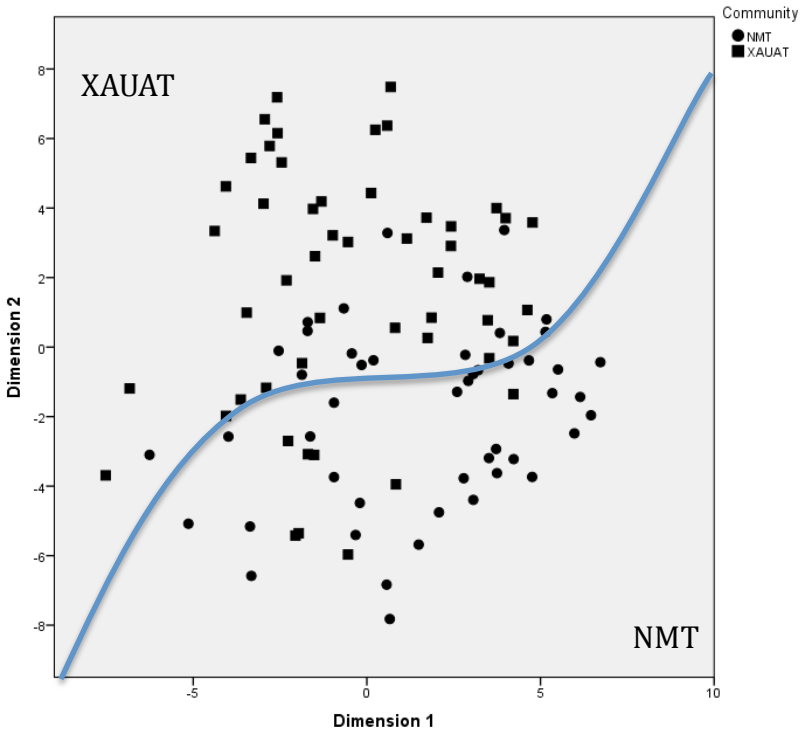


Figure 7-4: MDS Plot of Respondents' Ranking of Motivation Factors

Comparing to those from XAUAT, NMT's respondents rated relatively higher values on most motivation factors (14 out of total of 22 factors). It indicates the fact that residents generally chose NMT with clearer and stronger purposes. In the case of XAUAT, on the other hand, decisions about the residence choice were not necessarily voluntary – but it may have been simply due to a lack of options. For example, housing prices are substantially lower in XAUAT compared to the soring market price today in other housing developments. Affordability may be the determinant issue for some families to stay in the neighborhood. Also, making life changes generally requires stronger motivation than maintaining the status quo. For

families that have been living in XAUAT for a long period of time, specific reasons for staying may not be as easily identified as those in NMT.

The Chi-square test shown in Table 7-1 distinguishes factors with significant differences between the two communities (difference of mean value > 0.5; $p<0.05$). The factors that received higher ratings in NMT than in XUAUT are *feeling of pride*, *perceived privacy*, *location advantages*, *residential density, architecture style,* and *environment of the vicinity*. The factors that received higher rating in XAUAT than in NMT are *neighbors with shared values*, *perceived friendship*, *social interactions*, and *good school district.*

Figure 7-3 illustrates the difference between the two communities with regard to motivation categories. NMT's respondents were more likely to be motivated by factors regarding *the built environment*, *facilities/services* and *personal well-being.* XAUAT's respondents, on the other hand, were more frequently motivated by factors regarding *values of friendship.* In the category of *location*, XAUAT's residents where more concerned with location advantages regarding education and work (*school district* and *proximity to work*), whereas NMT's residents pay more attention to housing values and location-related factors, life quality, and convenience.

Figure 7-5 further applies the model of environmental consciousness for interpreting the pattern of motivations. Comparison of the two neighborhoods reveals that: (1) for residents from both neighborhoods, the basic needs of health and safety are the primary reasons for choosing their current residence. (2) Studies

on both neighborhoods find factors regarding societal connectedness and contextual connectedness are the least important. Well-being of the community and involvement of community issues are very unlikely to be the reason for residents to choose to live in NMT or XAUAT. (3) Comparatively, NMT's residents pay more attention to the quality of their personal lives, whereas XAUAT's residents tend to evaluate and appreciate the values of friendship for choosing the residence. In this regard, referring to the model of environmental consciousness, XAUAT's motivations tend to be weighted in favor of community values; whereas NMT's factors lean more toward self-benefit.

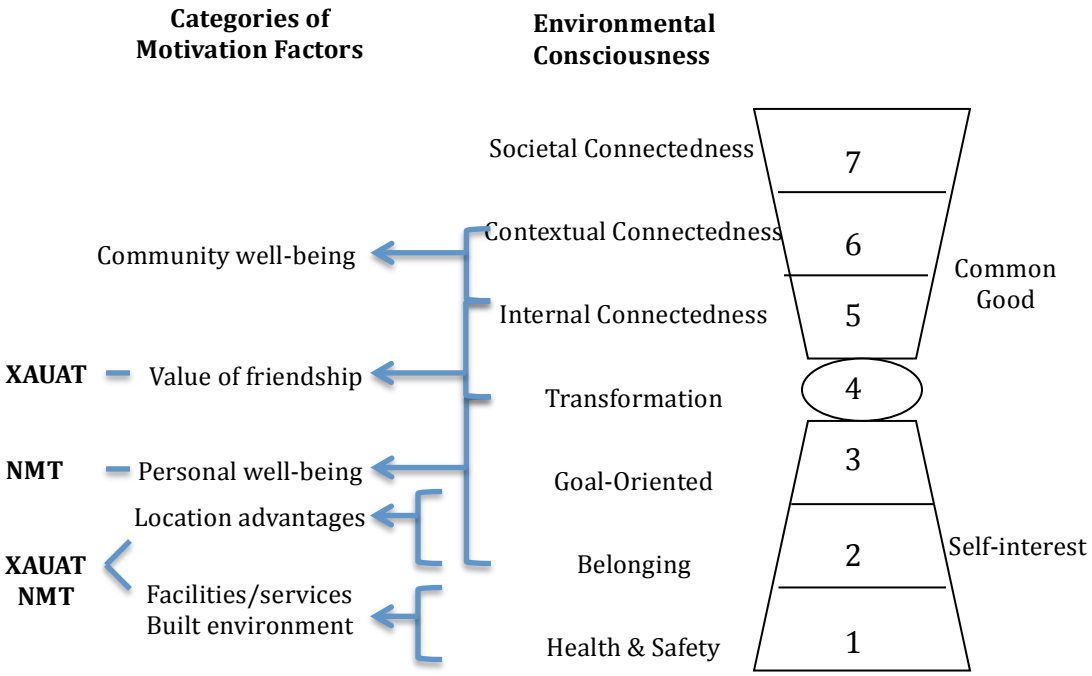
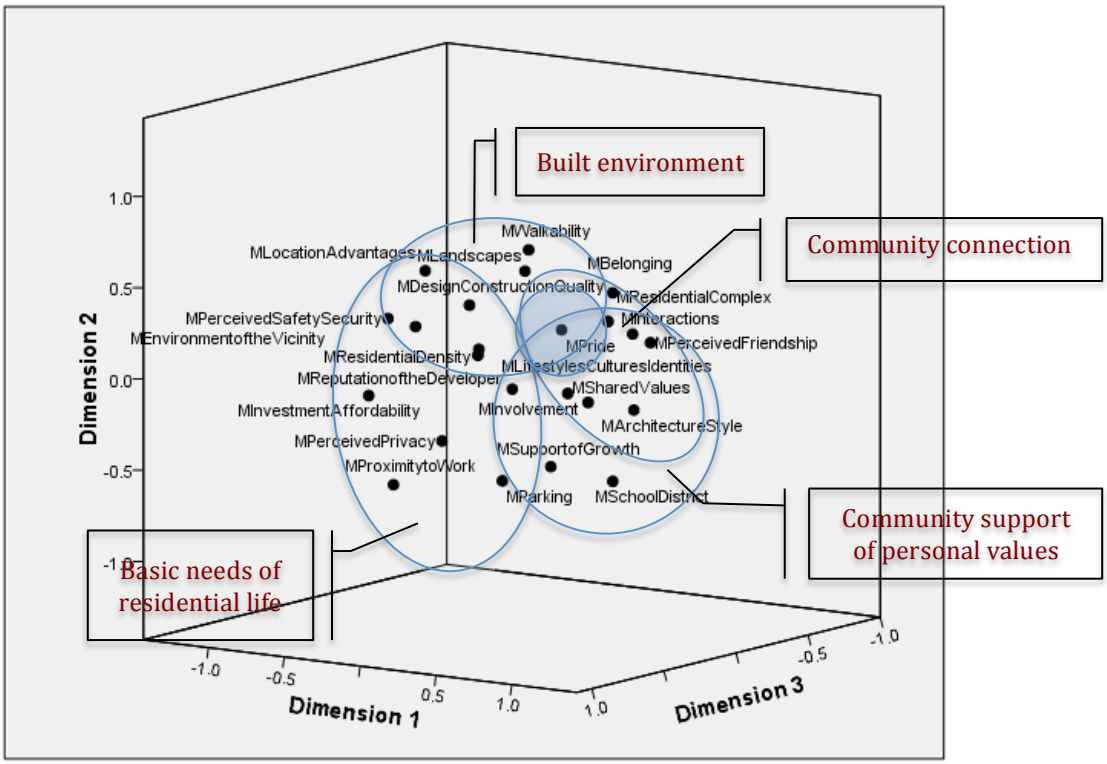


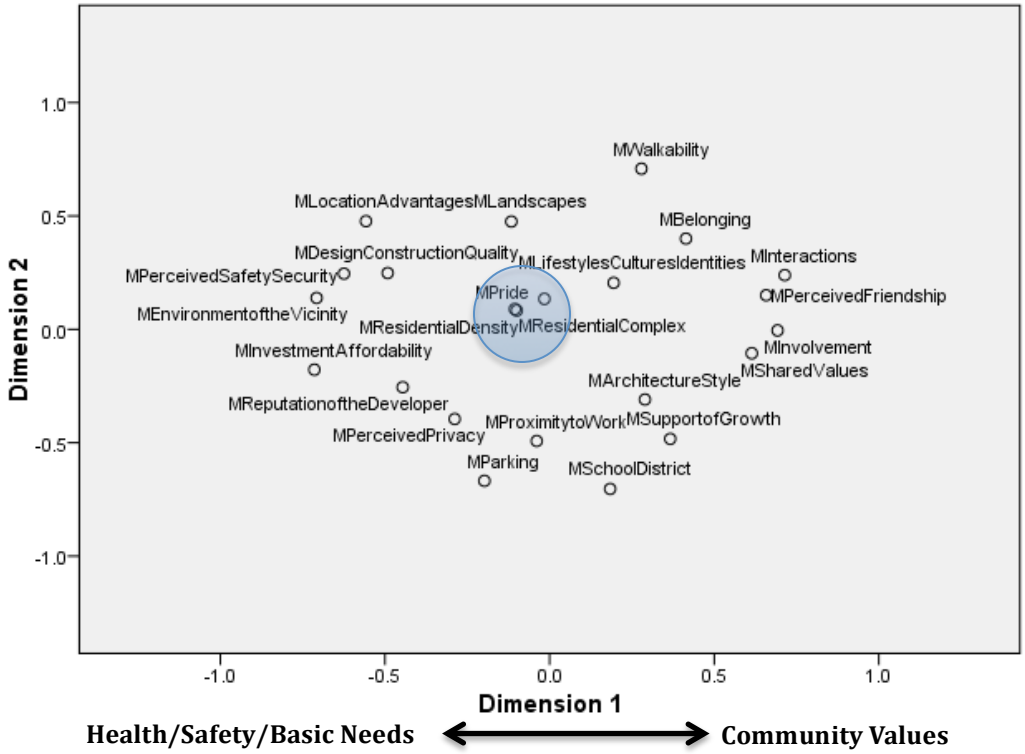
Figure 7-5: Motivation Factors in Relation to the Environmental Consciousness Model

Psychological Structure of the Motivation Factors

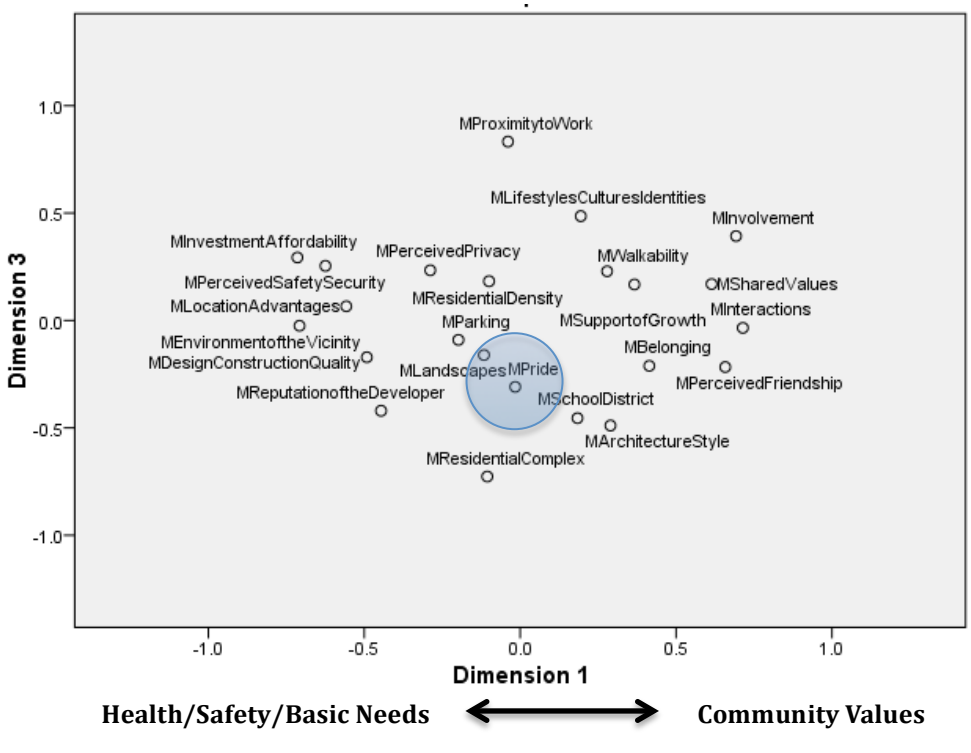
Multi-dimensional scaling analyses are further conducted to understand the interrelationships between the motivational factors in each case study neighborhood. Different from categorization of the motivational factors based on the Environmental Consciousness Model, the MDS analysis results reflect the relationship among motivation factors based on place user's perceptions.

MDS plots in Figure 7-6 and 7-7 present three-dimension structures of motivation factors in NMT and XAUAT, respectively.





Health/Safety/Basic Needs ⟷ **Community Values**



Health/Safety/Basic Needs ⟷ **Community Values**

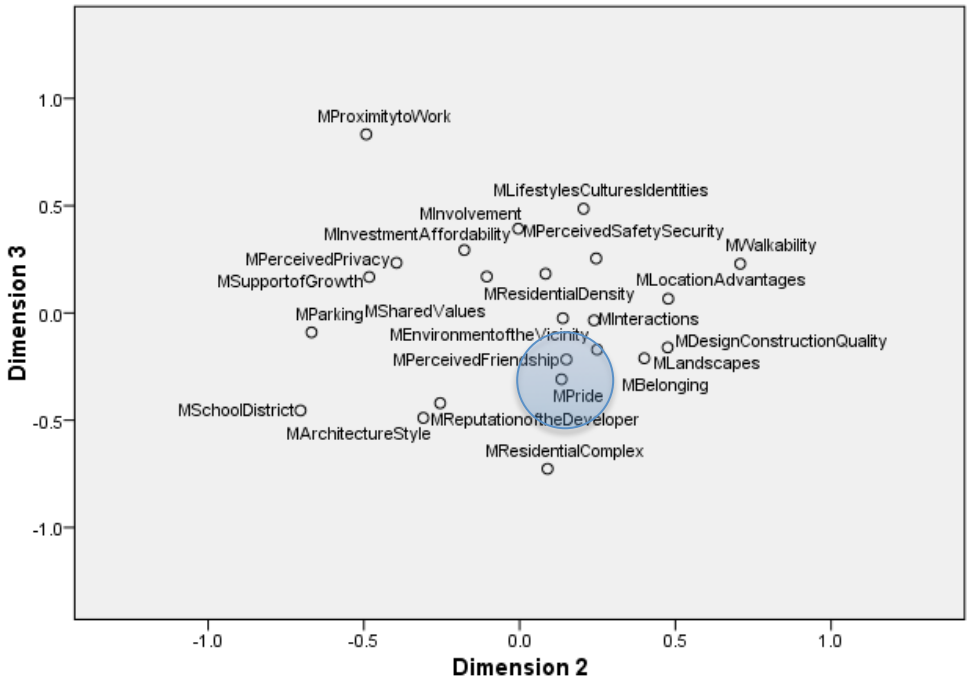


Figure 7-6: Interrelationships between Motivation Factors (NMT)

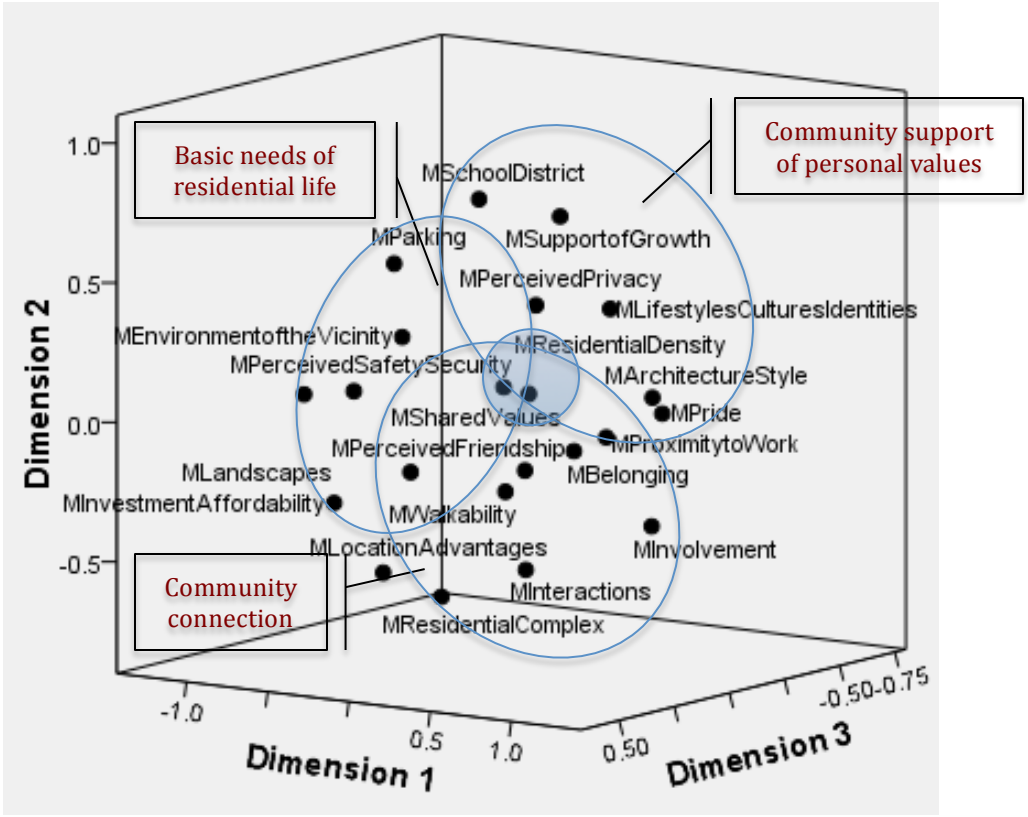
In NMT's plot[8], *pride* appears to be the center of the whole structure. Surrounding factors can be clustered into four groups according to proximity with overlapping in between. The meaning of these groups can be interpreted as *built environment*, *basic needs of residential life*, *community support of personal values*, and *community connection*.

To a great extent, the clustering result resembles Canter's model of place (Canter, 1977) by examining place in the aspects of built environments, meanings, and activities. In Canter's article on the purposive evaluation of places (Canter, 1983), he argues that the central cells in the MDS structure generally represents the "psychological core" of human's perception of place. The core is "more sensitive to

[8] Figure 7-6 presents a three-dimensional MDS structure. The plot has a good presentation of the data with normalized stress as 0.03, and high proportion of variance account for as 0.97.

the state of the whole," and therefore is the key of unraveling the hidden logic of the psychological structure. In the case of NMT, the factor of *pride* is found to be the "psychological core" of the motivation structure. The aspiration of *pride* is related to and supported by other physical-oriented, meaning-oriented, and activity-oriented expectation from the environment.

Moreover, in the two-dimensional projections of the structure, the first dimension, which contributes to explain of 73% of data, appears a clear tendency of moving from the fundamental personal needs at one end toward the community values at the other. The result indicates that NMT's perception of motivation is evidently consistent with the hierarchy in the model of environmental consciousness.


Basic needs of residential life
Community support of personal values
Community connection
MSchoolDistrict
MSupportofGrowth
MParking
MPerceivedPrivacy
MLifestylesCulturesIdentities
MEnvironmentoftheVicinity
MResidentialDensity
MPerceivedSafetySecurity
MArchitectureStyle
MPride
MSharedValues
MProximitytoWork
MPerceivedFriendship
MBelonging
MLandscapes
MInvestmentAffordability
MWalkability
MInvolvement
MLocationAdvantages
MInteractions
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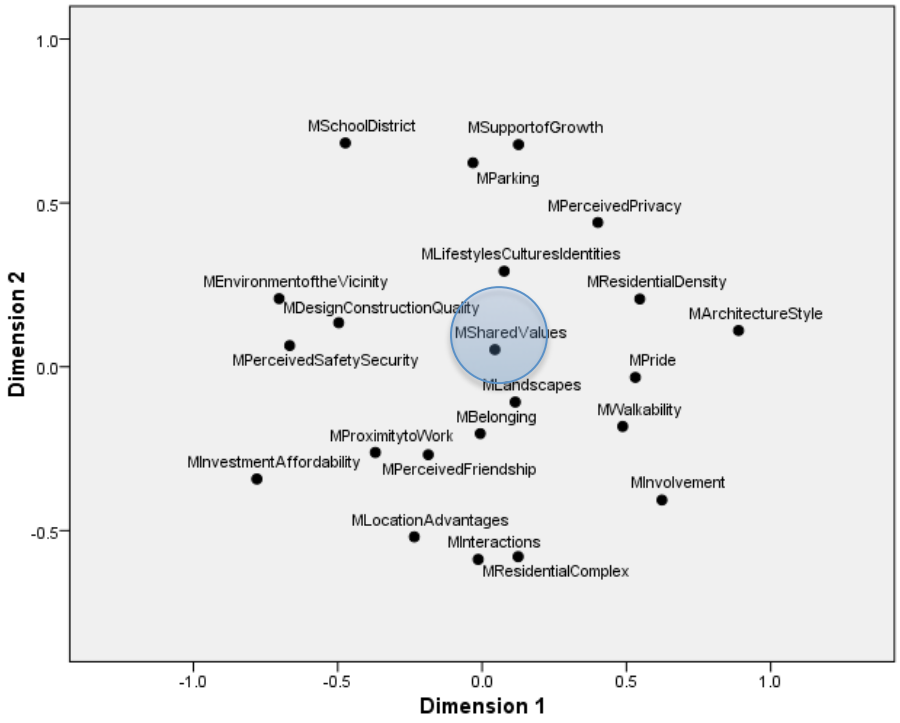
Dimension 2
Dimension 3


MSchoolDistrict
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MResidentialDensity
MDesignConstructionQuality
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MSharedValues
MPerceivedSafetySecurity
MPride
MLandscapes
MWalkability
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Dimension 2

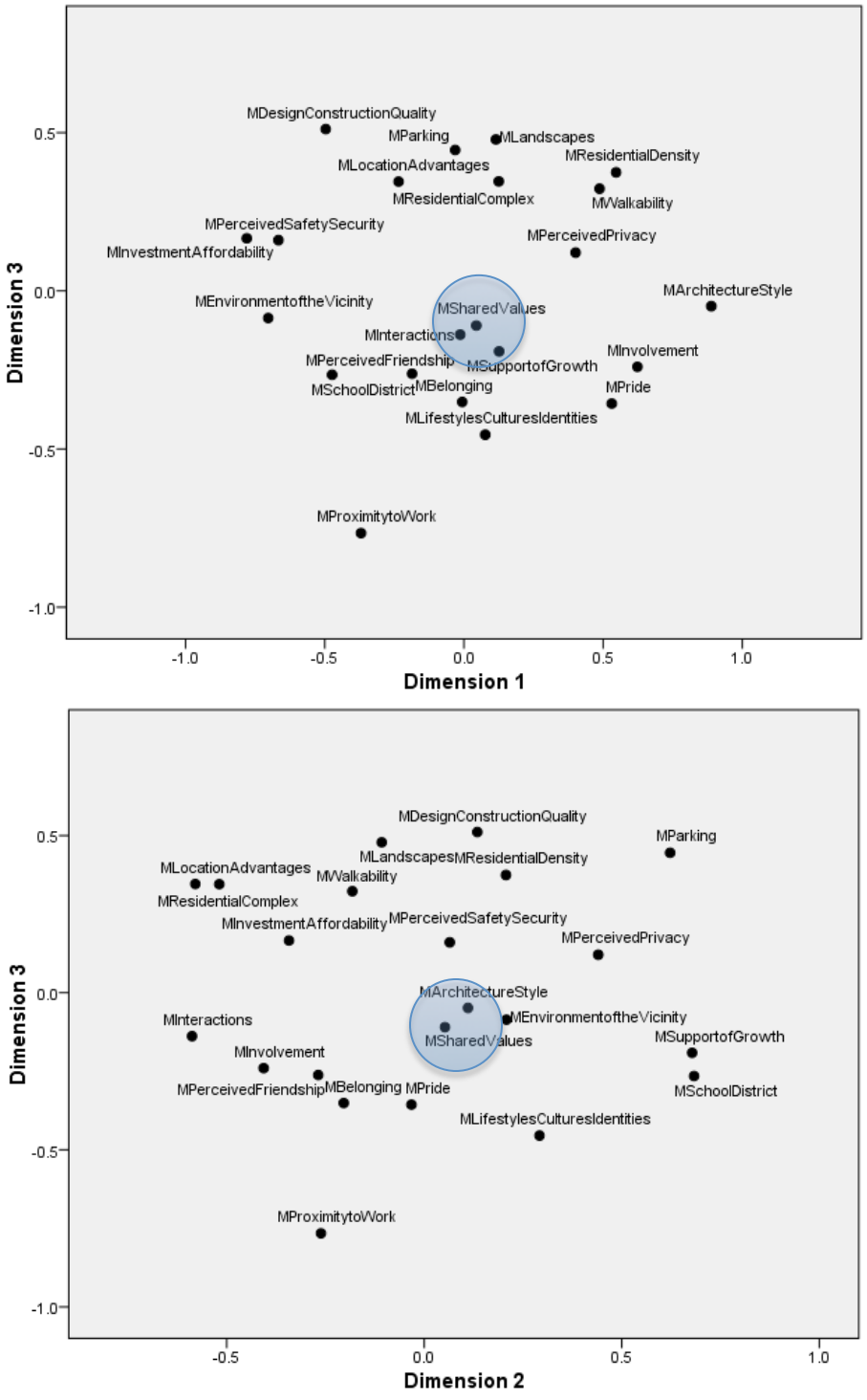


Figure 7-7: Interrelationships between Motivation Factors (XAUAT)

MDS plots in Figure 7-7[9] present the structure of motivation factors in the case of XAUAT. With regard to proximity between factors, the structure has three major components with overlapping factors between each. These three components are: *basic needs of residential life*, *community support of personal values,* and *community connections*. The factor of the *shared value* appears to be the psychological core of the structure, which is closely related to factors of *community lifestyles/cultures/identities, perceived friendship,* and *sense of belonging*. Differing from the result for NMT, the meaning of each dimension of the projection is rather hard to interpret.

MDS analyses reveal the psychological structure of the motivation factors in both communities. First, the results show remarkable agreement between respondents' perceptions and Canter's conceptualization of the place (Canter, 1977). Second, the psychological core of the motivation structure appears to be different in the two communities. In NMT, the focus of motivation is to pursue personal value – people choose the community that embodies and fosters their sense of pride. In XAUAT, the formation of motivation surrounds the values of mutual support in the community – people look for neighbors with shared values and interests. The result reinforces the earlier arguments referring to the environmental consciousness model, that NMT's motivations tend to be more self-focused whereas XAUAT's motivations lean toward the direction of the common good.

[9] Figure 7-7 presents a three-dimensional MDS structure. The plot has a good presentation of the data with normalized stress as 0.03, and a high proportion of variance account for as 0.97.

Summary

This section examines the motivation factors for choices of residence. For residents of both of NMT and XAUAT, basic needs of safety, convenience and other residential qualities are the primary reasons for living in the current neighborhood; meanwhile, community management and involvement are the least considered factors.

Comparison of configurations of motivational factors between the two communities also discovers underlying differences. The formation of motivation in NMT is centered with the goal of pursuing personal values. Achievement of pride is supported by the quality of the built environment – that is, living in the environment with high-quality housing, well-designed landscape, and all-inclusive service facilitates residents' perception of personal value. In XAUAT, on the other hand, pursuing mutual value and support in the community is the psychological core of motivation. Achievement of the goal is found to be supported by the quality of the social environment – features of friendships and actively participating in community life facilitates resident' perception of belonging.

Borrowing the model of environmental consciousness to interpret motivation construct in two neighborhoods, this research discovers that the center of gravity in NMT's motivational construct concentrates in the area of *self-interest*. In the case of XAUAT, focus of the motivational construct shifts slightly toward the upper level of the hierarchy into the area of *common good* of the community.

7.3 Sense of Community

This section explores the sense of community in the two case study neighborhoods with three foci of discussion: (1) from place users' perspectives, identifying the underlying components of the conceptual construct of the sense of community; (2) assessing and comparing perceived sense of community in two neighborhoods; and (3) discovering the relationship between the sense of community and physical, social and cultural features of the residential environment.

Cognitive Construct of the Sense of Community

The concept of the *sense of community* has been extensively explored by numerous design scholars and social scientists (e.g., Glynn, 1981; J. Kim, 2001; McMillan & Chavis, 1986; Nasar & Julian, 1995). Theoretically, existing research has thoroughly discussed and developed frameworks for the concept as well as various measuring instruments. Among them, Kim's four-domain model (Kim, 2001) incorporates physical and psychological aspects under the umbrella of the sense of the community, which is especially inspiring for research on residential settings (refer to the literature review chapter).

Empirically, however, perception/interpretation of the sense of community may vary significantly depending on the physical, social, and historical contexts of place, as well as characteristics of place users. Canter's purposive model of *place*

argues that a person's experience of place is goal-oriented. Evaluation of place, therefore, is "… the degree to which a person see a place as helping to achieve that person's goals at various levels of interaction with that place." (Canter, 1983). Therefore, before inquiring into the evaluation of the sense of community, this part of the study seeks to develop residents' cognitive constructs of the sense of community based on their own perceptions and contexts, and identify people's foci of attention of the concept.

A four-domain construct of the sense of community adopted and adjusted from Kim's model is proposed for directing the design of question and data analysis. Four domains of the construct include *housing features*, *community features and identities*, *attachment* and *social interaction,* with two dimensions to distinguish factors according to physical to psychological aspects, and from individual/personal to collective/public/social focus (See Figure 7-8).

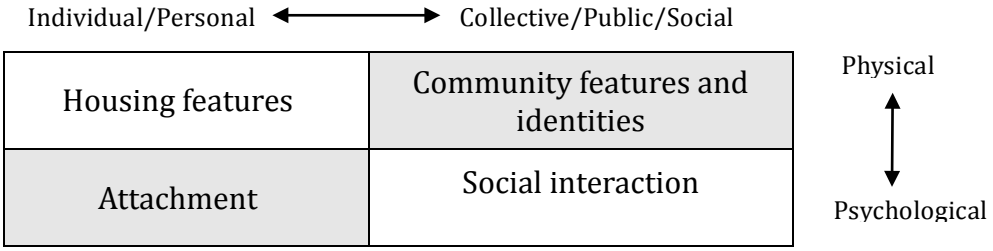


Figure 7-8: Interrelationships between the Four Domains of Sense of Community

Based on this model, respondents in XAUAT were provided with a list of potential factors and were asked to rate the degree of association of each of the factor to their understanding of the sense of community, using a five-point Likert

scale (1=not related at all, 5=very closely related). NMT's respondents were given one more factor regarding the *reputation of the developer*.

Data collected from XAUAT and NMT are analyzed respectively.

XAUAT

Figure 7-9 sorted all 19 factors according to their connection to the sense of community in the respondents' understanding. The chart lists the percentage of respondents who considered the factor to be either "very closely related" or "closely related."

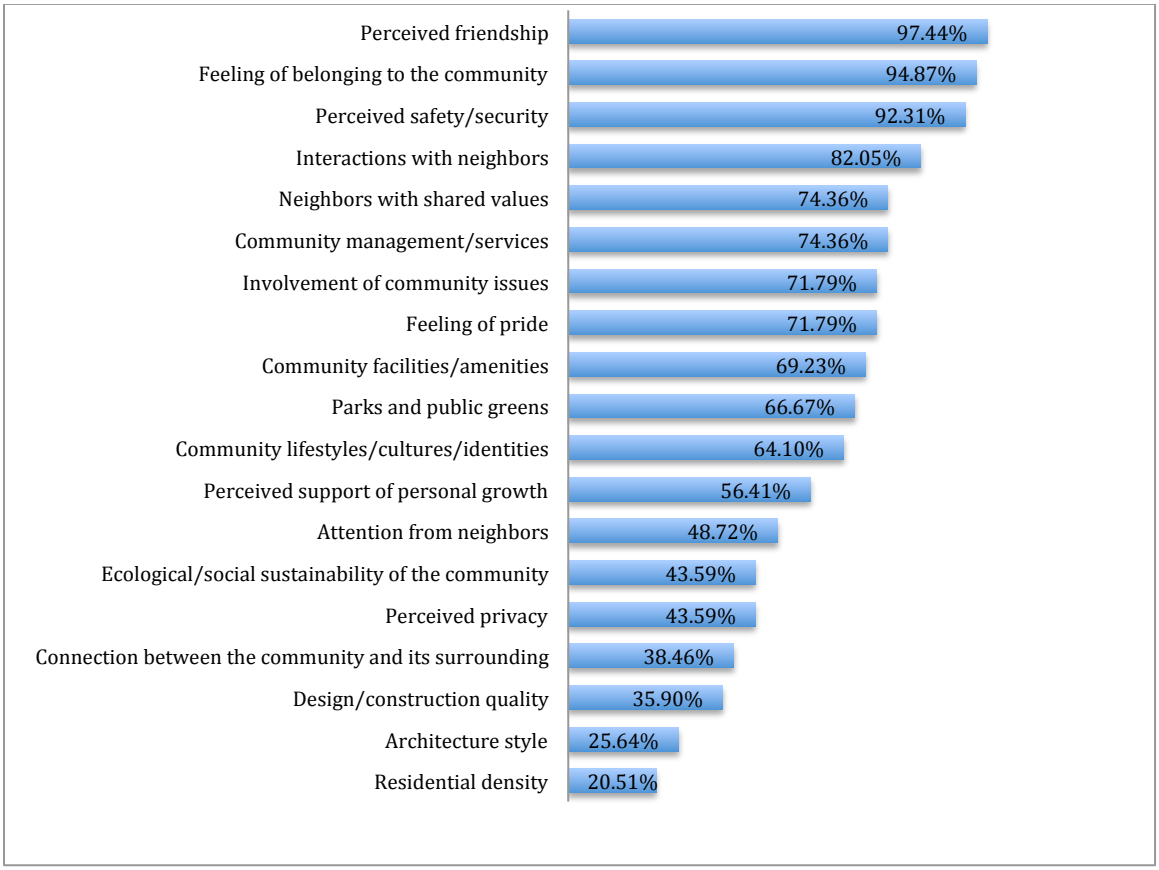


Figure 7-9: Percentages of Survey Respondents Who Ranked the Factors Either "Very Closely Related" or "Closely Related" to the Sense of Community (XAUAT)

The factors at the top of the list are exclusively regarding individual's *community attachment (that is, perceived friendship*, *feeling of belonging*, and *perceived safety/security*). Following that, some factors regarding *social interaction* are also considered to be important indicators (that is, *interactions with neighbors, neighbors with shared values, and involvement of community issues)* Factors regarding *community features and identity* also received relatively higher attentions (that is, *community management/services community lifestyles/cultures/identities*, *community facilities/amenities* and *parks and public greens*). Factors of *social interactions* interfering privacy issues are not largely considered as being supportive to the sense of community (that is, *attention from neighbors, perceived privacy*). Factors about *housing features (that is, design/construction quality, architecture style, and residential density)* are considered as least supportive to the sense of community.

Multi-dimensional scaling is conducted to explore the interrelationships between these factors. The results reveal the fundamental logic of respondents' conceptualization. As shown in Figure 7-10, the proposed construct of the sense of community is generally correspondent with respondents' patterns of conceptualization. Based on proximity, four clusters of factors are identified on the plot representing *housing features*, *community features and identities*, *attachment* and *social interaction* respectively. The factor of *community involvement* is found to be the psychological core of the construct.

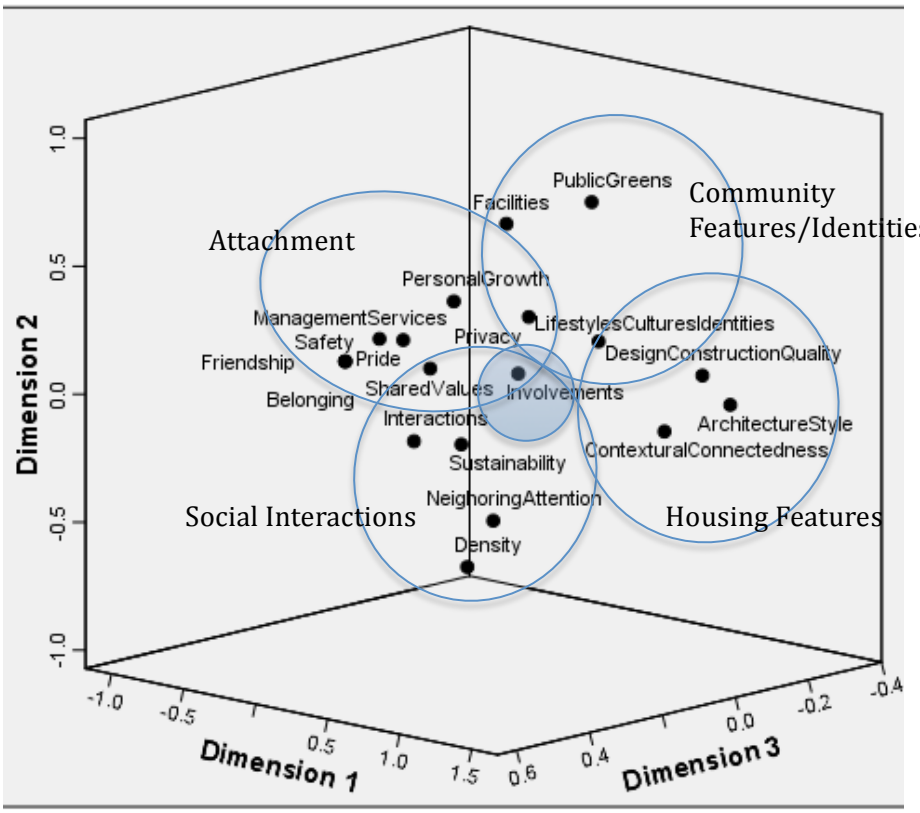


Figure 7-10: Interrelationships Between Factors Regarding the Sense of Community (XAUAT) [10]

The factor analysis is further applied to quantitatively identify factor groups and their connections to the sense of community. The principle component analysis (PCA)[11] of the data set indicates that 6 components are able to account for 72.4% of the variances cumulatively. Factors are sorted into 6 components based on their degree of correlation to each component (correlation >0.5 or <-0.5) (Refer to Appendix 1). Each component has a different power of explaining the data set. A higher value indicates a higher level of agreement among respondents' evaluations

[10] Figure 7-10 presents a three-dimensional MDS structure. The plot has a good presentation of the data with normalized stress as 0.005, and a high proportion of variance accounts for 0.995.
[11] Principle component analysis (PCA) is a statistical procedure that converts a set of observations of possible correlated variables into a set of values of linearly uncorrelated variables called principle components. It is a variance-focused approach seeking to reproduce the total variable variance, so that it is commonly used for purposes of data reduction.

on the same component. Interpretations of the meaning of each component are summarized in the Table 7-2. Each component also takes the mean value of belonging factors as the measure of connection to the concept of sense of community. A higher value indicates a tighter connection.

Factor		Mean	SD	Explain % of variance
Attachment (Community values) Social interaction	Attention from neighbors	4.45	0.75	21.989
	Neighbors with shared values			
	Interaction with neighbors			
	Perceived friendship			
Housing features	Design/construction quality	2.84	1.28	15.303
	Architecture style			
	Residential density			
Community features	Community facility and amenities	4.17	1.03	10.263
	Park and public greens			
	Community management / services			
Community identity	Connection between community and its surrounding context	3.41	0.98	9.962
	Ecological sustainability of the community			
	Community lifestyles/cultures/identities			
Attachment (Personal values)	Feeling of pride	4.14	0.90	7.813
	Perceived support of personal growth			
	Feeling of the belonging to the community			
Others	Perceived safety	4.42	0.78	7.056
	Involvement of community issues			

Table 7-2: Primary Components of the Conceptualization of the Sense of Community (XAUAT)

The most commonly identified dimension is *social interaction* and *attachment focusing on community values*. The component of *housing features* is another largely

agreed-upon component by respondents. Following that are the two components representing *community features* and *identities* respectively. Factors about attachment focusing on the fulfillment of personal values are also recognized as a component of the construct.

Examination of the mean values of components reveals that formation of the sense of community is most tightly related to *social interaction*, followed by the *attachment* component reflecting *community values*, followed by the *attachment* component reflecting *individual values*, followed by *community features and identities*. *Housing features* is found to be the component that is the least related to the concept of the sense of community.

Factor analysis results present a general tendency on residents' construct of the sense of community in XAUAT. That is, the perception is more related to collective features of the community rather than features about individual well-being; more related to the psychological aspects rather than the physical aspects of the environment (summarized in Figure 7-11).

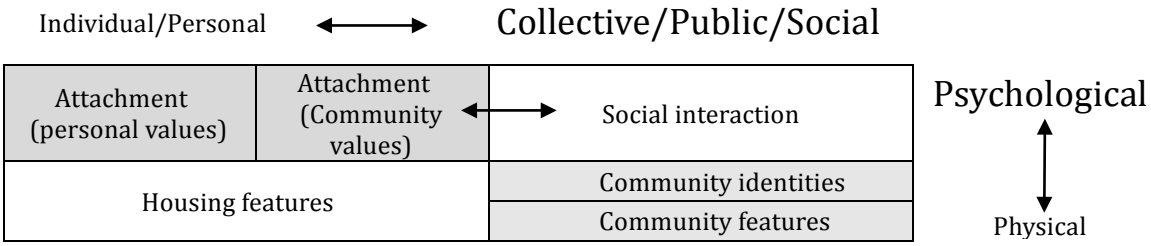


Figure 7-11: Revised Construct of the Sense of Community (XAUAT)

NMT

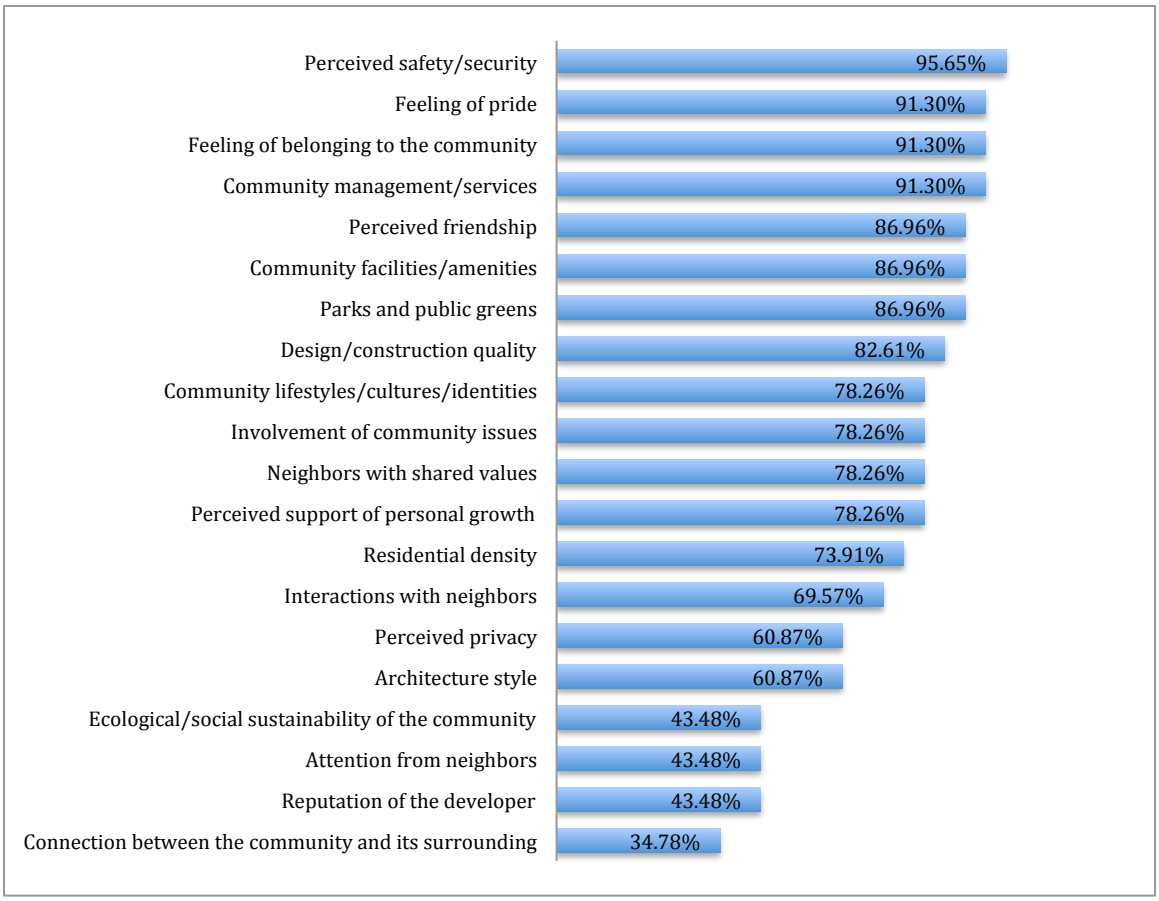


Figure 7-12: Percentages of Survey Respondents Who Ranked the Factors Either "Very Closely Related" or "Closely Related" to the Sense of Community (NMT)

This section discusses the construct of the sense of community in NMT.

Figure 7-12 sorted all 20 factors according to percentage of respondents' assessment of factors as "very closed related" or "closely related" to the sense of community. Factors about *community attachments* (that is, perceived safety/security, feeling of pride, feeling of belonging, perceived friendship) are considered the most important indicators of the sense of community. Following that are the factors about

the *community identities/facilities* (that is, *community management/services, community facilities/amenities, parks and public greens,* and *community lifestyles/cultures/identities*), which receives a relatively higher rating compared to that in XAUAT. Following that, factors about *social interactions* (that is, *interactions with neighbors, neighbors with shared values, and involvement of community issues*) are also considered as influential factors by most respondents. Community contribution and connectedness to the context are least important. Different from XAUAT, NMT's residents are more likely to incorporate the factors of the *housing features* (that is, design/construction quality, residential density, architecture style) in their interpretation of the sense of community. Another remarkable difference is that factors *feeling of pride, perceived privacy*, and *perceived support of personal growth* received relatively higher attention by respondents from NMT. Conceptualization of the sense of community is closely related to the community support of fulfillment of individual values.

The MDS projection plot for the case of NMT is presented in the Figure 7-13[12]. Same as in XAUAT, respondents recognized the factors with similar rationales as in the proposed construct of the sense of community. The clustering of factors resembles components of *housing features*, *community features and identities*, *attachment* and *social interaction.* The psychological core of NMT's structure, however, is found to be the factor of *pride*.

[12] Figure 7-13 presents a three-dimensional MDS structure. The plot has a good presentation of the data with normalized stress as 0.018, and high proportion of variance accounting for 0.981.

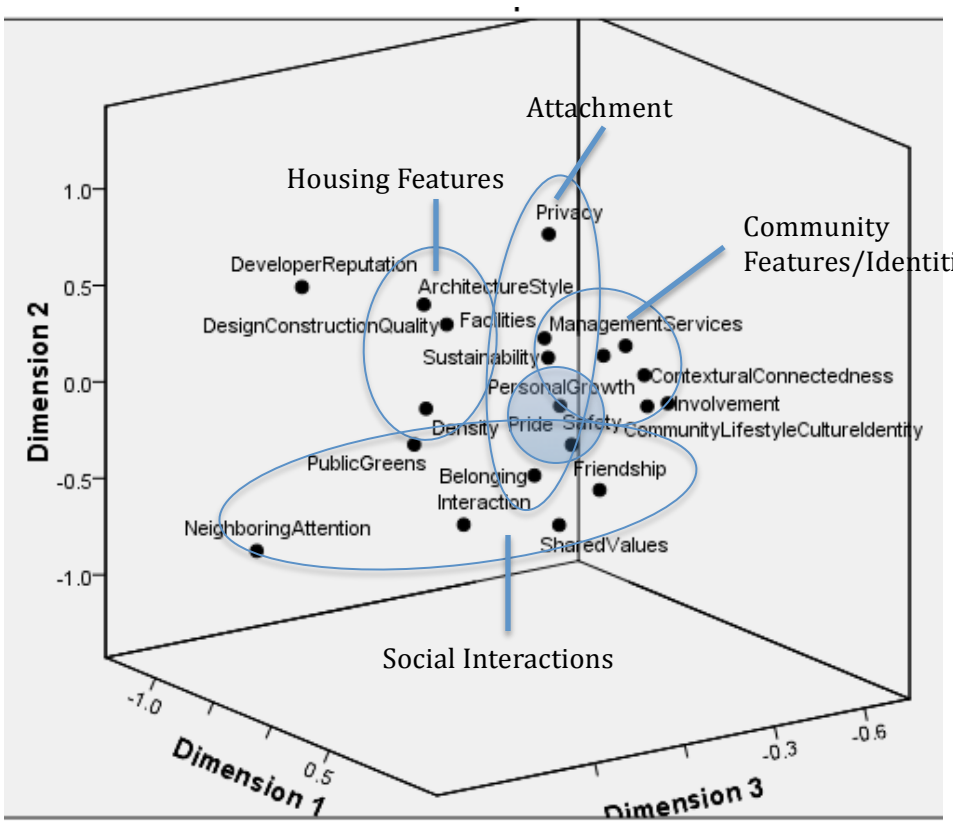


Figure 7-13: Interrelationships between Factors Regarding the Sense of Community (NMT)

The PCA result in NMT suggests that 6 components are able to account for 81.95% of the variance in the data set. Accordingly, factors are sorted into the component with the significant correlation (correlation >0.5 or <-0.5) (Refer to Appendix 2). Table 7-3 summarizes the mean value of each factor group with the explanation ability of the variables, as well as the interpretation of the meaning of the group.

Factor		Mean	SD	Explain % of variance
Housing features Community identity and Attachment (Personal values)	Architecture style	4.21	0.86	26.96
	Design/construction quality			
	Perceived support of personal growth			
	Feeling of pride			
Social interactions Attachment (Community values)	Interactions with neighbors	4.46	0.76	22.62
	Attention from neighbors			
	Neighbors with shared values			
Contextual connectedness and Social Interactions	Ecological/social sustainability of the community	3.61	1.06	9.79
	Connection between the community and its surrounding context			
	Involvement of community issues			
Attachment (Community values) Community identity	Feeling of belonging to the community	4.50	0.79	8.85
	Community lifestyles/cultures/identities			
Community features	Community facilities/amenities	4.46	0.93	8.10
	Parks and public greens			
	Community management/services			
Housing features	Residential density	3.79	0.83	5.63

Table 7-3: Primary Components of the Conceptualization of the Sense of Community (NMT)

The most commonly recognized component is a mix of *housing features*, *community identity* and *attachment* factors, which demonstrates a tight connection between quality of the built environment and fulfillment of personal values. The second identified component consists of factors regarding *social interactions*. The above two primary components are able to explain about half of the variance cumulatively. The other four commonly perceived components are (1) internal and contextual connectedness; (2) community identity and attachment; (3) community features; and (4) residential density. Different with ones from XAUAT, NMT's respondents tend to clearly distinguish between the contextual connections with

outside and the internal connection within the neighborhood. Perception of gatedness appears to be more evident in NMT than in XAUAT. Moreover, in the NMT's results, physical and psychological factors are more often clustered in the same groups. Stronger linkages between the physical and psychological components are recognized in NMT's sense of community.

The mean value of the component measures the level of connection to the sense of community. High values are found in the components regarding *community features and identities, community value focused attachment*, and *social interactions*. Components regarding *housing features* and *personal value focused attachment* present relatively lower values. The component of contextual connectedness is found to have the least relationship with the concept of the sense of community.

Comparison of components' connection values does not reveal a significant distinction on the physical-psychological dimension. Rather, the difference exists on the individual-community-contextual dimension. Sense of community is most tightly connected to environmental well-being at the community level, with a slightly weaker connection to personal well-being and a significantly weaker connection to the values and features at the contextual level.

The construct of the sense of community for the case of NMT is adjusted according to the above findings (Shown in Figure 7-14).

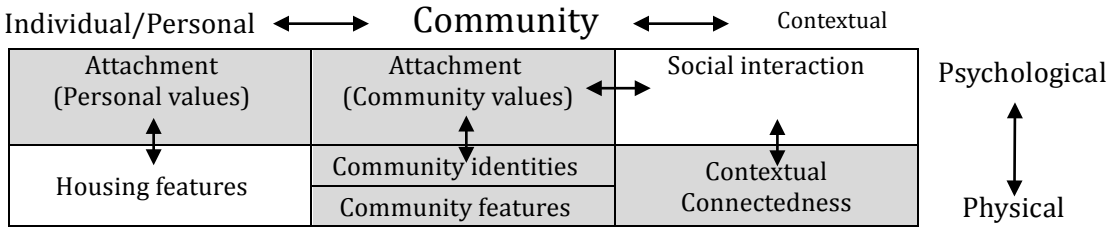


Figure 7-14: Revised Construct of the Sense of Community (NMT)

Summary of findings

This section explores residents' cognitive construct of the sense of community in XAUAT and NMT.

Findings from both communities confirm the proposed construct that examines the concept on the physical-psychological and individual-public dimensions. In both communities, factors regarding community values and social interaction are generally identified with the strongest support to the perception of the sense of community.

Significant differences between NMT and XAUAT are also discovered in the result.

Community involvement is the psychological core of XAUAT's construct of sense of community. This construct presents evident distinctions on both the physical-psychological and individual-public dimensions – that is, perception of the sense of community is more related to collective features of the community rather than individual well-being; more related to psychological values rather than the

physical features of the environment.

In the case of NMT, the structure of the sense of community is centered with the individual's value of pride. Perceptions of the physical and psychological features of the community are highly related and resonate with each other. Different from XAUAT, in NMT the quality of the built environment is a critical contributor to the perception of the sense of community. The construct of the concept specifically distinguishes the degree of publicity at the individual, community and the contextual level. Residents in NMT appear to have a stronger awareness of boundary, or a mind of gatedness. The residents' sense of community is significantly related to their perception of values and well-being at both the personal and community level. However, contextual connection with outside of the neighborhood is much less a concern.

Perceived Sense of Community

As discussed in the construct of sense of community, this study examines the gated environment as both of community of place (physical domains) and community of interest (psychological domains). Evaluation of the physical environment has been elaborated in the previous chapters. The primary goal of this section is to evaluate the psychological sense of community in the two case study neighborhoods.

Measures of sense of community

Psychological sense of community in this study is investigated through a set of survey questions to residents of both case study neighborhoods. The design of the question set was based on the 12-item Sense of Community Index (SCI) (McMillan & Chavis, 1986). SCI was primarily developed to measure sense of community in residential environments. It is the most widely used measure of the concept, and its reliability has been assessed by numerous empirical studies in various types of neighborhoods and in different cultures and contexts (Kloos & Townley, 2009; Long & Perkins, 2003).

The instrument used in this study measures the sense of community with 13 questions. The first question inquires about the respondents' intuitive assessment of the sense of community (that is, "Living in this neighborhood gives me a sense of community"). The measure obtained from this question is referred to as a *self-evaluated sense of community (SESC).* This research considers the SESC as a relatively subjective measure that informs about the respondents' intuitive perception, with or without a holistic consideration of various factors regarding sense of community.

Following that is a revised version of the SCI instrument with 12 questions. Four domains of the sense of community are addressed: (1) membership, (2) influence, (3) fulfillment of needs, and (4) emotional connection (Please refer to the literature review chapter). Different from the original SCI, this research distinguishes between the *influence from individuals to the group* and the *influence from the group to individuals*, and argues that the former recognizes more of

personal values and latter recognizes more of community value. When applying to the survey, some questions in the original instruments were shaped to better fit the context of the study. A five-point Likert scale (1= strongly disagree, 5= strongly agree) was used in the inquiry instead of the original binary format (1 = true, 2=false).[13] This instrument aims to obtain a global evaluation of the psychological sense of community. This study takes the mean value of the 12-item scaling results as the measure of *globally measured sense of community* (GMSC). Compared to SESC, GMSC is a relatively objective measure of the concept.

Assessment results

Table 7-4 summarizes the assessment results obtained from the survey and the dimension of inquiry for each question. For four questions that are negatively associated with the sense of community, their values are reversed for calculation. The values of two primary measures – SESC ("subjective measure") and GMSC ("global measure") – are calculated and compared in Figure 7-15.

Assessment results suggest that, generally speaking, residents in both NMT and XAUAT have a positive experience of sense of community. SESC results suggests that agreement on perceiving a sense of community in XAUAT is between "agree" to "strongly agree" (SESC=4.1), and is between "neutral" to "agree" in the case of NMT (SESC=3.45). Comparatively, respondents in XAUAT reported a higher level of sense of community based on their subjective perceptions. GMSC evaluation results also

[13] Please refer to Appendix G for the original SCI instruments and to Appendix H for the revised instrument applied in this study.

conclude a positive sense of community in the two neighborhoods, with both levels of agreement between "neutral" to "agree" (GMSC in NMT = 3.14; GMSC in XAUAT = 3.34). The global measure results still find a relatively stronger sense of community in XAUAT than in NMT; however, this difference is rather marginal.

Dimension	Survey Question	NMT		XAUAT	
		Mean	SD	Mean	SD
SESC	Living in this neighborhood gives me a sense of community.	3.45	1.29	4.10	1.08
Emotional connection 1	I care about my home, but I DO NOT care if this neighborhood does well. *	4.06	1.13	4.12	1.03
Emotional connection 2	People in this neighborhood DO NOT share the same value. *	2.84	1.33	3.10	1.32
Emotional connection 3	The people who live in this neighborhood get along well.	3.28	0.88	2.86	1.02
Influence (group to individual)	I care about what my neighbors think about my actions.	3.56	1.34	3.76	1.19
Influence (individual to group) 1	I have almost NO influence over what this neighborhood is like. *	2.80	1.47	2.27	1.33
Influence (individual to group) 2	If there is a problem in this neighborhood, the people here could get together to solve it.	3.18	1.16	3.06	1.03
Fulfillment of needs 1	I feel at home in this neighborhood.	4.32	1.17	4.10	1.08
Fulfillment of needs 2	If I had an emergency, even people I do not know in this neighborhood would be willing to help.	2.24	1.12	3.65	1.01
Fulfillment of needs 3	I think my neighborhood is a good place for me to live.	4.24	0.72	3.67	0.91
Membership 1	I always attend club or organizational activities within this neighborhood.	2.74	1.75	2.24	1.45
Membership 2	My friends in this neighborhood are part of my everyday activities.	2.12	1.56	2.94	1.61
Membership 3	Very few of my neighbors know me. *	2.30	1.46	3.55	1.25

* Scores are reversed in calculation

Table 7-4: Scoring of Measures in the Sense of Community Assessment Instruments

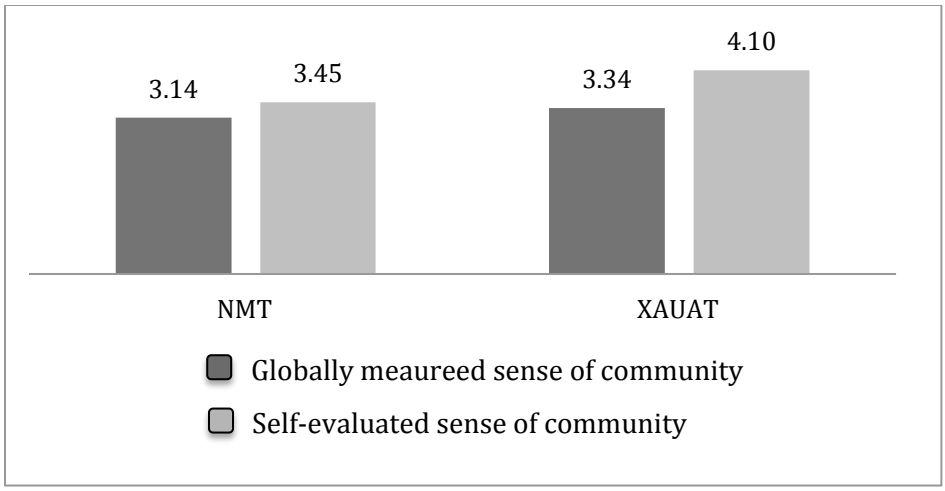


Figure 7-15: Two Primary Measures of Sense of Community in XAUAT and NMT

The results also find that SESC values are higher than GMSC values in both neighborhoods – that is, people's intuitive assessment of sense of community tends to be stronger than the instrument assessment has suggested. This gap indicates that some low value measures in the instrument may not be equally of importance in the subjective perception; or some high value measures in the instrument may be more weighted in the subjective perception. In another words, measures in the assessment instruments are not weighted equally in people's subjective perception of sense of community. This gap between SESC and GMSC appears to be more substantial in XAUAT (0.76) than in NMT (0.31), indicating the revised SCI instruments shows a better representation of evaluation rationale in NMT than that in XAUAT.

Chi-square test results further identify the items in the evaluation instrument with significant difference between two communities. These items are listed in Table 7-5 (difference of the mean value is greater than 0.5, and $p<0.05$). The result

suggests a relatively higher level of acquaintanceship among residents in XAUAT. Respondents reported significantly higher confidence on neighboring mutual assistance, and perceived stronger sense of presence and social ties in the community. Residents of NMT, on the other hand, perceived relatively higher level of influence over the community, as well as a higher degree of satisfaction of living in the neighborhood.

	Item	NMT		XAUAT		Person Chi-Square Value	df	Sig (2-sided)
		Mean	SD	Mean	SD			
Fulfillment of needs	If I had an emergency, even people I do not know in this neighborhood would be willing to help.	2.24	1.12	3.65	1.00	31.881	4	0
Membership	Very few of my neighbors know me. (reversed)	2.30	1.46	3.55	1.25	24.547	4	0
Influence (individual to group	I have almost NO influence over what this neighborhood is like. (reversed)	2.80	1.47	2.27	1.33	13.066	4	0.011
Membership	My friends in this neighborhood are part of my everyday activities.	2.12	1.56	2.94	1.61	12.935	4	0.012
Fulfillment of needs	I think my neighborhood is a good place for me to live.	4.24	0.72	3.67	0.91	11.800	4	0.008

Table 7-5: Evaluation Items with Significant Difference between XAUAT and NMT.

The following part of the discussion examines the evaluation results in XAUAT and NMT respectively.

XAUAT

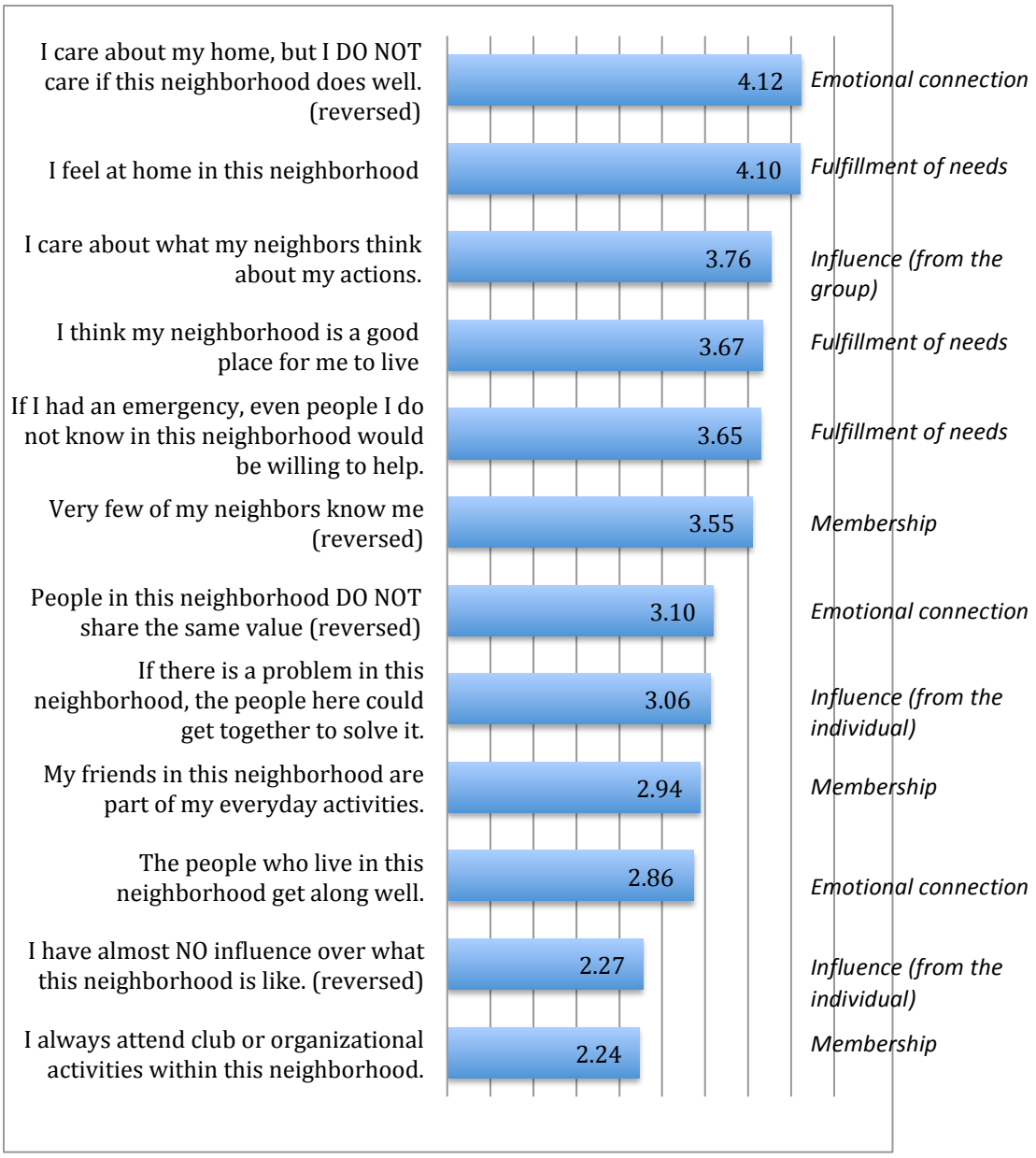


Figure 7-16: Evaluation of Sense of Community Using 12-item Instrument (XAUAT)

Five domains of sense of community are inquired using the 12-item evaluation instrument, including (1) *membership*, (2) *influence from individuals to the group,* (3) *influence from the group to individuals* (4) *fulfillment of needs*, and (5) *emotional connection*.

Figure 7-16 sorts the evaluation results of the 12 questions from the highest to the lowest. Respondents in XAUAT reported high ratings on the dimensions of *fulfillment of needs* (mean=3.81) and *influence from the group to individuals* (3.76), a relatively lower rating on the dimension of *membership* (mean=2.91), and an even lower rating on the dimension of *influence from individuals to the group* (mean=2.67). The dimension of *emotional connection* has a very mixed result. Respondents indicated a very high level of attention on the general well-being of the community (4.12) and a medium level of agreement on the shared value in the community (3.10); however, they reported a fairly low rating on the relationships among individuals (2.86). Overall, the results suggest that, in XAUAT, residents are satisfied with the overall well-being of the community, and perceive extensive top-down influence and support from the community. However, the bottom-up contribution from individuals to the community appears to be less significant.

The above arguments are also supported by correlation analysis between SESC and GMSC measures (refer to Appendix B for correlation results). People's perceived sense of community (SESC) is found to be most related to their feeling of presence in the community (item of "very few of my neighbors know me"), and feeling of influence/pressure received from the community (items of "I care about

what my neighbors think about me"). On the contrary, the weakest correlations are found between perceived sense of community (SESC) and the quality of the personal relationships among individuals (items of "people in this neighborhood do not share the same value" and "people who live in this neighborhood get along well").

The above evidences indicate that, in XAUAT, residents' sense of community more relies on their affiliation to the community organization than personal bonds among individuals. The top-down organization (the university administration system, in this case) has led/supported community life for over decades. It has established the community identities and social norms, and has fundamentally shaped the way of life for the residents. Meanwhile, the personal involvement of the community issues is not encouraged in this culture, and therefore is less experienced by residents. As a result, the strong attachment toward the community outweighs the cohesion among residences. Meanwhile, the less desired personal relationships show minimum impact on people's general perception of sense of community (SESC).

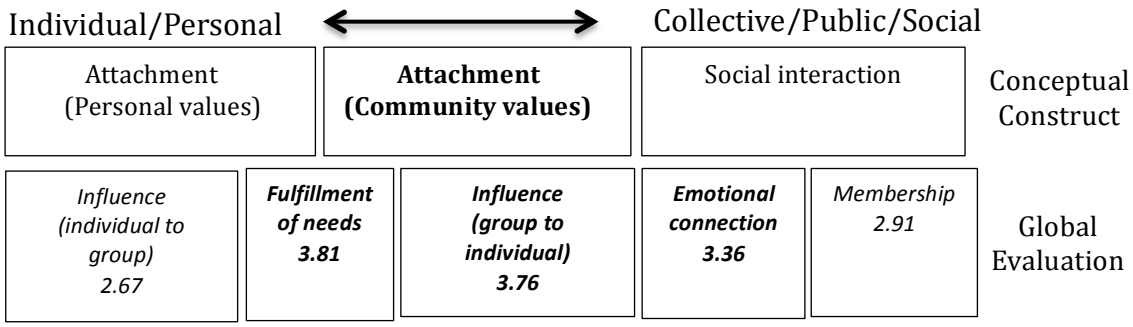


Figure 7-18: Evaluation Dimensions in the Cognitive Construct of Sense of Community (XAUAT).

Figure 7-18 incorporates the five evaluation dimensions with the psychological components of the cognitive construct. The purpose of this combined frame is not to look for one-to-one correspondence between elements from two structures. Instead, it examines the relative position of the structures on the psychological spectrum that ranges from individual/personal to collective/public/social. Previous discussion has argued that XAUAT's conceptualization of sense of community is much more related to the collective values of the community than to individual's psychological well-being. In this part of the discussion, global evaluation of the sense of community discovers that the most highly appreciated factors also focus on the value of community and its influences towards individuals. People's expectations are consistent with their place experience in reality, which enhances their general perception of the sense of community (the significantly higher value of SESC than GMSC).

NMT

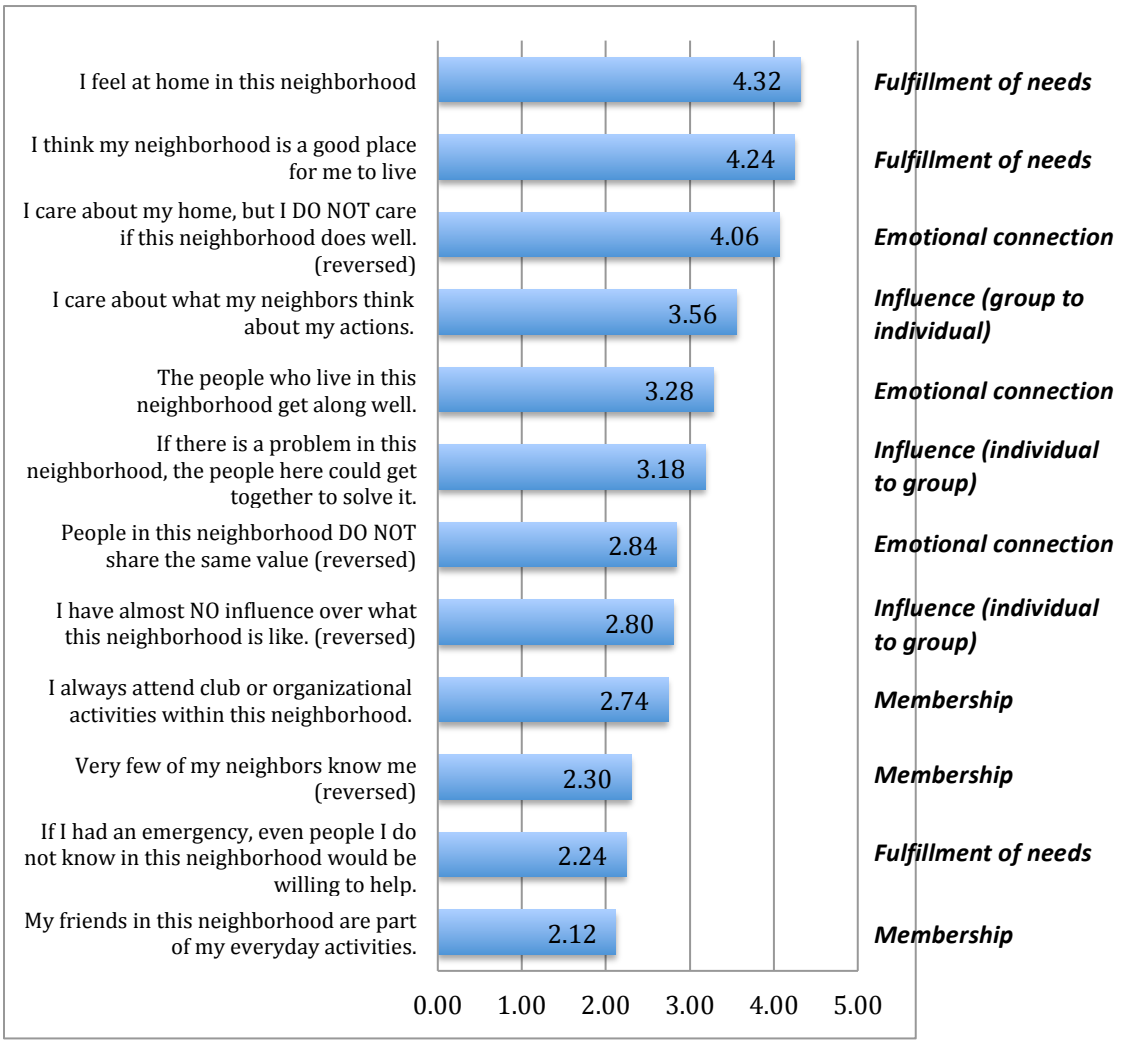


Figure 7-19: Evaluation of Sense of Community Using 12-item Instrument (NMT)

Figure 7-19 lists the values of 12 evaluation items in NMT from the highest to the lowest. NMT respondents provided relatively higher ratings on the dimensions of *fulfillment of needs* (mean=3.60), *influence from the group to individuals* (3.56), and *emotional connection* (mean=3.39), which is followed by the dimension of *influence from individuals to the group* (mean=2.99). The lowest values are found on

the dimensions of *membership* (mean=2.39). Compared to XAUAT, NMT's residents perceived relatively more personal influence over the community but less of a level on neighborhood acquaintanceship.

Correlations between SESC and GMSC measures (refer to Appendix B) discover that, in NMT, people's intuitive assessment of sense of community (SESC) is most related to their feeling of contentment in living in the neighborhood (items of "I feel at home in this neighborhood") and perceived personal influence and responsibility over the community (item of "I have almost no influence over what this neighborhood is like" (reversed), "I care about my home, but I do not care if this neighborhood does well" (reversed)"). The weak indicators of the sense of community (SESC) are found as perceived influence from the community (item of "I care about what my neighbors think about my actions"), as well as perceived acquaintanceship with other residents (item of "My friends in this neighborhood are part of my everyday activities"; "if I had an emergency, even people I do not know is this neighborhood would be willing to help"; and "if there is a problem in this neighborhood, the people here could get together to solve it"). Overall, the evidence above confirms a previous argument that, in NMT, people's perception of sense of community is more relevant to fulfillment of personal interests and values than perceived cohesion among residents.

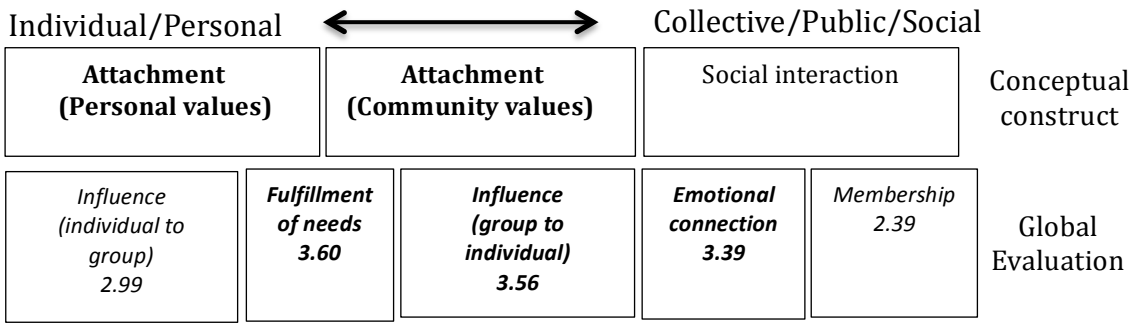


Figure 7-20: Evaluation Dimensions in the Cognitive Construct of Sense of Community (NMT)

Figure 7-20 illustrates the relative relationship between the cognitive construct and evaluation results on the spectrum of individual/personal to collective/public/social value. The results reveal a noticeable gap between the expectation and experience of sense of community. Despite the fact that residents in NMT do feel comparatively greater personal influence/power on community issues, the improvement has not reached people's high expectations on the fulfillment of personal values. Based on the finding here, one may expect a remarkable improvement of perceived sense of community in NMT by enhancing the community involvement opportunity and the empowerment of residents on the self-governing of and involvement in the community issues.

Summary of findings

This section examines sense of community by two measures: one reflecting subjective perception (SESC) and the other reflecting global dimensions of the concept (GMSE).

As expected, evaluation results conclude a relatively stronger sense of

community in XAUAT than that in NMT. Such a comparison between a newly built residential neighborhood and a 50-year-old work-unit seems superfluous. The difference is substantial in terms of the subjective assessment of sense of community (SESC). However, the gap between the two communities is surprisingly marginal when global measures are taken into account (GMSE). Closer examination of each dimension discovers that, residents in XAUAT perceive a stronger acquaintanceship, social cohesion and a sense of affiliation to the community; while residents in NMT experience a relatively higher level of empowerment/responsibility on community issues and an overall satisfaction on the life quality.

Global evaluation instruments analyze each community for their advantages and weaknesses in supporting sense of community. They provide a comprehensive evaluation on one hand; on the other hand, they do not consider the various weights of dimensions in perception. Evidence in this study indicates that people's subjective perception of sense of community (SESC) is largely determined by their foci of attention. In XAUAT, people's perception of sense of community is established on (or shaped by) their attachment to the organization. Collective culture in the community and intensive acquaintanceship fulfill residents' expectation and enhance their perceptions of sense of community. In NMT, perception of sense of community is centered on their feeling of ownership. However, residents have not received sufficient support from the environment for fulfillment of individual values, which may negatively impact their sense of community in general.

Other Factors in Relation to Perception of Sense of Community

This part of discussion aims to examine the potential influence from people's demographic background, socialization patterns and psychological motivations on their perception of sense of community. Discussion is based on the correlation and Chi-Square analysis of the survey data, with both of SESC and GMSC used for measuring sense of community.

Sense of community and demographic factors

Respondents' demographic factors are related to their evaluations of sense of community. Chi-Square tests are applied to categorical variables (gender, marriage, household structure, occupancy, and ownership); correlation analyses are applied to ordinal variables (household size, age groups, education level, income level, and length of residence). (See Appendix C and D for analysis results)

Individual's demographic background

The correlation analysis suggests that in both of XAUAT and NMT, *age* is the most salient demographic indicator of sense of community. It presents strong correlations with both SESC and GMSC (refer to Appendix C), which indicates that older resident tend to perceive higher level of sense of community.

Specific examinations discover that, in NMT, the strongest correlations are concentrated between *age* and perception of *membership* – that is, items of ""Meeting my friend in this neighborhood is a part of my everyday activities" (correlation = 0.572, p=0.001), "very few of my neighbors know me (reversed)

(correlation = 0.568, p=0.001), and “I always attend organizational activities within this neighborhood” (correlation=0.501, p=0.003). This result indicates that in NMT senior residents establish a stronger sense of community primarily through active community participation and neighboring interactions.

In XAUAT, strongest correlations are found between *age* and items of “Meeting my friend in this neighborhood is a part of my everyday activities” (correlation = 0.728, p=0.000); “I think my neighborhood is a good place for me to live” (correlation=0.528, p=0.000); and “I care about what my neighbors think about my actions” (correlation=0.517, p=0.000). The result indicates that in XAUAT, senior residents perceives a stronger sense of community through active social interactions, as well as a higher level of agreement on the social norm and community values.

In addition, in NMT, the factor of *occupation* presents predictability of the measure of GMSC (Chi-Square=16.374, p=0011). The evaluation instruments find a strongest sense of community in the group of homemakers and retirees, followed by people with part-time work. The group of student, and persons who are self-employed or have full-time work is found with the lowest sense of community. People’s sense of community is also decided by the main theme of their daily life and the spare time they can spend in the neighborhood. Family-centered individuals obviously have more opportunities to be involved in community life.

In the two neighborhoods, no other personal demographic factors have been found as important indicators of sense of community with statistical significance.

Household background

Residents' household structure and background also present an impact on their sense of community.

Among all factors, the *length of residence* is the most salient indicator of sense of community in both neighborhoods. Correlations results suggest that, the longer the respondents had been living in the neighborhood, the stronger the sense of community they perceive. It is especially obvious in NMT that the SESC value increase significantly along with the years of residence (correction=0.700, p=0.000). The results corresponds to a previous finding that NMT's residents tend to expand their physical range of socialization in the neighborhood after years of residence.

Ownership is another factor with strong predictability of sense of community. Chi-Square analyses prove that in both NMT and XAUAT, homeowners perceive a remarkably stronger sense of community than renters.

The sense of community is also found to be related to the structure of the household. In NMT, households with senior members tend to have a stronger sense of community (GMSC) compared to no-senior households (Chi-Square=10.262, p=0.016). In XAUAT, households with a child or children tend to perceive a stronger sense of community (SESC) compared to no-children households (Chi-square=14.240, p=0.024).

Undoubtedly, children and senior residents are always the glue that holds families and the community together. Especially in urban China, where women in the majority of families are working mothers, senior members take over more

responsibilities of household management and community involvement. Findings from this study discover the roles of seniors and children's in community cohesion in different residential settings. In the work unit, most household social ties are based on a similar type of community-wide acquaintance. Difference on the perceived cohesion is therefore largely reflected on the quality of interpersonal relationships. Compared to seniors who are more socially independent, children generally generate more social interaction opportunities among families and hence make more of a contribution on households' sense of community. Residents in gated communities, on the other hand, develop social ties in an all-stranger environment; however, they have considerably more autonomy on community organization. Senior residents have more opportunities to be involved in community issues and to cultivate friendships. Households with senior residents are more likely to be influential and socially active in the neighborhood, and to therefore perceive a greater sense of community.

Sense of community and use of public spaces:

Respondents' sense of community is also correlated with their patterns of using public spaces and purposes of walking. (Complete correlation results are attached in Appendix E.)

In NMT, a strong correlation exist between sense of community (SESC and GMSC) and social and leisure activities, including outdoor sporting events, walking dogs, community service/gatherings, and indoor recreational activities. In addition,

people who walk more frequently for leisure and social purposes also have a higher sense of community (GMSC). Utilitarian activities such as dining out, playing with children, grocery shopping, and walking to work are found to contribute less to sense of community.

Similar correlations also exist in the case of XAUAT. In addition, strong correlations are also found with the frequency of grocery shopping, for the morning farmers market has become an important community-gathering place in XAUAT. Another noticeable difference is that the frequency of dining out presents significant negative correlations to measures of the sense of community in XAUAT (both SESC and GMSC). The higher frequency of dining out is often associated with more working hours and less family/personal life, and logically, a lower sense of community.

Correlation results above confirm that purposes of activities determine their contributions to sense of community. Uses of public settings for non-utilitarian purposes, especially ones becoming life routines (that is, outdoor sports, indoor recreations, walking dogs, and community gatherings), have significant positive influence on sense of community. Utilitarian activities, on the contrary, are found with less contribution on enriching a sense of community.

Sense of community and socialization patterns

As expected, people's social ties in the neighborhood have great impact on their perception of sense of community. As discussed in the previous chapter, the

respondent's socialization in the neighborhood is measured by the number and physical range of the social ties. Correlation results (Table 7-6) confirms that both measures are important indictors of respondent' sense of community. That is to say, individuals who socialize more frequently and in a larger physical range in the neighborhood tend to experience a greater sense of community.

	XAUAT		NMT	
	SESC	**GMSC**	**SESC**	**GMSC**
Number of social ties	0.481** (p=0.001)	0.535** (p=0.000)	0.387* (p=0.012)	0.595** (p=0.000)
Physical range of social ties	0.506* (p=0.016)	0.421 (p=0.051)	0.541* (p=0.017)	0.546* (p=0.019)

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table 7-6: Correlations between Sense of Community (SESC and GMSC) and Same-Neighborhood Social Ties

Sense of community and motivations

Empirical studies on New Urbanism neighborhoods (e.g., Kim, 2001; Erkul, 2009) discover that residents' perception and satisfaction of residential environments are shaped significantly by their specific goals, or are aligned with conscious choices. This part of study inquires into the extent to which perception of sense of community is associated with people's specific objectives and aspirations of the place.

Correlation analyses are applied between motivation factors and sense of community measures (SESC and GMSC). (The complete result is attached in Appendix F.) The results reveals that in both communities, sense of community is significantly correlated with motivation factors of *belonging, perceived friendship,*

shared-values, social interactions, community lifestyles/cultures/identities and community involvement. Evidently, individuals' perception of community values is consistent with their objectives and aspirations of place.

People's sense of community is also found to be relevant to their aspirations of the quality of the physical environment. In XAUAT, people's sense of community is significantly correlated to their preferences of all-inclusive residential complex and walkability. These two features represent the typical collective lifestyle of the work unit. In NMT, strong correlations are found with the factors of landscape and residential density.[14] These two physical features are related to the improvement of personal life quality, and are normally considered as the primary advantages of gated communities. In another words, people's sense of community is substantially related to the degree to which the physical environment fulfills their expectation of quality of life and the life style.

The findings above suggest that residents whose personal aspirations/objectives are better supported by the physical and social quality of the environment are more likely to experience a stronger sense of community. Therefore, to a great extent, experience of sense of community is a self-selection or self-promotion result.

[14] Due to the soaring populations and intensive construction in urban China, urban residents normally consider low density as an important indicator of life quality and housing values of the residential complex.

Summary of findings

This part of dissertation inquires regarding the correlations between people's sense of community and their demographic, social, and cognitive characteristics.

Research results suggest that sense of community is significantly related to people's demographic feature. People tend to perceive a higher sense of community along with increase of age. Moreover, in NMT, senior members of the household tend to increase the whole family's sense of community. In XAUAT, the young child in the family makes the difference on social cohesion. Households with a child or children are found to have a greater sense of community compared to adults-only households. Moreover, in both communities, homeowners are found to have a greater sense community compared to renters. In addition, households' sense of community tends to steadily increase along with years of residence.

Residents' patterns of socialization and use of the public spaces also contributes to their sense of community. People who have more neighborhood social ties and whose social ties reach out to a larger physical range in the community are found to have a stronger sense of community. Moreover, uses of public settings for non-utilitarian purposes, especially ones becoming life routines are found to substantially contribute to their sense of community.

Last but not the least, people's perception of sense of community is largely in line with their aspirations and objectives of choosing the residence. Residents whose personal goals are better fulfilled in the physical and social environment of the

community are more likely to experience a stronger sense of community. Experience of community value, to a great extend, is also a self-selecting and self-promoting result.

7.4 Conclusion

This chapter explores cognitive qualities of residential experience in two gated neighborhoods. The first section discussed residents' motivations for choosing their neighborhood; second section focuses on sense of community. Cognitive structures of both motivation and sense of community are illustrated in this chapter. Following that, a sense of community is evaluated for both neighborhoods. The last part of chapter explores how a person's sense of community may be potentially impacted by his demographic, psychological, and socialization characteristics.

XAUAT

People choose to live in XAUAT primarily for basic needs of safety, residential quality, life convenience and social capital in the community. Pursuing collective values and mutual support among neighbors is found to be the psychological core of the cognitive structure of motivation. Community value also functions as the psychological core in the cognitive construct of sense of community. People's foci of attention gravitates toward the collective features of the community rather than individual well-being; and gravitates toward psychological values rather than the physical features of the environment.

This study concludes that there is an overall strong sense of community in XAUAT. Specifically, evaluation results suggest that peoples' strong sense of

affiliation to the community organization and agreement on collective culture, whereas relatively lower levels of perception of neighboring bonds and individual values. Meanwhile, analysis presents a remarkable higher level of sense of community based on people's subjective perceptions compared to objective assessment with global dimensions. Based on the above evidence, this research argues that, the top-down social construction and collectivist values are deeply embedded in the social matrix in XAUAT, and has fundamentally shaped people's patterns of recognition of sense of community. The acquaintanceship and distinct collective cultures in XAUAT are consistent with residents' aspirations, and amplifies their subjective perceptions of sense of community.

NMT

Basic needs of safety, convenience and other residential qualities are primary reasons for people choose to live in NMT. Examination of the cognitive structure of motivations reveals that the feeling of pride forms the psychological core of all motivation factors. Significant associations are found between qualities of the physical environment and achievement of personal values. Good housing quality, a well-designed landscape, and an all-inclusive community service facility contribute to residents' feelings of pride.

Analysis of the cognitive structure of the sense of community presents a similar pattern. Realization of personal values also serves as psychological core of the construct. Perceptions of the physical and psychological features are found to be

mutual stimulating. People expect stronger empowerment and involvement in the community. They also consider the quality of the built environment as a critical component to facilitate their overall sense of community.

Moreover, NMT's residents appear to have a higher sense of territory. Their cognitive construct distinguishes the factors from the individual, community to the contextual (beyond community) level. People's place experience of the physical territories corresponds to their environmental consciousness. One may argue that the gated way of residence seems to shape the gated way of thinking; or the gated way of thinking is manifested in the gated way of living.

Assessment of sense of community in NMT concludes with a rather upbeat result. As a new built neighborhood without inherited social ties, NMT obtained generally positive evaluation on sense of community. Residents reported overall satisfaction on their emotional connection to the community and fulfillment of their needs. Compared to XAUAT, residents in NMT also perceive a relatively higher level of empowerment on community issues – although it seems far from reaching their aspirations, which results in a decreased sense of community. This study therefore suggests that enhanced self-governance and community involvement will significantly improve community cohesion in newly built gated communities.

This chapter also inquires into the relationships between sense of community and residents' personal profiles. Results reveals that residents' sense of community is also influenced by their age, household structures, ownership, and behavioral and socialization patterns in the neighborhood.

In addition, this chapter concludes that people's place experience/evaluation is substantially related to their aspirations. Residents' sense of community is decided by the degree to which physical and social environments are able to support their achievement of personal goals.

CHAPTER EIGHT: UNFOLDING GATEDNESS - Conclusion and Discussion

8.1 Narrating Gatedness

This dissertation addresses gatedness, the dominant urban residential form in today's China. Two prime types of gatedness are examined: the residential court of the work unit, and the commercialized gated community development. The broad goal of this dissertation is to have a comprehensive narration and comparison of the place experience of the two types of gatedness. Using the case study of XAUAT and NMT, the place experience of gatedness is unfolded in terms of community overall physical organization and spatial typology, the way in which the people use public places and socialize in their daily life, and how people comprehend and evaluate the community values of their gatedness life.

Primary findings from the previous four chapters are summarized in the following matrix for a comprehensive and comparative description of the place experience in each case study neighborhood.

	XAUAT	NMT
Demography	• Accommodates a wide range of age, education backgrounds, and household structures. • Presents less diversity on household incomes, occupations, and other social backgrounds.	• Exhibits a greater variance in terms of occupation, income, and previous residential experience. • Household sizes are relatively smaller. Majority of the households are either single individual or nuclear families. Senior residents are mostly empty nesters.
Physical environment	• The original planning schema featured a spatially enclosed territory; a centripetal and hierarchical order of the building clusters; the street system as a passive circulation space; and self-contained, all-inclusive services and facilities provided exclusively for its residents. • Re-developments of the neighborhoods gradually dissolved the community-block-building hierarchy and increased spatial openness and integration of the neighborhood layout. The street system comprises the interaction core of the spatial configuration and accommodates most of the community services and socializations loci. • Morphologically, the neighborhood layout is converted from a green-centered hierarchy structure to a street-centered network structure. • Configurationally, it has shifted from a spatially	• Morphologically, the neighborhood layout is a green-centered hierarchy structure. Buildings, open spaces and other physical elements are arranged in the layout from "public" to "semi-public" to "private". The inward facing building cluster is the basic component of the layout. The community's communal facilities concentrate at the central area, and public greens are assigned as the center of each spatial level. The road system is a detached circulation element that functions to direct the flow and define boundaries of the spatial segments. • Configurationally, the neighborhood layout is less integrated and syntactically deeper. The integration core has relatively weaker permeability to the periphery and isolated residential clusters. Natural movements from different residential clusters have higher potential

	deep and isolated system to one that is a highly centralized and integrated structure. • Spatial transformation and fragmentation of enclosure significantly improve the integration of XAUAT as well as communication with the surrounding urban area. The original self-sufficient and strictly constrained organization has gradually shifted to an open and mixed-used residential community.	to flow out of the neighborhood but afford fewer chances of encounter. • Placements of the community public facilities concentrate around the integration core, which potentially enhances the usage efficiency. However, some public settings are geographically centered but configurationally isolated, and hence attract less pedestrian flow.

Public lives and socialization	• Residents use public places in the neighborhood frequently. Social activities tend to be more leisure-initiated, spontaneous, and mutually promoted (that is, one type of activity will often promote or trigger other types of activities). People walk frequently in this neighborhood for leisure purposes. • Neighboring connections play an important part in residents' personal social network. • People are more likely to establish social ties within the range of the whole neighborhood. Physical proximity has less impact on people's socialization frequency and emotional closeness. • Senior residents are the more the active users of the public spaces and participants in the neighborhood interaction than are those in younger age groups. • Spatial configuration is the primary generator of pedestrian movement. People tend to walk more in the spatially integrated places in the neighborhood. However, topological quality of space has less influence on socializing activities. Patterns of socialization are more determined by non-spatial factors, such as existing connections, community social norms and cultures, and rely less on the co-presence opportunities generated from physical proximity or pedestrian movements.	• Residents use public places, especially the outdoor settings in the neighborhood, less frequently compared to XAUAT. Social activities tend to be driven by utilitarian purposes, to be destination targeted, and club-style organized. People walk in the neighborhood primarily for utilitarian purposes instead of for leisure. • Neighbor relations are only small portion of residents' personal social networks. • Attributes of the physical environment have salient influence on patterns of socialization. Neighboring social ties are largely restrained within a physical territory – people tend to socialize very locally within the range of same buildings or residential blocks. • Senior residents are the more the active users of the public spaces and participants in the neighborhood interaction than are those in younger age groups • Spatial configuration features have strong predictability on the patterns of pedestrian movement and other behaviors in the public spaces. People tend to walk, relax and socialize at spatially integrated places in the neighborhood. Socialization more relies on co-presence opportunities generated from natural movements or physical proximity.

Meaning of the community	• Basic needs of safety, residential quality, convenience, and the community's social capital are primary motivations of choosing the current neighborhood. • Generally speaking, residents perceive a strong sense of community. • Community value is found to be at the psychological core of the cognitive construct motivation and the sense of community. • People's environmental consciousness has gravitated toward the collective features of the community rather than individual's well being; and has gravitated toward psychological values rather than the physical features of the environment. • Strong sense of community is more related to people's affiliation to the community organization and agreement on collective culture rather than the perception of neighboring bonds and individual values in the community. • Sense of community is also related to residents' demography. People tend to perceive a higher sense of community correlated with the increase of age and years of residence. Homeowners have a greater sense community than renters. Households with a child or children have a greater sense of community when compared to adult-only households.	• Basic needs of safety, convenience and other residential qualities are primary motivations of choosing the current neighborhood. • Generally speaking, residents experience a positive sense of community. • Realization of personal values with goals of individual empowerment, self-identification and self-fulfillment, is at the psychological core of people's cognitive construct of motivation and sense of community. • The quality of the physical settings significantly corresponds with people's environmental consciousness. Living in a premium environment with high-quality housing, well-designed landscape and all-inclusive community service affirms residents' identity and facilities sense of community. As well, people's cognitive constructs present a strong sense of territory, which distinguishes the factors at the individual, community, and the contextual (or beyond community) levels. • Sense of community is also related to people's demographic features. People tend to perceive a higher sense of community correlated with the increase of age and years of residence. Homeowners have a greater sense community than renters. Households with senior members tend to perceive a greater sense of community.

8.2 From Work Units to Gated Communities

The conventional discussion of Chinese gated communities largely focuses on construction of the conceptual framework and debating the political/social consequences at the theoretical level. Some studies have attempted to explain the phenomenon using the western-based theories, such as private provision of services and fear of crime and "otherness" (e.g. Miao, 2003; Wu, 2005); while others have shifted the attention to the discourse of contextual influence, and have examined gatedness in relation to historical residential forms and sociopolitical constructs in urban China (e.g. Huang, 2006; Lu, 2007; Pow, 2009). Many empirical explorations were initiated in recent years based on the case studies of either gated communities or work unit neighborhoods; however, they normally focus on one type of gated forms without touching upon their relationships and influences between each other (e.g. Xu, 2013; Ye, 1999a; Zhang & Chai, 2014).

From a different perspective, this dissertation attempts to achieve a less deductive and more inductive understanding of the gated way of life – to focus on specific cases for holistic and in-depth investigation instead of a broader inquiry of the generic form; to comprehend gatedness as a series of real-life place experiences in lieu of a segregated physical containment for certain social groups; and to see the development of gatedness (from work units to gated communities to future

residential forms) as continuous changing evolutionary practice rather than sets of distinctly constructed concepts.

Moving beyond the summary of findings from the last section, this section integrates discussions of both gated forms, and extends arguments to (1) unfold the spatial-psychological-social dynamics which (re)present and cultivate the gated way of living in urban China; (2) illustrate the evolutionary process of gatedness and speculate on its sustainability; and (3) address the potential implications for planning and design.

Gated Forms, Gated Living, and Gated Mind

As discussed in the chapter of the literature review, Brunn (2006) first addressed three aspects about the gatedness of life, using the terms of "gated communities," "gated lives" and "gated minds" to refer the physical forms, ways of living, and ways of thinking, respectively. His concept of gatedness corresponds to the approach of this research, set within Canter's threefold model of place (Canter, 1977). Brunn's perspective informs the following discussion of the dynamics in shaping the gatedness of life.

Questions to be addressed in this section for the two case study neighborhoods are: (1) To what extent do people live in gated forms, have a gated lifestyle and a gated mind? (2) What are the spatial-psychological-social dynamics between these facets of gatedness?

The work unit – XAUAT as an example

Tracing back to the planned-economy periods, XAUAT hosted a whole package of institutionalized living arrangements for its employees and families. Deficiency of resources and emphasis on socialist ideology required the physical segregation of the community. Working opportunities, housings, welfare and a wide range of services for everyday needs were all walled up in XAUAT, as Walder (1986) describes it, "from cradle to grave." Multiple levels of enclosure were also in the original planning of the layout, as seen in housing clusters with shared open space, apartment buildings with shared doorways, groups of units with shared hallways, even shared kitchens and bathrooms. Hierarchical enclosure and collective ownerships featured the physical gatedness of XAUAT.

The senses of inclusion as well as the sense of exclusion were also reflected in terms of the residents' perspectives and lifestyles. University administration was involved in virtually every aspect of private life (e,g., employment, marriage, family conflicts, children's education, daily working-resting schedule, recreational lives, etc.) within the walls. The community was operated as a "public family" that guaranteed the all-inclusive livelihood and welfare of its members; meanwhile, this operation substantially circumscribed their lives within the boundaries of work-units. Unified arrangements of life also facilitated a unique micro-culture, so called "big compound culture" (*dayuan wenhua*). It provided residents with strong attachments to the community and a collective identity, while reinforcing their perception of social difference from the outside.

Taking pre-reform XAUAT as an example, gatedness of life involved consolidation of gated forms, gated living, and gated minds. Gated living (organization) necessitates gated forms and the further shaped gated mindsets. Gated forms helped facilitating the gated living, strengthening the collective identities, and projecting the image of solidarity to the outsiders. In this sense, the socialist work unit actually practiced a full range of social-spatial segregation in terms of physical enclosure, totalitarian living and a collective mentality, which maintained the "trinity" of the gated way of life.

Then how has gatedness in XAUAT been reconstructed since the economic and housing reform? The most notable changes are discerned in land use patterns. Spatial analysis discovers that the layout of XAUAT was decentralized, integrated, and boundary-loose after stages of transition. Physical gates performed practically little function and spatial isolation has been gradually dissolved.

Porous boundaries promote integration of city public services and community amenities, enhance the inside-outside interaction, and expand residential living into the surrounding areas. However, people's everyday activities are still centered within the community life, and their social milieu has largely overlapped with close-knit social ties within the work-unit. Evidently, people's gated way of living is fundamentally established on their affiliation to the community authority/origination instead of affiliation to the physical territory. The dissolving of physical gates practically enlarged the radius of daily life. This does not, however, signify fragmentation of the essence of gated living.

Is the gated mindset still prevailing in the work unit community? Results from this study suggest a positive but arguable answer. Despite the fact that socialist totalitarianism has retreated from community life, the collectivist value is deeply embedded in people's understanding of the community. A strong sense of community, along with the gated lifestyles, is established on residents' affiliation to the organization and reflected on their agreement of collective social norms and the so-called "big compound culture." Of course, acknowledgment of common norms and values of community cannot be simply equated with a gated mindset. However, such a value was cultivated with a strong sense of social superiority, and recognition of otherness (Huang, 2006; Wu, 2005). This research suggests that such a mentality of superiority and exclusion still commonly exists among residents and informs their identity. For example, during an interview in the pilot study, XAUAT's residents expressed their concerns on "bad influences" from outside of the community. To a great extent, the gated mindset is still an entrenched ideology in the residents of the work unit. A strong sense of inward cohesion and outward exclusion are the two sides of the gated mindset in work units.

The quotations are the examples from interviews from two individuals. The first quotation emphasizes a strong cultural superiority that perceived in the work unit. The second quotation emphasizes work unit residents' reluctance of sharing the public spaces with the outsiders.

> My son just got accepted by the *** school, but we have not decided to go. Of course the school has a good reputation. But it is in the old town, and many kids going there are from the "bourgeois families." My boy is still little. I am

> afraid he would pick up some bad habits from them. The attached school here is not as academically strong, but the environment is much less complicated. It is really a hard decision.
>
> - Pilot study respondent #1 from XAUAT

> More and more people living close by come into the neighborhood for the morning exercise. I know the environment here is good, but it is a university. Why can't they just go to a city park? I think the security department should do something, at least keep eyes on them.
>
> - Pilot study respondent #2 from XAUAT

However, such a gated mentality may be potentially deconstructed by the rise of individualism. In XAUAT, close-knit social ties do not necessary result in positive interpersonal relationships. Shaw (1996) argues that negative feelings among unit members are normally caused by over-complicated human relations and complaints of mutual surveillance. Findings from this research support Shaw's augments by identifying the contradictions between people's perception of mutual support and mutual surveillance, sense of cohesion and sense of privacy, reliance on the authorities and desires of autonomy. Moreover, a remarkable distinction is discovered between senior residents and younger generations. Seniors who have lived with in collectivist values for lifetime are less aware of mutual surveillance and feel less necessity for privacy. On the contrary, younger generations have a higher level of individualist mindset, more distaste of mutual surveillance and the tradition of authority supervision in the work unit, and hence have less favorable of the collectivist ideology of the work unit and perceive relatively lower levels of the sense of community.

Above all, this dissertation argues that gated mindset in the work unit is

fundamentally based on the affiliation to working organizations rather than the residential community. It is embodied in terms of their acknowledgement of abstract collective values instead of realistic neighborhood cohesions. In addition, this affiliation is embraced more by senior unit members rather than the younger generation. Taking XAUAT as the example, the gated mindset inherited from the socialist era is strikingly persisting, despite physical openness and integration. However, such a gated lifestyle and its ideology is rather fragile once the working-based affiliation is broken down. Numerous cases of declining work units demonstrate the path of fragmentation, commercialization and redevelopment in new gated communities. Moreover, the gated mindset within the healthy work units has begun to unravel along with the rise of self-awareness and individualism among the younger generations. The "big compound culture" in these communities becomes less influential and begins to decline.

The gated community – NMT as an example

It is true that gating and neighborhood enclosure are the most salient features of NMT. In addition, as numerous of other newly built gated communities in China, the design of NMT adopted the "neighborhood unit" schema. The hierarchical spatial order of the layout intensifies physical separation even within neighborhoods.

Yet, the question arises, do people who live in the gated forms also have gated ways of living and thinking?

With respect of the social space of gated life, findings from the case of NMT shows that residents' social networks are mostly non-residentially related. In addition, substantial components of their daily living reach outside of the residential space. People use the public facilities of their neighborhood largely for utilitarian purposes, but socially are less reliant on the community life within the gate. The neighborhood provides amenities, such as a clubhouse and childcare center, to cater to the needs of daily life. However, these services may also be easily obtained from outside of the neighborhood otherwise. Moreover, demographic analysis discovers a good diversity of income, occupation and social backgrounds in residential populations. That said, as a neighborhood primarily designed for the urban middle-class, NMT does not present a great degree of social exclusion in reality.

However, it does not mean that physical forms of segregation have no impact on people's community life. On the contrary, this study discovers that in the case of NMT, spatial configuration sets the tone for the community life by channeling of the public activities and providing socialization opportunities. As the result, isolation of residential clusters constrains people's neighborhood interactions within its physical territory. That said, in NMT, residents' social lives appear to be globally ungated, but locally territorially restrained.

Examination of residents' cognitive constructs does not suggest an affirmative answer to the question of whether or not the mindset in NMT's residents is gated. Residents' conceptualization of community presents a stronger sense of territory that distinguishes between the individual, the community and the broader

context beyond the community. One explanation is a possible mental projection of the physical forms of separation. However, a sense of territory may be associated to, but not necessarily synonymous with the gated mindset. Further investigation discovers that the ideology of individualism (that is, individual values and empowerment/autonomy on the community management) functions as the psychological core of residents' cognitive constructs. The sense of territory mostly reflects residents' rising awareness of ownership and collective rights, and their common interests on property-related issues. The "undesirable" outsider that is to be walled off does not only refers to the potential of increased crime and traffic, but also to the intrusion of the ownership and proprietary attitude.

Previous studies on Chinese gated communities provide empirical support for this argument, suggesting that the strong desire to protect the property interests and life styles often leads to collective actions on the part of homeowners to form grassroots organizations(Guan & Cai, 2015; Read, 2003). To a certain extent, the common interest on autonomy in NMT also corresponds to Fulong Wu's arguments of gated communities based on the theory of "collective consumer clubs" (Webster, 2001). He sees the Chinese gatedness, from its work units to other gated communities as belonging to the club realm of consumption, and that the replacement of work units by other gated community configurations as reflecting the retreat of the state and the emerging of the private sectors in provision of public goods (Wu, 2005).

However, as in abundant other studies, Wu grounded his research on luxury

estates, and concluded with a conventional account of gated communities as a place of purified residence, with a weak sense of community and as an instrument of forging social exclusion. Taking a NMT as a typical example of the middle class gated neighborhood, this research provides an alternative to the common negative narrative of gated development. Survey results conclude a rather upbeat assessment of overall sense of community. In terms of global measurement, a sense of community in NMT is found at the same level as in XAUAT. Acknowledgement of ownership practically boosts their emotional attachment to the community.

This dissertation therefore argues that, from the place user's perspective, the "collective good" that is provided in the middle class gated communities is not limited to the material consumptions, but also includes the sense of ownership, desires for autonomy, and the pride of self-fulfillment – the "collective goods" that were not able to be obtained from, for example, the conventional work units. Is a strong sense of territory a representation of the gated mind? Maybe yes. However, this type of gated mind is centered an individualist rather than isolationist value, and moving toward the neighborhood cohesion instead of retreat from responsibility. Gated minds in middle-class neighborhoods differ in both psychological constructs and the social implication observed from high-end estate residences in China (e.g., Miao, 2003; Wu, 2004;) and other cases in western contexts (e.g., Balndy & Lister, 2004; Sanchez & Lang, 2005; Wilson-Doenges, 2000).

(Re)construction of gatedness in urban China: from institution-structured collectivism to individualist-oriented collectivism

Taking XAUAT and NMT as representative cases of middle-class gated residence, characteristics of gatedness have been examined in terms of physical form, real-life residential experience, and psychological construct. This part of the discussion focuses on the developing path and lingering impact of the work unit to the commodity gated community. The physical and social sustainability of the middle class gated residence is also speculated on this section.

Guided by Canter's (1977) conceptual framework of *place*, dynamics of gatedness in three modes of residential enclosure are depicted in Figure 8-1. The diagram also illustrates the evolutionary path of gatedness in different historical periods, which brings up two questions for the following discussion: (1) Do gating and enclosure necessarily leads to spatial and social segregation? and (2) From perspective of middle class urban residents, is the transformation of gatedness devolving toward deconstruction, or is on the path of reconstruction/intensification?

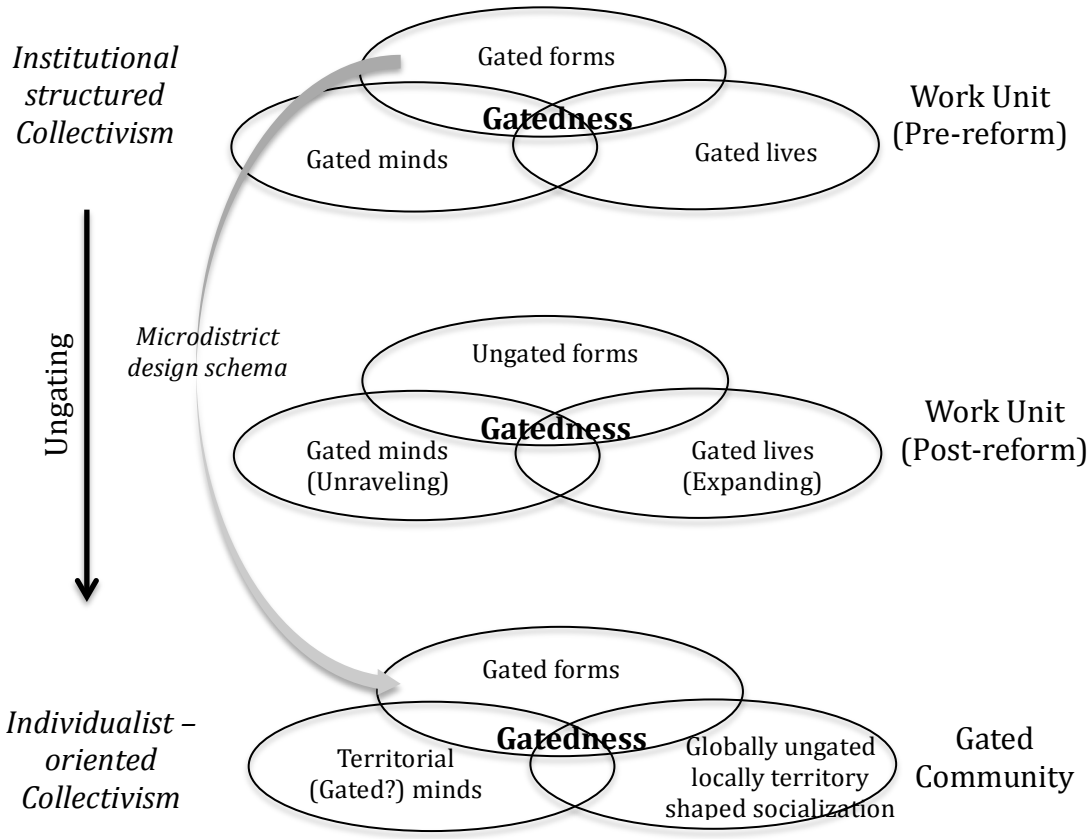


Figure 8-1: Development of Gatedness in Urban China

The examination of the dynamics between the gated forms, gated lives and gated minds in three modes of gated environment illustrates that, in urban middle-class gating, gated physical forms are not necessarily a primary cause of social segregation, although it was and still is an effective mechanism to define territorial collectives and to practice/reinforce segregation to adapt to changes in segregation policy time.

In the pre-reform era, the segregation originated from an affiliation to the institution (work units). Physical gating of the neighborhood was introduced to

accommodate the ideology of institutional structured collectivism and its way of life. After the reform, along with the economic development and reconstructing of the social environment, work unit neighborhoods gradually lost the privilege of social recourse provision. Physical enclosure became practically functionless and largely existed only nominally. Evidences from this study suggests that openness of the physical boundary has loosened up residents' range of daily life, but does not necessarily lead to an ungated way of thinking and living. At present, as long as the work unit institution remains in healthy status, it still hosts the main preoccupation of residents' daily live. Also, affiliation to the work unit and the collective ideology is still the foundation of a sense of belonging to the community. Segregation still evidently exists between inside and outside of the work unit neighborhood.

On the other hand, despite the lingering impact of the socialist collectivism mentality, a notable split between senior residents and younger generations is emerging. Younger generations present significantly less attachment and dependence on institutionalized ways of life. Therefore, in the long term, the dissolving of the gated way of living and thinking are unavoidable - not because of the openness of gated form; rather, it results from the deconstruction of the ideology of institutionalized collectivism and social segregation.

The prevalence of commodity gated communities provides an alternative way of collectivist living for the urban middle class. A conventional account of enclosure emphasizes its contribution on the emerging social segregation. From the perspectives of policy makers and place designers, plenty of other studies have

elaborated on the motivations and vehicles through which its design schema has gained the power of regulation and are implemented widely in the new era of construction (e.g., Lu, 2006; Qian, 2014; Wang, Kee, & Gao, 2014). From the place user's perspective, however, this study argues that compared to their work unit peers, residents in the newly built gated communities are practicing a significantly less gated way of life. Such ungatedness is clearly reflected in their broader range of social networks and daily activities, less reliance on the exclusive community amenities, and less emotional reliance on the collective identity and cohesiveness among residents. Besides, evidence from this study uncovers population in gated communities with an even bigger variance of socioeconomic backgrounds compared to its work-unit counterpart. That said, the physical form of gating does not necessarily ensure a gated way of living and thinking in the era of reform.

Meanwhile, people's favor of the collective forms of residence is undeniable. Huang (2006) suggests that collectivism, rooted in the Confucian tradition, has always been valued as more important than individualism, despite various profound socioeconomic transformations in Chinese history. He further argues, "Despite the emergence of a more individualistic subculture as a result of market transition, collectivist culture and political control continue to be essential to the social construction of gating in the reform era." However, without denying the profound historical and culture influences, findings from this research discover an opposite trend that self-interested mentalities are replacing the institutional-structured values as the core psychological construct in the new era of gatedness. To a great

extent, collective forms of residence functionality manifest resident's demands for empowerment and autonomy, and symbolically foster their sense of pride and self-fulfillment. In another words, collectivism has transformed from reflecting the like-ideology to the like-interest.

To conclude, this study argues that, generally speaking, the middle class urban gatedness is moving from the institutional-structured collectivism toward the individualism-oriented collectivism, from deep gatedness to certain level of ungatedness.

Assessment of sense of community

This study also explores the sense of community in two types of residential enclosures.

Assessment in XAUAT concludes that its residents have an overall strong sense of community; meanwhile, observation shows that people's intuitive perception of a sense of community tends to be substantially stronger than that accessed by the standardized evaluation instrument (revised form of the Sense of Community Index). Further investigation reveals that people's affiliation to the institutional organization outweighs other dimensions of contribution to their subjective perception of sense of community. The long history of "parentship" of the work unit has cultivated residents' emotional attachment and practical dependency on the top-down organization. Collectivist values have fundamentally shaped people's conceptualization and evaluation of the social norms and sense of

community. Self-interested dimensions, such as personal influences and fulfillment of needs, are usually considered with less weight.

In the case of NMT, disagreeing with the conventional accounts of the gated communities, this study found a rather positive result on sense of community.[15] MDS analysis further reveals that *feeling of pride* is at the psychological core of the cognitive structure. This finding supports a theory proposed in an earlier study by Li and Huang (2006), stating that "… the pride of homeownership could foster a higher sense of community attachment among commodity estates residents. " However, different from Li and Huang's expectations, evaluation results in this study discover that residents have not perceived sufficient support to reach their aspiration of empowerment and sense of ownership. In fact, the gap between the high level of aspiration and relatively lower level of satisfaction decreased people's overall subjective evaluation of sense of community. Therefore, this research supplements Li and Huang's theory, arguing that feelings of pride are the central value facilitating the sense of community in gated communities. But by the same token, if the degree of perception does not catch up the degree of aspiration, feelings of pride are likely as well to decrease the sense of community. That said, the sense of community is primarily a goal-oriented place experience. Borrowing Canter's theory of "purposive evaluation of place," subjective evaluation of the sense of community reflects the degree to which "… a person sees a place as helping to achieve that person's goal at

[15] Li and Huang (2006)'s case study in the city of Guangzhou also concluded a relatively higher degree of community attachment and neighborhood satisfaction in the newly developed commodity housing estates, as compared with both work units and traditional neighborhoods.

various levels of interaction with that place." (Canter, 1983)

The discussion above leads to a question that, considering that the sense of community is both contexts based and purpose oriented, what are the risks and benefits of measuring a sense of community with a standardized instrument?

Standardized evaluation instrument measurement sense of community are widely used in the realm of community studies (for example, Chavis et al.(1985)'s Sense of Community Index, Nasar & Julian (1995)'s assessment instrument, and Talen (1999)'s construct for the New Urbanism development). To assess the psychological domain of sense of community, this study borrowed the most commonly used instrument, the Sense of Community Index (SCI), with some minor adjustments to better fit the specific context of urban China. Using the standardized measures in this research provides both risks and benefits.

This study argues that simply relying on standardized instruments, evaluation on sense of community may face the risk of less variability and sensibility on culture/value differences in various contexts. Multiple dimensions of the construct are equally weighted in the assessment. In the case of XAUAT, the importance of collectivist culture is not fully evaluated by the instrument, which results in a remarkably lower value compared to the people's subjective perceptions. Likewise, as we have found in the case of NMT, people's overall evaluations of places are largely determined by the fulfillment of specific desires. The standardized instrument itself is unable to present/explain the aspiration – satisfaction dynamic in people's place experience.

On the other hand, adoption of the SCI also brings multiple benefits to this study. First and the most important, the instrument provides a reliable framework to conduct a hybrid investigation with a full coverage of the concept. Second, the instrument dissects the psychological sense of community into four dimensions. It enables assessment from specific perspectives, and makes comparisons between dimensions possible. Third, the standardized form enables comparisons across two different settings in this study.

Directed by Canter's theory of purposive place experience, the cognitive constructs of sense of community are explored in two case studies. Using it as the reference, itemized assessment results from the SCI can be further analyzed and explained. Disadvantages of low sensitivity and variability of the SCI can be avoided after the in-depth examination.

Therefore, the research experience in this study suggests that the examination of sense of community should introduce both approaches, of the standardized global assessment and the context-based purposive evaluation. Collaboration of both approaches ensures a comprehensive exploration of the concept without ignoring variances in different contexts.

Physical Forms and Social implications

Configurational features

Empirical evidence from this study also reveals the different effects of spatial factors upon residents' perceptions of territory, patterns of using public spaces, and their neighboring activities. Different types of gated environments are featured with different interactions between behavioral, conceptual and spatial dimensions.

First, the influence of physical forms on the behavioral and social patterns in the community appears to be different depending on residents' level of acquaintanceship.

In the case of NMT, the predictability of spatial configuration to behavioral patterns in public spaces is quite salient. People's pedestrian and other types of movement are highly likely directed toward the most integrated spaces in the neighborhood layout. Survey and observation results both suggest that socializations opportunities are significantly rely upon the spontaneous co-presence opportunity that is generated by the natural movement. Place making activities are less planned but more likely to result from utilitarian movement (for instance, walking to the parking garage, making a purchase, or walking a dog). On the other hand, people's neighborhood social ties appear to be remarkably restrained within the physical range of the building clusters. Highly integrated communal settings at community-level (clubhouse, commercial street, recreational facilities, parks, etc.) and highly segregated residential areas not only featured the spatial characteristics,

but also impact the behavioral/social patterns of the residents' lives. This evidence suggests the fundamental influence of spatial order on the socio-behavioral dimensions in the newly built residential environments where acquaintanceship is still developing.

In XAUAT, on the contrary, fully-grown social ties and community cultures are the key contributor to the social life. Spatial attributes, however, appear less influence on pedestrian, have less social-psychological implications, and play a less significant role on the place making. Looking back to the case of NMT, residents also tend to expand their physical range of socialization along with years of residence along with years of residence, which means people's social radius is less restrained by the physical territory once acquaintanceship is established among residents.

This finding especially highlights the necessity of designing the new residential developments with a morphological perspective. Configurational structure of the neighborhood layout influences the traffic and pedestrian flows and the usage efficiency of the facilities, which further determines the community's interaction patterns and social cohesiveness.

Second, findings from this study illustrate the unique developing path from the work-unit model to the commodity gated community. More importantly, it explicates the potential pitfalls of the "neighborhood unit" schema in obstructing place making in residential environments.

This study attests to the evolutionary process of XAUAT from the spatially differentiated hierarchical structure to the internally integrated entity. During this

process, the designed neighborhood socialization settings – the shared common places within the residential clusters are gradually dissolved and give their way to the naturally occurring foci of the community life – the street networks. Transformation from the "green-centered hierarchical structure" to the "street-centered network" demonstrates the process in which the dynamics of daily life dissemble the master-planned logic of space, and play a vital role in the making of genuine places. In the post-reform era, the XAUAT neighborhood has shifted from a socialist organization to a residential-focused community. The organizing principle of the "neighborhood unit" is found to be less adaptable to the change of residential life, and has been completely deconstructed after decades of redevelopment.

However, the "neighborhood unit" schema is still widely applied in the new construction era of the gated community, such as in the case of NMT. The design rationale has gained its legitimacy in the realm of housing development, and is favored by designer/planners for it its feasible advantages and reproducibility. Moreover, the specific spatial order may also be embedded in the residents' recognition and acceptance as the standard form of urban residence.

Proponents of the "neighborhood unit" schema believe that residential clusters play a key role in defining territorial collectives and fostering the sense of informal control, social cohesions, and solidarity (Huang, 2006; Lu, 2006). However, findings from this study suggest an opposite social implication. Spatial separation and the functional monotone of the residential cluster appears less attractive for place-making activities, and evidently restrains the range of neighboring social ties.

On the contrary, active social interactions mostly occur at spatially integrated and functionally hybrid places (communal gathering places such as parks and commercial areas). As Jane Jacobs (1961) and most of the space syntax studies have already demonstrated, sense of ownership and security is normally obtained in the more public and mixed use areas which host commercial, busy pedestrian traffic, and a variety of activities.

In a maturing community like NMT, a spatial configuration essentially facilitates the natural movements. Overlapping of communal settings and integration core effectively promotes the usage of facilities and enhances social interactions and place making in the central area. In the mature community like XAUAT, after decades of development, the dynamics of daily life unavoidably rearrange the communal places into the integrations core – the central street of the neighborhood. That said, although spatial configuration has less direct relationship with social behaviors in the acquaintance community, its underlying logic always plays an important role in the making of genuine public space. Misplacements of public settings that deviate from spatial logic are to be corrected sooner or later.

To summarize, the “neighborhood unit” schema, which has dominated the realm of housing development for over half a century, is found to be maladaptive to today’s residential life and detracts from place making in the community. The “green-centered hierarchical structure” potentially deepens spatial and social distance among residents. Spatial isolation of the residential clusters impedes the community interaction. Spatial evolution in work unit community has demonstrated

the trend of integration and has developed the “street-center network structure” under the influence of various mechanisms. Unlike the “green-centered hierarchical structure”, the “street-center network structure” is in line with the spatial logic and dynamics of daily life. It presents advantages for enhancing social integration, a sense of security, and a sense of community, and thus should be applied as an alternative approach of public space formation in residential developments.

Land use and amenity provision

With respect to the case of NMT, findings from behavioral observation and surveys call into question the efficiency of its land use patterns and amenity provision. As discussed in the Chapter Five, NMT has the luxury providing plenty areas of outdoor spaces and various indoor. However, both the observation and survey results suggest a generally low usage efficiency of these indoor and outdoor facilities. More specifically, the most desirable settings are found to be the playgrounds and the clubhouse with attached recreational/sporting facilities. Education facilities also provide great convenience to residents. Compared to those, a large portion of the central park, the shopping streets, restaurants, the landscape garden, and the greens in between the residential buildings are used significantly less efficiently.

As discussed before, misplacement of the public settings (e.g., the landscape garden) in the spatial isolated places is a critical causation of its low usage. Spatial segregation of the residential clusters also prevents natural movements flowing into

the community core. Besides that, many amenities are found to be superfluous provision to a middle-class neighborhood. Restaurant and shopping facilities, for example, are largely duplication of the services in the surrounding urban streets. With an easy access to a good variety of the city's commercial venues just minutes away, NMT's residents are less motivated to choose the community shops. The continuous changing of the commercial street over the past few years also shows its awkward position in the neighborhood. Many of the grocery shops and salons were closed for lack of business. In order to attract more consumers, NMT eventually opened up the neighborhood commercial street to the outside and set up another gate to control the accessibility to the neighborhood.

Unlike an upper class community, residents in the middle-class neighborhood are usually pragmatic and cost-sensitive. Convenience of access is also desired with regard to community facilities and services instead of the exclusive premium amenities. The dilemma of the commercial services in NMT indicates that duplicate provision of public amenities is rather unnecessary and practically lacking in feasibility.

In addition, many oversized landscapes in NMT receive significantly lower usage by residents. The central park is the most obvious example. Spatially, it has the privilege of being surrounded by the most integrated streets. Functionally, it was designed with walking trails, gardens, gathering places and sitting areas, and recreational facilities. However, due to its excessive size, only the peripheral areas along the central street are frequently used; which leaves a large portion of the

central area practically a scenic view. Likely, residents seldom utilize most of the green areas and facilities in the residential clusters. Low efficiency of outdoor spaces usage is partially due to the generally lower participation at outdoor activities in NMT. However, it also indicates that the oversized landscaping does not fit residents' lifestyles and significantly hinders neighborhood's walkability.

Not only the landscape designs, but the overall land use of NMT is oversized as a residential enclosure. There is a consensus that the superblock planning is not optimal for the urban transportation system (Cervero, 2004; Yang, 2010; Zhang, Sha, & Wang, 2011). On top of that, as a pedestrian-based neighborhood, the large-scaled layout lengthens the walking distance between destinations. Configurational analysis posits that there are three major spatial features in NMT: isolation of residential clusters, lower permeability of the integration core, and configurational separation of the north and south parts of the layout. Long physical distances further intensify the isolation of each territory. Due to weak bonds, pedestrian flows from different areas are less attractive for intersecting and communicating, and thus are more likely to be localized or directed toward outside of the neighborhood. The oversized layout directly causes inconveniences for residential life, potentially intensifying separations within the neighborhood, and obstructions to the community communications.

Developers and designers in China today face an unprecedented pressure to utilize all available urban space due to the high rates of urbanization over the last two decades. The task of community designers is to seek the necessary and effective

provision of space and amenities to cater to people's needs in their daily life. Examinations of the public settings in NMT show that neither the all-inclusive facilities nor the large-scale development is the key to improvement of residential quality. On the contrary, oversized layout may decrease the level of walkability and further hinder social interactions in the community.

Architectural styles in relation to community identities

As in many other commodity developments, developers and designers of NMT borrowed western architecture motifs to create a unique image/identity for their estates. Wu (2004) observed the prevailing of the western style in Chinese urban design, and argued that, "by associating themselves with globalization, the development elite hope to sell the vision of the good life in the era of globalization." Yet the question that remained unanswered was how the western image was perceived, interpreted, and appreciated by the place users?

Although not being the main theme of this research, the survey findings have provided a few points of interest for this inquiry. Evidences suggest that most residents seem not appreciate the imposed westernized image of community. These residents are neither attracted by the architectural styles, nor consider it as an important identity that boosts their sense of community. In fact, residents commonly hold an attitude of "indifference" toward the architecture design – considering it nothing special although not unpleasant. Compared to the aesthetic features, the tangible characters of the environment, such as attached amenities, the

low residential density and spacious housing units and construction quality are perceived as more important indicators impacting their sense of identity.

Findings from this study suggest a largely overlooked gap between designing intention and user perception, especially for the middle-class housing developments in China. A question to for the future study is that whether the gap is caused by the different aesthetic preferences between the designer and place user groups, or it is due to the overall pragmatism of the middle class who generally pays less attention to the aesthetic quality of their residential environments? More in-depth investigations focusing on aesthetic evaluations are needed to provide insight on this subject.

Implications for design and planning

Based on the discussion above and other related findings from the previous chapters, this research summarizes three major implications for the middle-class neighborhood design practices in urban China.

One of the primary findings from this research is that the "neighborhood unit" schema has done far more harm than good for place making, and especially maladaptive to the new era of community construction. The conventional "green-center hierarchical structure" under the guidance of the "neighborhood unit" generates a set of isolated territories. Consequently, it generates internal segregation within the neighborhood, increases the spatial, mental, and social distance among

residents, leads to inefficient allocation of public settings, and obstructs community-wide communication. As an alternative, the "street-centered network structure" is suggested as a better form of spatial organization in the middle-class neighborhood. Instead of being the circulation instrument, the street network becomes a uniting element in creating a continuous fabric, the primary container of public life, and the stage for global interactions in the community.

Designers and developers may also benefit from the "street-centered" schema for its high efficiency of land use. Recruiting the street networks at the frontier of place making enables developers to substantially decrease land use without compromising but will likely improving the quality of community life by maximizing spontaneous use and interactions of the residents.

Furthermore, if breaking up the superblocks and opening the residential enclosure is the ultimate planning goal in urban China, the "street-centered" schema gives neighborhoods the possibility of blending into the urban fabric with minimal abruptness. Cross-weaving linkages also cultivate the identity of residents and enhance cohesiveness within the neighborhood. It is especially helpful to prevent the community from falling apart once the gates and walls are removed.

The discussions above also emphasize one principle at the level of physical design – the syntactic logic of the space matters. It is the invisible hand to guide the movements and leads to efficient organization of places. Learning from these two cases study neighborhoods, spatial design set against this logic could potentially hamper well-being of residential life. Such misplacement is likely to be rectified by

the dynamics of daily life over time. In this respect, spatial analysis instruments, such as the Space Syntax tools, should be introduced into the designing process. These instruments may provide "predictive" opinions on the design outcomes in order to avoid unnecessary negative social impact.

Second, this research suggests that planning of the middle-class neighborhood should avoid over provision of amenities whether in terms of content or sizes, for it unnecessarily improves but likely to impairs the quality of community life. This research reveals that for the urban middle-class, the core value of the sense of community is not established on the exclusive and premium lifestyle, but on the perception of individual empowerment and autonomy. An all-in-one package does not cater to either residents' physical or mental demands of daily life. Designers and developers should efficiently utilize the limited land and financial resources. Instead of duplicating and competing with the nearby city facilities, provision of community amenities should focus on the contents that require physical proximity to the residence (e.g., playgrounds, recreational facilities), and that are inadequately supplied in the city public sector (e.g., childcare services), or that reflects/enriches the unique community cultures and identities (e.g. community library, gallery, or other establishments). Also, designer of the outdoor spaces should pay more attention to quality instead of size. Oversized outdoor settings may hardly be fully unitized; furthermore, it may obstruct the smooth flow of pedestrians, decrease level of walkability, potentially enlarge the physical and social distance between residents, and impede the social interactions.

Third, designing of the outdoors environment should take the needs of children and senior residents as a top priority. Confirming the findings from other empirical studies (e.g., Wu, Wei Wang, 2014), this research identifies children and senior residents as the frequent users and primary beneficiaries of the outdoor spaces. In return, they also act as the glues of the community life through either active involvement in the community's management, participation in group activities, or in creating communication opportunities between families. The provision of the community amenities should be inclined to the demands of youth and seniors - for example, catering to their desired activities and considering the suitable/comfortable sizes, materials, landscapes, and other detailing features in the architectural design. Besides increasing the utilization efficiency of the public spaces, this may also enhance the overall quality of social life and cohesiveness in the community.

Last but not least, landscape and architecture designs should be sensitive to the preference/appreciation of the target user groups. Findings from this research reveal that homebuyers may not appreciate the Western motif that is promoted as the community identity and the selling point of the property. Though not providing a full account of designing guidelines, this study still directs attention to this issue. It is necessary for designers/developers to conduct in-depth market investigations prior to construction to better estimate place users' preferences, as well as post-evaluation to obtain feedback for improvement of the future developments.

8.3 Limitations of the Study

Balanced against the contributions to the literature are some limitations of this dissertation. They range from deficiencies in research approach, data collection and analysis, to the utilization values of the findings.

First, this dissertation heavily relies on the quantitative approach for data collection and analysis. It failed to adopt a more qualitative scheme, that is, with robust explanatory powers from the real-life events. For logistic reasons, the proposed in-person interview as the follow-up of the survey could not be conducted. More empirical indicators that could have been extracted from the interviews are not included in the study. For example, the discussion of sense of community was only limited to explanations from data received from the surveys. Lacking qualitative evidences as the reference, exploration of the quantitative data heavily relied on the investigator's statistical interpretations without the benefit of member check. The meanings and implications of gatedness may not have been sufficiently explored without interview information as the supplement. However this research has the good fortune of conducting some in-person interviews at the pilot stage. Qualitative information obtained from the pilot study provided considerable insights on the survey design and later interpretations of the results.

Second, this study employs the case study as the primary research strategy.

This enables a holistic and in-depth exploration of gatedness in the real-life context of NMT and XAUAT. However, taking a single-case study to represent each type of neighborhood, this dissertation acknowledges the potential limitation on generalizability of the finding. Due to the financial and time constraints, it was practically difficult to include more cases into the study. Meanwhile, Yin (1989) argues that the theoretical proposition suggested from the single case study still presents good generalizability. Accordingly, many arguments obtained from the cases of XAUAT and NMT, such as cognitive constructs of motivation, sense of community, as well as the conceptual construct of gatedness has good applicability to other relevant research.

Third, examination of the physical environment paid primary attention on morphological structures and land use patterns, without sufficient exploration of the architectural features. The survey questionnaire includes some architectural factors regarding sense of community and motivations of the choice of residence. However, simple labels of such factors as architectural style, residential density, or construction quality cannot fully represent the architectural character of the real-life event. Due to this limitation, the residents' perceptions of the architectural features are not fully discussed in terms of their relation to satisfaction of life quality and sense of community.

Fourth, discussion regarding the sense of community in XAUAT during pre-reform era is primary based on research from the existing literatures. No on-site investigation was conducted regarding this issue. Without support from the first-

hand empirical information, constructs of the pre-reform sense of community generally follows the common account of the subject, but contributes fewer new insights to the body of literature. It would have been ideal to obtain more raw information regarding people's sense of community during the pre-reform era. Data may be possibly collected from interviews, surveys, or historical documents. As such, evolution of a sense of community could be illustrated with more interesting and enriched findings.

8.4 Suggestion of Future Works

Based on the research findings, as well as experiences and limitations learned from this study, this section advises on the potential directions of future research.

First, more longitudinal, multi-site studies should be employed in the realm of the physical environments in commodity gated communities and work unit neighborhoods. One potential direction would be examining residents' perceptions of architectural styles in relation to their satisfaction and sense of community. Coupled with the interview, the method of the multiple sorting task[16] can be introduced as an useful investigation instrument. Another possible direction is to focus on the typological study of the spatial structure of each type of gatedness based on regional multi-case investigations. Research from these studies may reveal the genotypes of different gating forms, and provide stronger evidence for illustrating the evolutional path of gatedness in China. More investigations on gated settings could elaborate on specific design features, such as land use patterns, development scale, combination of the housing sizes, landscaping, and construction

[16] Multiple soring task is a research tool to explore the categories and construct system that people use in a given context. In a categorizing procedure, respondents are requested to sort given items (e.g. pictures) into categories based on similarities and dissimilarity. This instrument has demonstrated its multiple advantages on exploring human construction of meaning, in terms of verbal and non-verbal measures, in being less time-consuming, and is suitable for multi-attribute constructs (Groat, 1985).

materials, in relation to psychological, behavioral, and social implications for the residential life.

Second, as discussed before, this study has not provided first-hand information on the residential life within the work unit during the pre-reform period. Transformation of the work unit residence seems to be irreversible and avoidable in today's rapidly changing society in China. Field research on the collective way of living in the pre-reformed work unit is especially urgent, as the opportunity for this kind of research is fading out as fewer and fewer older generations remaining in the work unit are still available to provide first hand information. Oral history of the residential life in the socialist work unit would be an interesting approach to contribute to the body of the literature.

Third, this research examines patterns of socialization and behaviors in public settings in relation to the spatial characters of the built environment, and proposes the centrifugal tendency in the gated community and the centripetal tendency in the work unit neighborhood. More specific empirical evidence is needed to support this theory, which could be a future research direction. The possible investigation could be based on survey or behavioral observation of residents' travelling paths and destinations in their daily lives. Findings from this research could provide insights to the realms of physical design and community construction. As well, this research could also reveal the possible differences between age groups in terms of their patterns of socialization and daily activities.

Last but not least in importance, this dissertation seeks to highlight its

significant contribution to the empirical research in the body of literature regarding Chinese gatedness. Different from its counterparts in western countries, Chinese gatedness presents with a unique developmental path, and has been successfully hosting the majority of the urban populations in China for decades. In addition, Chinese urban gatedness is a concept that accommodates a great variety of forms in terms of their historical backgrounds, locations, development scales, community management styles, and resident compositions, etc. The Study of urban gatedness in China should take into account its validity as an urban residential production/solution with less emotional language. It should be considered in the context of a continuously changing real-world life rather than a static entity. Each case should forces on its unique rather than considered more generally as an abstract concept. It could employ more on-site investigation on top of the theoretical discussion at a distance. With absence of these dimensions, surmises of social segregation, polarization, and neighborly apathy of any gated setting can be dangerous and misleading to a full understanding of gatedness in urban China.

APPENDICES

Appendix A: Principle Component Analysis Result Regarding the Factors of Sense of Community

XAUAT

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.178	21.989	21.989	4.178	21.989	21.989
2	2.908	15.303	37.292	2.908	15.303	37.292
3	1.950	10.263	47.555	1.950	10.263	47.555
4	1.893	9.962	57.517	1.893	9.962	57.517
5	1.484	7.813	65.330	1.484	7.813	65.330
6	1.341	7.056	72.386	1.341	7.056	72.386
7	.919	4.838	77.224			
8	.797	4.192	81.417			
9	.714	3.757	85.174			
10	.573	3.016	88.190			
11	.487	2.565	90.754			
12	.452	2.377	93.131			
13	.351	1.845	94.977			
14	.290	1.525	96.501			
15	.244	1.286	97.787			
16	.139	.731	98.517			
17	.119	.625	99.142			
18	.096	.504	99.646			
19	.067	.354	100.000			

Pattern Matrix

	Factor					
	1	2	3	4	5	6
Design/construction quality		.832				
Architecture style		.639				
Residential density		.616				
Parks and public greens			.842			
Community facilities/amenities			.893			
Community management/services			.596			
Perceived safety/security						.768
Perceived privacy						
Feeling of belonging to the community					.519	
Feeling of pride					.710	
Perceived support of personal growth					.691	
Perceived friendship	.677					
Neighbors with shared values	.550					
Attention from neighbors	.908					
Interactions with neighbors	.950					
Involvement of community issues						.658
Community lifestyles/cultures/identities				.504		
Connection between the community and its surrounding context				.954		
Ecological/social sustainability of the community				.585		

NMT

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.393	26.963	26.963	5.393	26.963	26.963
2	4.523	22.615	49.578	4.523	22.615	49.578
3	1.957	9.785	59.362	1.957	9.785	59.362
4	1.770	8.848	68.211	1.770	8.848	68.211
5	1.621	8.103	76.314	1.621	8.103	76.314
6	1.126	5.631	81.945	1.126	5.631	81.945
7	.780	3.900	85.844			
8	.662	3.311	89.156			
9	.480	2.399	91.555			
10	.403	2.017	93.572			
11	.354	1.770	95.342			
12	.327	1.633	96.975			
13	.212	1.062	98.037			
14	.128	.639	98.676			
15	.100	.500	99.177			
16	.079	.395	99.572			
17	.041	.203	99.775			
18	.028	.139	99.914			
19	.012	.061	99.975			
20	.005	.025	100.000			

	Factor					
	1	2	3	4	5	6
Architecture style	.831					
Design/construction quality	.816					
Perceived support of personal growth	.809					
Feeling of pride	.637					
Reputation of the developer						
Interactions with neighbors		.964				
Attention from neighbors		.873				
Neighbors with shared values		.625				
Perceived privacy						
Ecological/social sustainability of the community			.982			
Connection between the community and its surrounding context			.930			
Involvement of community issues			.743			
Feeling of belonging to the community				.974		
Community lifestyles/cultures/identities				.655		
Perceived friendship						
Community facilities/amenities					.938	
Parks and public greens					.914	
Community management/services					.537	
Residential density						.932
Perceived safety/security						

Appendix B: Correlations between SESC and 12 Evaluation Items in the GMSC Instrument

Evaluation item	Correlations	XAUAT	NMT
I care about my home, but I DO NOT care if this neighborhood does well. (reversed)	Pearson Correlation	.670**	.663**
	Sig. (2-tailed)	0	0
I think my neighborhood is a good place for me to live	Pearson Correlation	.514**	.500**
	Sig. (2-tailed)	0	0
People in this neighborhood DO NOT share the same value (reversed)	Pearson Correlation	.345*	.515**
	Sig. (2-tailed)	0.013	0
My friends in this neighborhood are part of my everyday activities.	Pearson Correlation	.476**	.337*
	Sig. (2-tailed)	0	0.017
I feel at home in this neighborhood	Pearson Correlation	.641**	.822**
	Sig. (2-tailed)	0	0
Very few of my neighbors know me (reversed)	Pearson Correlation	.741**	.511**
	Sig. (2-tailed)	0	0
I care about what my neighbors think about my actions.	Pearson Correlation	.685**	.348*
	Sig. (2-tailed)	0	.013
I have almost NO influence over what this neighborhood is like. (reversed)	Pearson Correlation	.580**	.636**
	Sig. (2-tailed)	0	0
If there is a problem in this neighborhood, the people here could get together to solve it.	Pearson Correlation	.462**	.409**
	Sig. (2-tailed)	.001	.003
If I had an emergency, even people I do not know in this neighborhood would be willing to help.	Pearson Correlation	.534**	.405**
	Sig. (2-tailed)	0	.004
The people who live in this neighborhood get along well.	Pearson Correlation	.266	.587**
	Sig. (2-tailed)	.059	0
I always attend club or organizational activities within this neighborhood.	Pearson Correlation	.406**	.511**
	Sig. (2-tailed)	.003	0

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Appendix C: Correlations of Respondents' Demographic Factors and Measures of Sense of Community

	XAUAT		NMT	
	SESC	**GMSC**	**SESC**	**GMSC**
Age	0.489** (p=0.001)	0.464** (p=0.002)	0.424* (p=0.012)	0.608** (p=0.000)
Household size	0.456** (p=0.005)	0.296 (p=0.075)	-0.034 (p=0.827)	0.052 (p=0.735)
Education	-0.214 (p=0.217)	-0.155 (p=0.375)	-0.027 (p=0.862)	-0.084 (p=0.595)
Income	0.764 (p=0.254)	0.078 (p=0.711)	0.062 (p=0.827)	-0.255 (p=0.220)
Length of residence	0.551** (p=0.000)	0.499** (p=0.001)	0.700** (p=0.000)	0.485** (p=0.002)

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Appendix D: Chi-Square Test of Demographic Factors in Relation to Measures of Sense of Community

XAUAT

		SESC					GMSC				
		Mean	s.d.	Chi-Square Test	d.f.	Exact Sig (2-tailed)	Mean	S.d.	Chi-Square Test	d.f.	Exact Sig (2-tailed)
Gender	Male	4.42	0.96	6.559	6	0.390	3.41	0.80	6.867	8	0.526
	Female	3.86	1.16				3.20	0.83			
Marriage	Y	4.22	0.99	5.962	6	0.448	3.40	0.80	5.543	8	0.686
	N	3.67	1.37				2.95	0.81			
Child/ren in the household	With child/ren <5	4.17	0.41	14.240	6	0.024	2.93	0.47	12.448	6	0.118
	With child/ren 5-18	4.42	1.16				3.60	0.87			
	Without child/ren	4.11	1.15				3.32	0.84			
Senior in the household	With senior	4.61	0.61	7.944	6	0.248	3.64	0.74	10.031	8	0.245
	Without senior	3.84	1.26				3.06	0.80			
Occupation	Student/ Full time work/ Self-employed	4.04	1.07	5.385	6	0.366	3.20	0.77	4.952	6	0.563
	Part time work	3.76	0.34				2.88	0.46			
	Homemaker/ Retried	4.75	0.46				3.31	0.75			
Ownership	Own	3.41	0.73	21.443	3	0.001	4.34	0.86	11.909	4	0.022
	Others	2.57	1.13				2.39	0.69			

NMT

		SESC					GMSC				
		Mean	**s.d.**	**Chi-Square Test**	**d.f**	**Exact Sig (2-tailed)**	**Mean**	**S.d.**	**Chi-Square Test**	**d.f**	**Exact Sig (2-tailed)**
Gender	Male	3.07	1.29	2.586	4	0.689	2.93	0.73	3.225	3	0.397
	Female	3.60	1.24				3.40	0.91			
Marriage	Y	3.60	1.17	7.812	4	0.092	3.34	0.87	1.436		0.750
	N	3.07	1.54				3.07	0.92			
Child/ren in the household	With child/ren <5	3.56	1.13	10.039	9	0.651	3.33	0.87	7.322	9	0.640
	With child/ren 5-18	3.88	0.99				3.57	0.79			
	Without child/ren	3.19	1.50				3.15	1.04			
Senior in the household	With senior	4.00	1.12	4.989	4	0.298	4.00	1.33	10.262	3	0.016
	Without senior	3.07	0.77				3.27	1.28			
Occupation	Student/ Full time work/ Self-employed	3.30	1.26	7.416	8	0.519	3.03	0.69	16.374	6	0.011
	Part time work	3.00	1.26				3.17	0.75			
	Homemaker/ Retried	3.93	1.28				3.85	1.14			
Ownership	Own	3.81	1.04	23.667	4	0.000	3.48	0.82	18.263	3	0.000
	Others	1.78	0.97				2.33	0.50			

Appendix E: Correlations between Frequency of Using Public Settings and Measures of Sense of Community

XAUAT

			GMSC	SESC
Activities in the Public Spaces	**Grocery Shopping**	Pearson Correlation	0.396**	0.360*
		p	0.005	0.012
	Dinning Out	Pearson Correlation	-0.308*	-0.456**
		p	0.033	0.001
	Outdoor Sporting	Pearson Correlation	0.333*	0.285*
		p	0.021	0.049
	Friend Meeting	Pearson Correlation	0.284	0.312*
		p	0.051	0.031
	Playing with Children	Pearson Correlation	-0.016	0.114
		p	0.915	0.439
	Walking Dog	Pearson Correlation	0.047	-0.096
		p	0.752	0.522
	Community Service/Gathering	Pearson Correlation	0.389**	0.294*
		p	0.006	0.043
	Indoor Recreations	Pearson Correlation	0.044	0.013
		p	0.764	0.929
Purpose of Walking	**For Leisure/Exercise**	Pearson Correlation	0.391**	0.362*
		p	0.007	0.012
	Make a Purchase	Pearson Correlation	0.423**	0.375**
		p	0.003	0.009
	Go to Public Places	Pearson Correlation	0.325*	0.301*
		p	0.026	0.040
	Visit Friends	Pearson Correlation	0.385*	0.373*
		p	0.014	0.010
	Go to Work	Pearson Correlation	0.031	0.079
		p	0.838	0.600

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

NMT

			GMSC	SESC
Activities in the Public Spaces	**Grocery Shopping**	Pearson Correlation	0.161	-0.005
		p	0.348	0.976
	Dinning Out	Pearson Correlation	-0.022	-0.080
		p	0.901	0.637
	Outdoor Sporting	Pearson Correlation	0.536**	0.385*
		p	0.001	0.019
	Friend Meeting	Pearson Correlation	0.507**	0.204
		p	0.002	0.225
	Playing with Children	Pearson Correlation	0.103	0.071
		p	0.549	0.674
	Walking Dog	Pearson Correlation	0.541**	0.397*
		p	0.001	0.015
	Community Service/Gathering	Pearson Correlation	0.606**	0.455**
		p	0.000	0.005
	Indoor Recreations	Pearson Correlation	0.515**	0.475**
		p	0.001	0.003
Purpose of Walking	**For Leisure/Exercise**	Pearson Correlation	0.576**	0.494**
		p	0.000	0.002
	Make a Purchase	Pearson Correlation	0.195	0.028
		p	0.248	0.866
	Go to Public Places	Pearson Correlation	0.390*	0.276
		p	0.017	0.093
	Visit Friends	Pearson Correlation	0.384*	0.219
		p	0.019	0.187
	Go to Work	Pearson Correlation	-0.234	-0.090
		p	0.163	0.590

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Appendix F: Correlation between Motivation Factors and Sense of Community Measures

		XAUAT		NMT	
Motivation	**Correlations**	**SESC**	**GMSC**	**SESC**	**GMSC**
Design/Construction Quality	Pearson Correlation	.247	.277	.085	.163
	Sig. (2-tailed)	.084	.052	.575	.283
Investment/Affordability	Pearson Correlation	-.138	-.187	-.292	-.342*
	Sig. (2-tailed)	.339	.193	.049	.021
Reputation of the developer	Pearson Correlation			.179	.042
	Sig. (2-tailed)			.233	.785
School District	Pearson Correlation	.116	.064	.297*	.150
	Sig. (2-tailed)	.424	.660	.045	.326
Environment of the Vicinity	Pearson Correlation	.129	.166	.140	.114
	Sig. (2-tailed)	.373	.249	.352	.455
Proximity to Work	Pearson Correlation	.050	.159	-.395**	-.498**
	Sig. (2-tailed)	.732	.271	.007	.000
Location Advantages	Pearson Correlation	.215	.313*	.299*	.330*
	Sig. (2-tailed)	.134	.027	.044	.027
Residential Complex	Pearson Correlation	.469**	.522**	.189	.295*
	Sig. (2-tailed)	.001	.000	.208	.049
Architecture Style	Pearson Correlation	.188	.159	.112	.074
	Sig. (2-tailed)	.190	.270	.458	.627
Residential Density	Pearson Correlation	.167	.079	.356*	.379**
	Sig. (2-tailed)	.246	.586	.015	.009
Landscapes	Pearson Correlation	.227	.333*	.367*	.491**
	Sig. (2-tailed)	.112	.018	.012	.001
Parking	Pearson Correlation	-.129	.001	.261	.068
	Sig. (2-tailed)	.371	.993	.080	.657
Walkability	Pearson Correlation	.360*	.459**	.068	.259
	Sig. (2-tailed)	.010	.001	.653	.085
Perceived Safety/Security	Pearson Correlation	-.088	.060	.158	.123
	Sig. (2-tailed)	.542	.681	.295	.420
Perceived Privacy	Pearson Correlation	-.164	-.125	.033	-.043
	Sig. (2-tailed)	.254	.385	.825	.779

Belonging	Pearson Correlation	.641**	.717**	.560**	.701**
	Sig. (2-tailed)	.000	.000	.000	.000
Pride	Pearson Correlation	.305*	.492**	.225	.236
	Sig. (2-tailed)	.031	.000	.133	.119
Support of Growth	Pearson Correlation	-.036	-.097	.056	.036
	Sig. (2-tailed)	.803	.503	.712	.815
Perceived Friendship	Pearson Correlation	.614**	.683**	.566**	.635**
	Sig. (2-tailed)	.000	.000	.000	.000
Shared Values	Pearson Correlation	.367**	.535**	.579**	.565**
	Sig. (2-tailed)	.009	.000	.000	.000
Interactions	Pearson Correlation	.620**	.596**	.539**	.763**
	Sig. (2-tailed)	.000	.000	.000	.000
Lifestyles/Cultures/Identities	Pearson Correlation	.339*	.375**	.470**	.537**
	Sig. (2-tailed)	.016	.007	.001	.000
Involvement	Pearson Correlation	.565**	.638**	.411**	.492**
	Sig. (2-tailed)	.000	.000	.005	.001

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Appendix G: Original Sense of Community Index (SCI)

I am going to read some statements that people might make about their [block]. Each time I read one of these statements, please tell me if it is mostly true or mostly false about your [block] simply by saying "true" or "false"

True = 1 False =0

Q1. I think my [block] is a good place for me to live.
Q2. People on this [block] do not share the same values.
Q3. My [neighbors] and I want the same things from the [block].
Q4. I can recognize most of the people who live on my [block].
Q5. I feel at home on this [block].
Q6. Very few of my [neighbors] know me.
Q7. I care about what my [neighbors] think of my actions.
Q8. I have no influence over what this [block] is like.
Q9. If there is a problem on this [block] people who live here can get it solved.
Q10. It is very important to me to live on this particular [block].
Q11. People on this [block] generally don't get along with each other.
Q12. I expect to live on this [block] for a long time.

Total Sense of Community Index = Total Q1 through Q12
Subscales:
Membership = Q4 + Q5 + Q6
Influence = Q7 + Q8 + Q9
Reinforcement of Needs = Q1 + Q2 + Q3
Shared Emotional Connection = Q10 + Q11 + Q12

*Scores for Q2, Q6, Q8, Q11 need to be reversed before scoring.

Appendix H: Survey Instrument

Consent to Participate in a Research Study

(Re)production of Gatedness in China: From Work Unit Compounds to Gated Communities

Principal Investigator: Ying Xu, Ph. D. student at the Taubman College of Architecture and Urban Planning, at the University of Michigan
Faculty advisors: Linda Groat, Lan Deng, Jean Wineman

You are invited to participate in a research study about Chinese gated communities. This is a study conducted by Ying Xu at the Taubman College of Architecture and Urban Planning at the University of Michigan in order to complete her Ph.D. dissertation. If you agree to be part of the study, you will be asked to complete a survey that will take about 20 minutes. The object of this survey to understand your general residential experience in your community and to what extent it relates to design features of the neighborhood. The survey contains 15 questions about four issues regarding your daily life: 1. choice of the neighborhood, 2. social contact network, 3. sense of community, and 4. your personal background.

If you agree to participate, Please complete the survey in **one week**. Upon completion, please seal the survey booklet in the attached envelope, and return it to any of the **suggestion drop boxes** located at the entrance of the apartment buildings. As an appreciation for your participation, you are eligible to win a ¥200 gift card from Minsheng department store. If you would like to be considered for this lottery, please leave your contact information at the end of the questionnaire and return it with the survey. Your personal contact information will only be used for the lottery purpose, and will be destroyed upon completion of the lottery.

To protect confidentiality, you will not be identified in any reports on this study. The data will be kept on a password-protected computer. Researchers will use special coding of the data to protect the information. Records will be kept confidential. They will only be used for the purpose of this study and will not be available to any person or institution including other researchers for related studies.

Participating in this research is completely voluntary. By completing and returning this survey, you are agreeing to be part of the study. You may skip or refuse to answer any survey question and move to the next one or withdraw for any reason at any time.

If you have any questions about this research, you may contact Ying Xu, 2000 Bonisteel Boulevard, Ann Arbor, MI 48109-2069, USA, 1-734-272-1501, email: xuying@umich.edu

Your contribution will be greatly appreciated! Thank you for your participations

1. **How long have you been living in this neighborhood?**
   Since _____(year) _____(month)

2. **Do you own or rent the house in which you are living?**
   ☐ Own ☐ Rent ☐ Other (Please specify) _____

3. **What type of housing were you living before moving to your current unit? (Please check all that apply)**
   Location:
   ☐ Urban ☐ Suburban ☐ Rural area ☐ Other (Please specify) _____

   Neighborhood:
   ☐ A traditional courtyard neighborhood ☐ Work-unit compound
   ☐ Gated community ☐ Shanty town ☐Other (Please specify)_____

   Housing Type:
   ☐ Single family house ☐ Apartment ☐ Shared housing
   ☐ Other (Please specify) _____

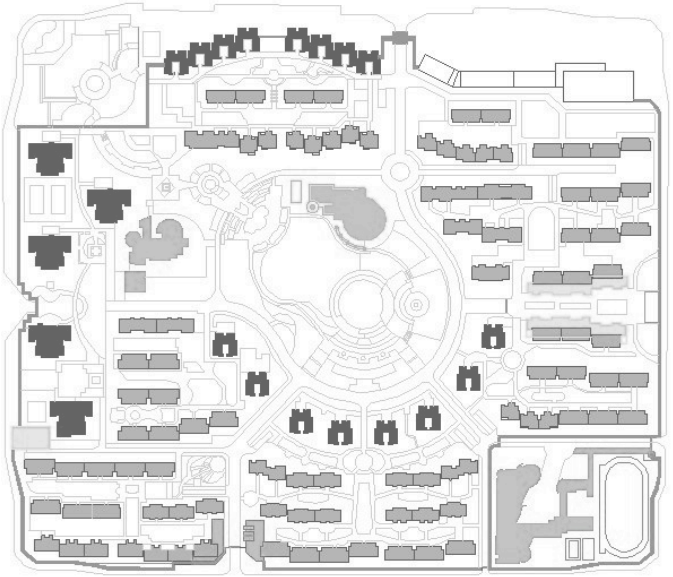
   Or:
   ☐ I grew up in this neighborhood and have never left
   ☐ Other (please specify) _____

4. **How important was each of the following factors in your decision to live in this neighborhood?**

	Very important	Somewhat important	Neutral	Not very important	Not at all important	Not applicable
Overall design/construction quality of housing	☐	☐	☐	☐	☐	☐
Investment/affordability	☐	☐	☐	☐	☐	☐
Reputation of the developer	☐	☐	☐	☐	☐	☐
Good school district	☐	☐	☐	☐	☐	☐
Physical and social environment of the vicinity	☐	☐	☐	☐	☐	☐
Proximity to place of work	☐	☐	☐	☐	☐	☐
Other location advantages (e.g. proximity to shopping centers, medical centers, public transportations, parks, etc.)	☐	☐	☐	☐	☐	☐
Residential Complex with commercial, educational and recreational facilities	☐	☐	☐	☐	☐	☐
Architecture style	☐	☐	☐	☐	☐	☐
Residential density	☐	☐	☐	☐	☐	☐
Parks, public greens and landscapes	☐	☐	☐	☐	☐	☐
Parking facilities	☐	☐	☐	☐	☐	☐
Walkability	☐	☐	☐	☐	☐	☐
Perceived safety/security	☐	☐	☐	☐	☐	☐
Perceived privacy	☐	☐	☐	☐	☐	☐
Feeling of belonging to the community	☐	☐	☐	☐	☐	☐
Feeling of pride	☐	☐	☐	☐	☐	☐
Perceived support of personal growth	☐	☐	☐	☐	☐	☐
Perceived friendship	☐	☐	☐	☐	☐	☐
Neighbors with shared values	☐	☐	☐	☐	☐	☐
Interactions with neighbors	☐	☐	☐	☐	☐	☐
Community lifestyles/cultures/identities	☐	☐	☐	☐	☐	☐
Involvement of community issues	☐	☐	☐	☐	☐	☐
Ecological / social sustainability of the community	☐	☐	☐	☐	☐	☐
Other (_____)	☐	☐	☐	☐	☐	☐
Other (_____)	☐	☐	☐	☐	☐	☐
Other (_____)	☐	☐	☐	☐	☐	☐

5. **Please think about <u>5 people</u> you know best and/or interacted with in the city over the <u>last six months</u>, and check as many as appropriate categories to describe your connections to this person. If he/she and you lives in the same neighborhood, pleas also <u>mark the locations of your home and his/her home</u> in the given neighborhood layout. Please use H indicating your home and his/her number (#1, #2, #3, #4, or #5) indicating his/her home.**

		#1	#2	#3	#4	#5
He/She and I live in the same neighborhood		☐	☐	☐	☐	☐
I have face to face interaction with him/her	At least once everyday	☐	☐	☐	☐	☐
	Few times a week	☐	☐	☐	☐	☐
	Once a week	☐	☐	☐	☐	☐
	At least once a month	☐	☐	☐	☐	☐
	Les than once a month	☐	☐	☐	☐	☐
I have been knowing him/her for	Less than six months	☐	☐	☐	☐	☐
	Six months to three years	☐	☐	☐	☐	☐
	Three years to ten years	☐	☐	☐	☐	☐
	More than ten years	☐	☐	☐	☐	☐
To him/her, I feel emotionally	Very close	☐	☐	☐	☐	☐
	Close	☐	☐	☐	☐	☐
	Somewhat close	☐	☐	☐	☐	☐
	Not at all	☐	☐	☐	☐	☐



6. **Please think about your daily activities happened in this neighborhood. Please indicate the frequency of the following activities you typically have in the neighborhood, if any of them applied on you: "grocery shopping", "dining out", "walking dog", "outdoor sporting (e.g. playing tennis, jogging, walking, morning exercise, ect.)", "meeting friends", "taking your child to play", "community service or gathering", and "indoor recreations (e.g. dancing, exercises in the gym, playing chess / Majiang, etc.)".**

	Less than once a week	A few times a week	Daily	Several times a day	Not applicable
Grocery shopping	☐	☐	☐	☐	☐
Dining out	☐	☐	☐	☐	☐
Outdoor sports	☐	☐	☐	☐	☐
Meeting friends	☐	☐	☐	☐	☐
Taking your child to play	☐	☐	☐	☐	☐
Walking dogs	☐	☐	☐	☐	☐
Community service/gathering	☐	☐	☐	☐	☐
Indoor recreations	☐	☐	☐	☐	☐
Other (_____)	☐	☐	☐	☐	☐
Other (_____)	☐	☐	☐	☐	☐
Other (_____)	☐	☐	☐	☐	☐

7. **In addition to that, how often do you typically walk in your neighborhood for the following purposes?**

	Less than once a week	A few times a week	Daily	Several times a day	Not applicable
For leisure/exercise	☐	☐	☐	☐	☐
To make a purchase	☐	☐	☐	☐	☐
To go to public places (parks, clubhouses, etc.)	☐	☐	☐	☐	☐
To visit someone	☐	☐	☐	☐	☐
To go to work	☐	☐	☐	☐	☐
Other (_____)	☐	☐	☐	☐	☐
Other (_____)	☐	☐	☐	☐	☐

8. Generally speaking, is a feeling of sense of community in the neighborhood important to you?

☐ Yes ☐ No

If you agree the above statement, please also specify, <u>in your general understanding</u>, how closely related are the following factors to your feeling of sense of community?

	Very closely related	Closely related	Somewhat related	Not very related	Not related at all
Overall design/construction quality of housing	☐	☐	☐	☐	☐
Architecture style	☐	☐	☐	☐	☐
Residential density	☐	☐	☐	☐	☐
Parks and public greens	☐	☐	☐	☐	☐
Walkability of the neighborhood	☐	☐	☐	☐	☐
Community facilities/amenities (e.g. club, library, recreational center)	☐	☐	☐	☐	☐
Community management/services	☐	☐	☐	☐	☐
Reputation of the developer	☐	☐	☐	☐	☐
Perceived safety/security	☐	☐	☐	☐	☐
Perceived privacy	☐	☐	☐	☐	☐
Feeling of belonging to the community	☐	☐	☐	☐	☐
Feeling of pride	☐	☐	☐	☐	☐
Perceived support of personal growth	☐	☐	☐	☐	☐
Perceived friendship	☐	☐	☐	☐	☐
Neighbors with shared values	☐	☐	☐	☐	☐
Attention from neighbors	☐	☐	☐	☐	☐
Interactions with neighbors	☐	☐	☐	☐	☐
Involvement of community issues	☐	☐	☐	☐	☐
Community lifestyles/cultures/identities	☐	☐	☐	☐	☐
Connection between the community and its surrounding context	☐	☐	☐	☐	☐
Ecological/social sustainability of the community	☐	☐	☐	☐	☐
Other (_____)	☐	☐	☐	☐	☐
Other (_____)	☐	☐	☐	☐	☐

9. **How do you agree or disagree to the following statements about sense of the community <u>in your neighborhoods</u>?**

A. Living in this neighborhood gives me a sense of community.
☐Strongly agree ☐Somewhat agree ☐Neutral ☐Somewhat disagree ☐Strongly disagree

B. I care about my home, but I DO NOT care if this neighborhood does well.
☐Strongly agree ☐Somewhat agree ☐Neutral ☐Somewhat disagree ☐Strongly disagree

C. I think my neighborhood is a good place for me to live.
☐Strongly agree ☐Somewhat agree ☐Neutral ☐Somewhat disagree ☐Strongly disagree

D. People in this neighborhood DO NOT share the same value.
☐Strongly agree ☐Somewhat agree ☐Neutral ☐Somewhat disagree ☐Strongly disagree

E. My friends in this neighborhood are part of my everyday activities.
☐Strongly agree ☐Somewhat agree ☐Neutral ☐Somewhat disagree ☐Strongly disagree

F. I feel at home in this neighborhood.
☐Strongly agree ☐Somewhat agree ☐Neutral ☐Somewhat disagree ☐Strongly disagree

G. Very few of my neighbors know me.
☐Strongly agree ☐Somewhat agree ☐Neutral ☐Somewhat disagree ☐Strongly disagree

H. I care about what my neighbors think about my actions.
☐Strongly agree ☐Somewhat agree ☐Neutral ☐Somewhat disagree ☐Strongly disagree

I. I have almost NO influence over what this neighborhood is like.
☐Strongly agree ☐Somewhat agree ☐Neutral ☐Somewhat disagree ☐Strongly disagree

J. If there is a problem in this neighborhood, the people here could get together to solve it.
☐Strongly agree ☐Somewhat agree ☐Neutral ☐Somewhat disagree ☐Strongly disagree

K. If I had an emergency, even people I do not know in this neighborhood would be willing to help.
☐Strongly agree ☐Somewhat agree ☐Neutral ☐Somewhat disagree ☐Strongly disagree

L. The people who live in this neighborhood get along well.
☐Strongly agree ☐Somewhat agree ☐Neutral ☐Somewhat disagree ☐Strongly disagree

M. I always attend club or organizational activities within this neighborhood.
☐Strongly agree ☐Somewhat agree ☐Neutral ☐Somewhat disagree ☐Strongly disagree

10. <u>In your neighborhood,</u> do you agree/disagree the following factors may bring you a sense of community?

	Very closely related	Closely related	Somewhat related	Not very related	Not related at all
Overall design/construction quality of housing	☐	☐	☐	☐	☐
Architecture style	☐	☐	☐	☐	☐
Residential density	☐	☐	☐	☐	☐
Parks and public greens	☐	☐	☐	☐	☐
Walkability of the neighborhood	☐	☐	☐	☐	☐
Community facilities/amenities (e.g. club, library, recreational center)	☐	☐	☐	☐	☐
Community management/services	☐	☐	☐	☐	☐
Reputation of the developer	☐	☐	☐	☐	☐
Perceived safety/security	☐	☐	☐	☐	☐
Perceived privacy	☐	☐	☐	☐	☐
Feeling of belonging to the community	☐	☐	☐	☐	☐
Feeling of pride	☐	☐	☐	☐	☐
Perceived support of personal growth	☐	☐	☐	☐	☐
Perceived friendship	☐	☐	☐	☐	☐
Neighbors with shared values	☐	☐	☐	☐	☐
Attention from neighbors	☐	☐	☐	☐	☐
Interactions with neighbors	☐	☐	☐	☐	☐
Involvement of community issues	☐	☐	☐	☐	☐
Community lifestyles/cultures/identities	☐	☐	☐	☐	☐
Connection between the community and its surrounding context	☐	☐	☐	☐	☐
Ecological/social sustainability of the community	☐	☐	☐	☐	☐
Other (_____)	☐	☐	☐	☐	☐
Other (_____)	☐	☐	☐	☐	☐

The following questions are about you and your family's background

1. **Are you**
   ☐ Male ☐ Female

2. **Are you**
   ☐ Married / living with a partner ☐ Single / divorced / widowed

3. **Are you**
   ☐ Under 20 ☐ 20-29 ☐ 30-39 ☐ 40-49
   ☐ 50-59 ☐ 60-69 ☐ 70-79 ☐ Above 80

4. **How many people live in your household? (_____)**
   Number of children under age 5: (_____)
   Number of children age 5-18: (_____)
   Number of adults age 19-59: (_____)
   Number of seniors older than 60: (_____)

5. **What is your work status? (Please mark as many as applied)**
   ☐Working full-time ☐ Working part-time ☐ Homemaker ☐ Self-employed
   ☐Student ☐ Retired ☐ Unemployed ☐ Other (_____)

6. **Which is the highest level of education you had?**
   ☐ Less than high school ☐ High school degree ☐Technical school degree
   ☐ Some college without degree ☐ College degree ☐ Advanced degree

7. **What was your total household income before taxes last year? (This figure should include your income from all sources, and the income of all family members living with you.)**
   ☐ Less than ￥20,000 ☐￥20,000 – 49,999 ☐ 50,000 – 99,999
   ☐￥100,000 – 199,999 ☐￥200,000 – 299,999 ☐ ￥300,000 – 499,999
   ☐￥500,000 – 999,999 ☐ More than￥1,000,000

Thank you for your participation!

If you are interested in winning a ￥200 gift card from a department store, you may leave your contact information at below. Your personal information will only be used for this lottery. It will not be disclosed to any third party, and will be destroyed immediately upon the completion of the lottery.

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