

Meta Synthesis in Exploration Urban Planning Responsibilities Regarding to Vulnerable Groups

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abstract

At present, vulnerable groups are easily found in all walks of life, especially in cities with population concentration. Due to neglect of vulnerable groups, however, imperfect urban planning systems pose problems destabilizing the society. If not well dealt with for a long period, the problems can grow worse.

In the paper meta synthesis in computing is applied to urban planning. Specifically, with urban planning expertise, data & information system and computer in proper combination, a highly inclusive, man-machine integrated smart planning system is created to safeguard vulnerable groups using computer data support instead of limited human brain thinking, smart objective approaches instead of subjective planning.

Based on meta synthesis from qualitative to quantitative (hereafter referred to as meta synthesis), the theorization of the paper is outlined as follows:

- 1. Suggestion of a experiential hypothesis (judgement or conjecture) after refining of scientific theories, experiential knowledge, expert judgment;*
- 2. Statistics collecting and analysis of elements relating to vulnerable groups with the help of computer technology;*
- 3. Proposal of a preliminary draft after model construction for numerous parameters;*
- 4. Experiments on different types of beneficiaries regionally and communication & survey with the beneficiary.*
- 5. Repetition of (3)(4) to get feedbacks and recommendations for the best urban planning.*

Research summary:

- 1.Reduce potential difference among vulnerable groups from top-down combining scientific*

theories and experiential knowledge;

2. Establish a discontent-defusing mechanism from bottom -up according to hierarchical structure of complex giant system

The research takes urban areas with typical vulnerable groups issues to guide urban planning system through *meta synthesis* and enhance inclusion of vulnerable groups, therefore reducing and defusing conflicts. In addition, it focuses on vulnerable groups.

Keywords: meta synthesis, vulnerable groups, smart approaches, social responsibilities

1. General situation of the urban planning structure of vulnerable groups

Under the background of rapid development in contemporary China, the research of city social space transformation is gradually unfolded. With the differentiation of social structure and the influence of globalization coming, it highlights two level position in the labor market, income, housing between city Multi-National Corporation staff and migrant workers. As a result, began to appear in what was known as the so-called high level community, villa district, Zhejiang village, Anhui village, and other resettlement village. The new urban areas appear, differentiation of social space has become today's urban residents daily experience of urban impression. At the same time, the phenomenon of residential differentiation also began to be the concern of the planner, as early as in 2004, the fourth edition of "urban planning" has three articles respectively explore the residential space differentiation in Shanghai, Xi'an and Hefei.

In the recent 30 years, the western cities is undergoing tremendous changes. The economic development based on faradism and the welfare policy under the influence of Keynesian were also happening profound transformation. Time-space compression, under the background of economic globalization, internationalization, the development of information technology, contributed to the current global production of diversification restructuring. The research of Sassen shows the globalization on big cities, especially the so-called "global city" in New York, London, Tokyo. With the gathering of global Multi-National Corporation headquarters and the international elite talents in these cities, urban industrial structure's biggest growth actually comes from the underlying services. At the same time, the structural tightening in the manufacturing and the increasing international migration, provide the necessary labor for the service industry development which just need low technical requirements and low level of wages. City structure adjustment caused the polarization of social structure, then both ends expanded and the middle reduced. Meanwhile, city space has become more "differentiation" and "fragmentation": On the one hand, the elite gathered in the luxury community, and their living space is generally not for outsiders in recent years (especially in California, USA), that formed the so-called gated community. On the other hand, low income people and minorities, living in the poor community. Especially in the black community USA, due to its marginal status even constitute the so-called "underclass". Therefore, the contemporary western city is known as the "two cities", "broken city", "multicolour city", etc. Marcus and Van Cape discussed the city spatial polarization under globalization indicates whether a new city space full arrival, although their basic conclusion is no, this new phenomenon of city development should not be ignored, which drawbacks also require a long

time, downy, comprehensive improvement.

2. Objective problems and psychological demands of vulnerable groups

A fair and just social structure, is a hot topic in today's society. However, in a fair and just society, safeguard the interests of the disadvantaged groups is the basic premise.

Vulnerable groups, refers to the "crowd with low social survival ability caused by its own factors", such as the disabled, the elderly, minors (especially orphans). In China, it also include the Laid-off unemployed which as the main body of the poor in city, as well as poor farmers, the city migrant workers, etc. All of them have been ignored, discouraged, forgotten, ignored and marginalized. The basic rights of these groups have been greatly damaged, than they have to be at a disadvantage in the distribution of social resources, and unable to carry out normal social competition with other groups, finally, had to withdraw from the mainstream society.

The characteristics of vulnerable groups is generally composed of their physiological, experience, family background, social environment and cultural factors. Can have a correct understanding of the essential characteristics of vulnerable groups in contemporary Chinese social, is the key to effectively solve the problem of social protection and support for vulnerable groups.

2.2 Objective problem of vulnerable groups

2.2.1 Life pauperized, living in poverty, lacking of material possessions. Mainly in low-income group, such as that who faces failure in the competitive market, laid-off, disability, or retirement. In their consumption structure, most or all of the income used to buy food, daily life use cheap goods, wear old clothes, no culture and entertainment consumption, and drop out of school or other bad consequences. Living in poverty is the typical characteristics of the vulnerable groups.

2.2.2 Politically marginalized, this is mainly manifested in the pursuit of their own interests and abilities. The powerful group has an important influence in the process of making public policy, in contrast, it is difficult to truly implement down their wishes for the vulnerable groups. Now, although there is some improvement, some people in vulnerable groups have dared to stand up and express their opinions, their own voices, but the question is how many people can listen to, and how much can hear.

2.2.3 Social exclusion, mainly manifested in a lack of participation in some universal social activity for some individuals or groups, which is a systemic process of marginalized and isolated. Their living environment is often neglected. Indeed, they live in the institutional exclusion, moreover to be posted disparaging and insulting label. Such as Shenzhen Airlines forced two disabled persons signed the "life and death" before allowing them on the plane, and so on. Because of this conflict involving living, so the conflict itself will with a more violent character.

2.2.4 Mentality marginalized and extra malization, vulnerable groups is at the bottom of the social stratification system. Due to the lack of basic social resources and conditions, they lost the basic right of discourse in social development. And then it lead to the fault between social groups. If the vulnerable groups lose the hope of climbing, they will produce a feeling of despair, also their psychological pressure will continue to increase. When they feel they did not cause the attention of the society, even be

abandoned by the society, sometimes will have the idea of revenge to the society, and may show extreme behavior.

2.3 Rationality of system and impartiality of welfare

A fair and impartial social welfare is not only an important condition for the comprehensive development of individuals and the happiness of life, is also an important content of social civilization. Meanwhile, impartial social welfare is dependent on the rational social protection system. Excellent system and fair welfare policy plays an important role in guiding the national happiness to improve. As any group of non-governmental organization shall actively cooperate with related government for the study of improving the lives of vulnerable groups, provide the rational and wisdom theoretical basis by each subject's point of view, thus as the fundamental guarantee of rational system.

4.2.2 Intelligent survey of vulnerable group: breaking the bottleneck of the lack of information

The status of intelligent survey, breaking the bottleneck of the lack of information: traditional urban planning survey, simply by manual work of planning staffs to collect and process information.

That involves all aspects of urban and rural status information, data quantity is huge, limited brain power is difficult to remember all the spatial information for the planning staffs, not to mention to space the profound social, economic and other transactional information into physical space. Lack of information hard to collect has become an excuse of the planning is lack of science and open

In recent years, Shenzhen introduced professional companies with GIS technicians to achieve the separation of planning and survey in battle of statutory plan. They have gained some underlines the effectiveness of intelligent survey to the status of vulnerable groups. But this separation of investigation and planning of intelligent survey also have some shortcomings:(1)Lack of the effective interface between the planning government and other departments which have already established an effective information.(2)Fail to meet demand-oriented in planning work, and did not achieve restructuring, consolidation of information and establish an effective urban status database, insufficient information utilization efficiency. (3)Not really refined to individual planning from area planning, and listen to voices.

The basic information of intelligent status survey includes two categories, spatial information and non-spatial information. The vulnerable groups most concerned about non-spatial information. Spatial information's are not only from the urban planning, underground pipeline information and outcomes of urban planning information, but also from the information of land use survey, mineral resource survey, geological hazard survey conducted by land, forestry, transportation and other department base on GIS platform. Non-spatial information includes the operation and construction information of education, health and other department; Land prices, property prices, rentals and other economic information, disaster prevention, environmental protection, heritage conservation; As well as industry development planning, social undertaking development, and other related planning

In the GIS platform, the gathering of spatial information and the specialization of non-spatial information will urge various factors that describe the city to show as data information, urban planning gradually became a decision-making progress which depend on quantitative urban information

4.2.3 Reorganization planning information: avoid data rich but information poor

The spatial and non-spatial information of intelligent survey conducted by each departments are diverse and complex. With the widely used of information technology in all sectors of modern city, urban information data will continually aggregated, resulting in useless data rich, usable

In the intelligent survey, planning demand oriented information restructuring is to systematically organize obtained information, unified scientific classification, enable the distributed information become systematize, change exclusive information to shared information, change mess data to standardization, make single-factor information to comprehensive information, thereby significantly improving utilization rate of basic data.

Planning demand oriented information restructuring is using the method of data fusion which is to complete the decision-making, evaluate tasks and comprehensively process obtained data of stats survey under certain rules. Data fusion can be divided into data level fusion, feature level fusion and decision level fusion.

In the reorganization of planning information, data level fusion refers to integration of spatial coordinates. Such as there are differences in analytical data for vulnerable groups because of diverse foundation from place to place. However in the planning data reorganization we should concentrate around each city's analysis data , use the bottom line data as basic guarantee.

Feature level fusion which belongs to the intermediate level of fusion, it first selects features from raw data, then associates features information with each other, then combine these information according to decision task oriented. In the reorganization of information, the features level fusion is overlay analysis for similar information. For example, in order to get the distributed information of female vulnerable groups, we should not only extract partial information from census authorities, but also from employment sector, the medical sector, the education sector etc, then overlap these information to get detailed distributed information of female vulnerable groups.

Decision level fusion is the highest level of integration, it first use feature selection technology which make judgment, identification and classification for complex information based on judging criteria. We finally get integrated decision-making results according to the credibility of each decision and some certain guidelines. For example, to obtain the population information of all kinds of urban land, we can overlap cadastral maps, topographic maps and satellite image to extricate residential construction information; We can interpret layer number and units number from satellite image, then we can calculate the resident population in each region, thus providing the foundation of the accurate population distribution information.

In the age of urban basic information explosion. Reorganization planning information based on data fusion technology can meet the maximum characteristic information requirement of decision making analysis. It can greatly refined complex data, so as to avoid the situation of data-rich but information poor.

4.2.4 Planning information mining: discovery the knowledge of urban laws

In the modern information technology, we emphasize the use of Knowledge to do things. Knowledge consists of facts and rules. Truth is defined as an event, such as there is a traffic

accident at the east street and second ring road intersection, the height of Eiffel Tower is 300m or Beijing is the capital of China.

Rules can be understood as the methods ,standards, principles, processes, rules and etc, in general, it is expressed as IFTHEN in the information world. In facts the rules are the result such as the fact that Beijing is the capital of China is the result of information connection between China and capital. The rules that bring an umbrella if it rains is the result of information connection between rain and umbrella.

The data mining of smart city planning is spatial data mining, which extract implied knowledge, spatial relationships and other meaningful patterns from urban spatial basic database, then reveals the law of vulnerable groups development in the urban development. The main types of knowledge can be found include:1,Spatial distribution pattern ,analyzing the spatial distribution pattern of target.2,the law of spatial characteristics, describe the geometry and attributes of a set of spatial targets.3,spatial association rules, such as adjacent, connected, contain and etc.4,space classification rules which similar features are classified into same cluster.5,spatial distinction rules that differentiate between different types of space target.6,spatial evaluation rule which shows the variation laws of spatial target with time.7,spatial variation knowledge, that is the description of the difference between each spatial objects and extreme.8,object-oriented knowledge, that is the subclass structure and common features of complex object.

For example in the research of a city's neighborhood service facilities, we can extract the information of road function , width, section form and the disabled population, barrier-free facilities, barrier blind spot, barrier-free information service in each parcel. We can use qualitative and quantitative met synthesis to mine the information of the spatial distribution rules and spatial association rules, to find the distribution laws of handicapped population density, obstacle-free routes, the area with limited service, laying the foundation of planning adjustment.

4.2.5 Planning information update: based on work-flow principle

With the development of city, the related information of urban planning keep changing. If it lacks updating mechanism the intelligent planning will be a pool of stagnant water, we cannot check the results of planning, and correct unreasonable and non real time results, and lose the sustainable development livelihood.

Intelligent urban planning not only provide the manager a blueprint for future planning, more importantly, the achievement of planning work is the control and guidance for dynamic process, and provide the manager a dynamic process control and implementation mechanism.

Planning information will be updated not only based on the remote sensing monitoring and other modern technology, and more importantly we can construct perfect stats information database, planning deliverables information database and planning permission information database, and complete the association rules construction between each information database, providing a update platform for information. In the basis of this platform, we can use the work flow principle to establish information flow to track and monitor the process of system platform. In the daily business process of planning management and cooperative work, we can realize the dynamic update of planning information, through the information sharing between approval department and other competent departments. In this way, we

can keep related planning information up-to-date and conduct data mining in the work flow to modify unreasonable planning results and the component which lack of up-to-date.

Currently, many Chinese cities have established a picture planning management i. update the approval information more maturely, but due to inadequate information sharing between relevant departments and lack of data mining in the work-flow, so we still not achieve dynamic update of comprehensive planning information which truly cover the vulnerable groups

5conclusion

We can use quantitative analysis to support the policy influence, which is the mainstream of urban planning studies in many developed countries. But for the city, the open complex giant system, it is hard to find the results just rely on computer logic, it must be complemented by human imagination and creative thinking, which means the use of human-machine interaction, using qualitative and quantitative methods to search the problem solution for complex system.

Integrated intelligent urban planning is not the universal tool to solve all the problems about urban fairness , but it will adopt an open attitude . With the development of human cognition to the world, we can integrate more sophisticated theories and methods to solve various issues ,make the development closer to origin.

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