



基于**GPS**调查的主题公园设计方法研究

**Study on the theme park design method
based-on GPS investigation**

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1. 1 研究背景 Research background

In China, the traditional garden design techniques are abstract, intention follows: "a pool of three mountains", "the brass bells temperament", "zodiac"; and modern planning and design approach are functional from the space, atmosphere and other environmental factor. The external factors which affect theme park planning and design: cultural connotation, commercial value, location; and internal factors: theme ideas, project selection, facility layout, circuit design, environmental modeling, management and marketing planning.



1. 2 研究目的 Research objects

- Through the scientific system of data collection and data analysis, to find different actions of different people in the situation of limited space. The conclusion can guide the design and construction of the theme park, and better reflect the central idea of people-oriented.

1. 3 研究方法 Research methods

- Using hand-held GPS as the experimental apparatus in the study, the device can easily continuously measure the latitude and longitude of movement, speed and direction data.



2 既往GPS的研究应用

Past studies about GPS investigation

- GPS application is still a blank in China, and it is also a new international subject.
- Yamamoto, calculated the crowded conditions on the road through GPS measurement of speed and photo control.
- Nomura, used the GPS to investigate the city's distribution lines of visitors tour in Kamakura City.

3. 1 调查研究方法 Research methods

● Initial Setting of GPS Logger

Handheld GPS logger of GARMIN Company (eTrex Venture) was adopted .
It records every three seconds.

● Questionnaire of Individual Informations

Age、 sex、 career、 have a visit or not

● Explanation for the Investigation

- Start to walk along the west direction.
- Permit to have a rest, to play or stop to overlook scenery on their way, but not include entering the buildings.
- Switch off the GPS logger when arriving at the end of route in the second block (the intersection with the main street of city).

● Start

- Tester turns on the power of the GPS logger at the starting point.
- A waypoint is recorded while the logger received signals from four satellites.
- Tester passes the GPS logger to testee(GPS log is effective thereafter).

● Over

Testee turns off the power of GPS logger at the end of the route.



3. 2 区间平均速度

Average Speeds and Place Features

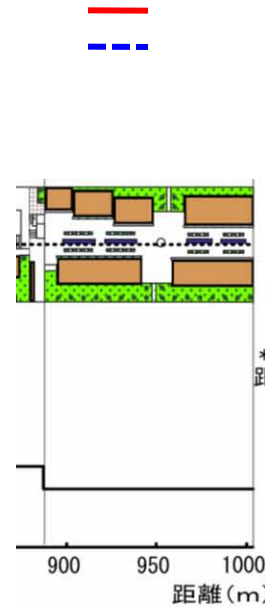
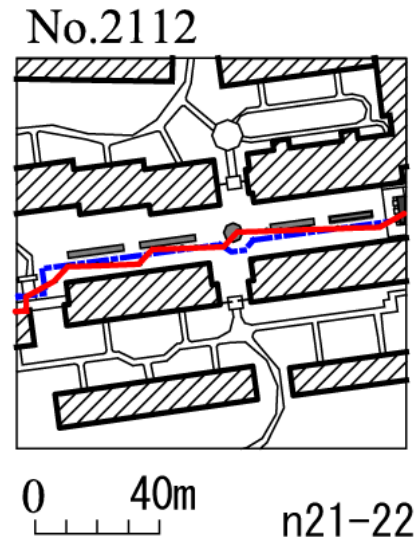
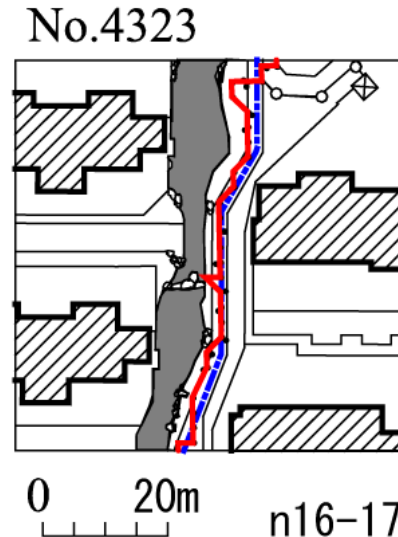
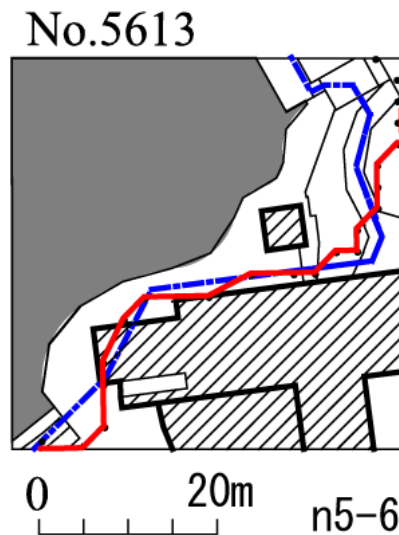
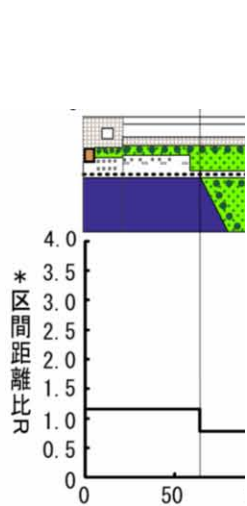


○ Sectional Division of Waterside

3. 3 移动距离和行为模式 (一)

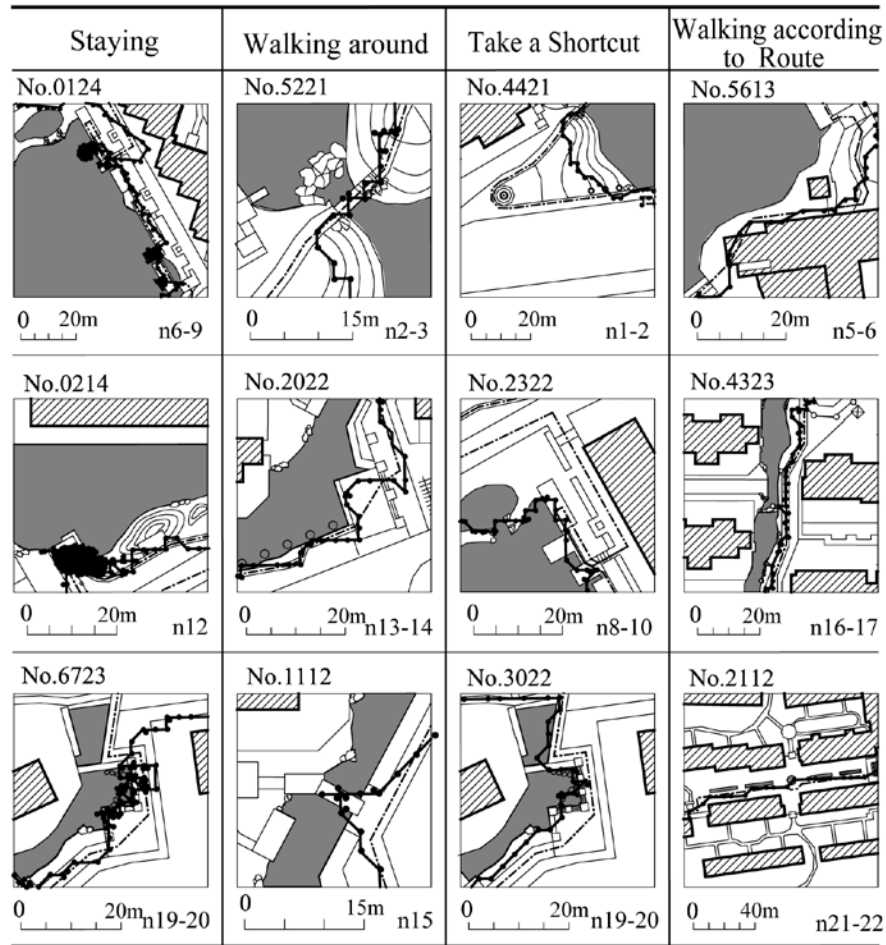
Behavioral Patterns Related to Walking Distance

- Therefore, comparing walking distance to pathway distance, we could divide behavioral patterns into four modes:
- 1) Staying
- 2) Walking around
- 3) Taking a Shortcut
- 4) Walking according to Route



3. 3 移动距离和行为模式 (二)

Behavioral Patterns Related to Walking Distance



Examples of action pattern classification

No.6723
 Testee No.

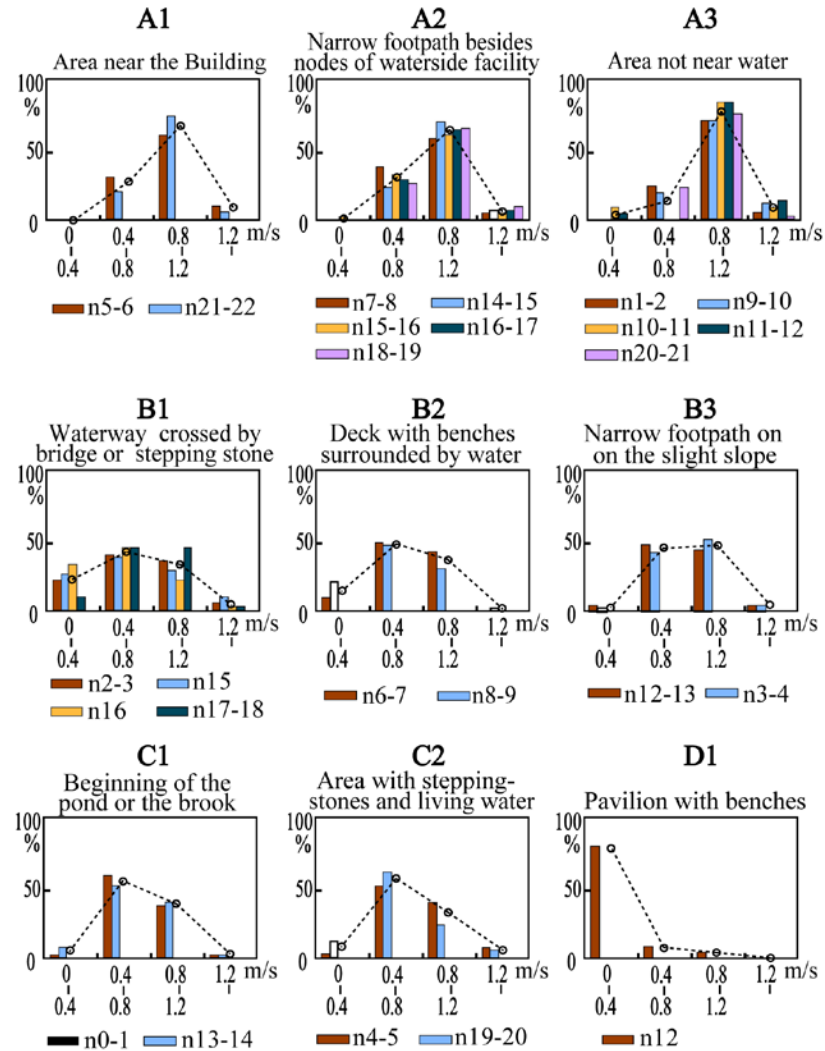
- 1. under 20s
- 2. 20s
- 3. 30s,40s
- 4. over 50s

- 1. Male
- 2. Female

Water
 Building
 Waking track
 Route
 Track point

3. 4 空间模式的类型化 (二)

Space Types Related to Walking Speeds



--o-- Average

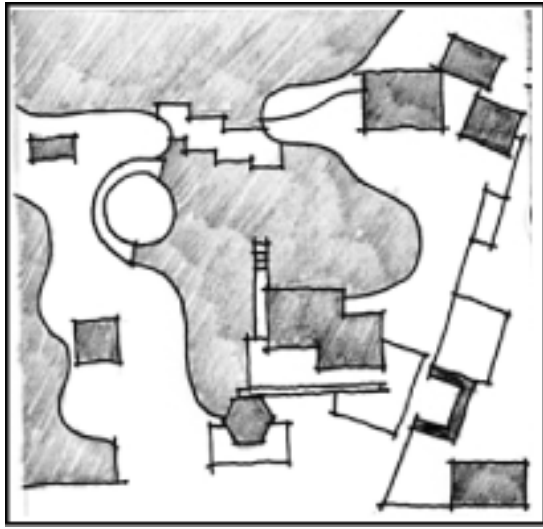

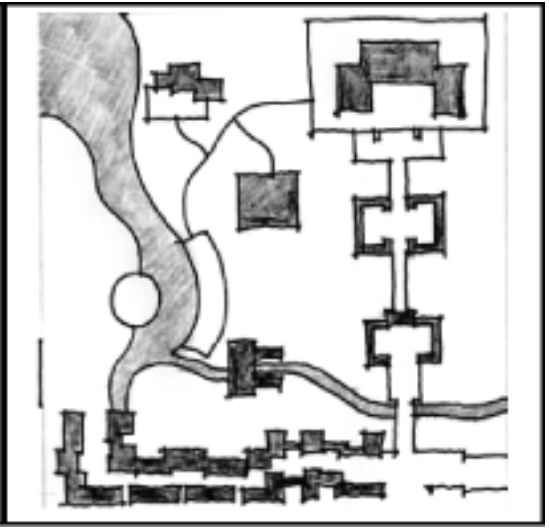
4. 1 GPS在实际案例中的应用

Theme park design method based-on GPS investigation

- It needs to build a historical and cultural Hefei class theme park, the park land area of about 11 hectares, which are required the construction of a 16,000 square meters of historical and cultural museums, as well as 20,000 square meters of other types of buildings issued. Proprietor in particular with more than 3,000 of the ancient manuscripts of famous monument need to be installed in the park, the monument became a major theme park in the main body of content.

4. 2 结合GPS调查结果的多方案探讨

Multi-program discussion with results of GPS investigation

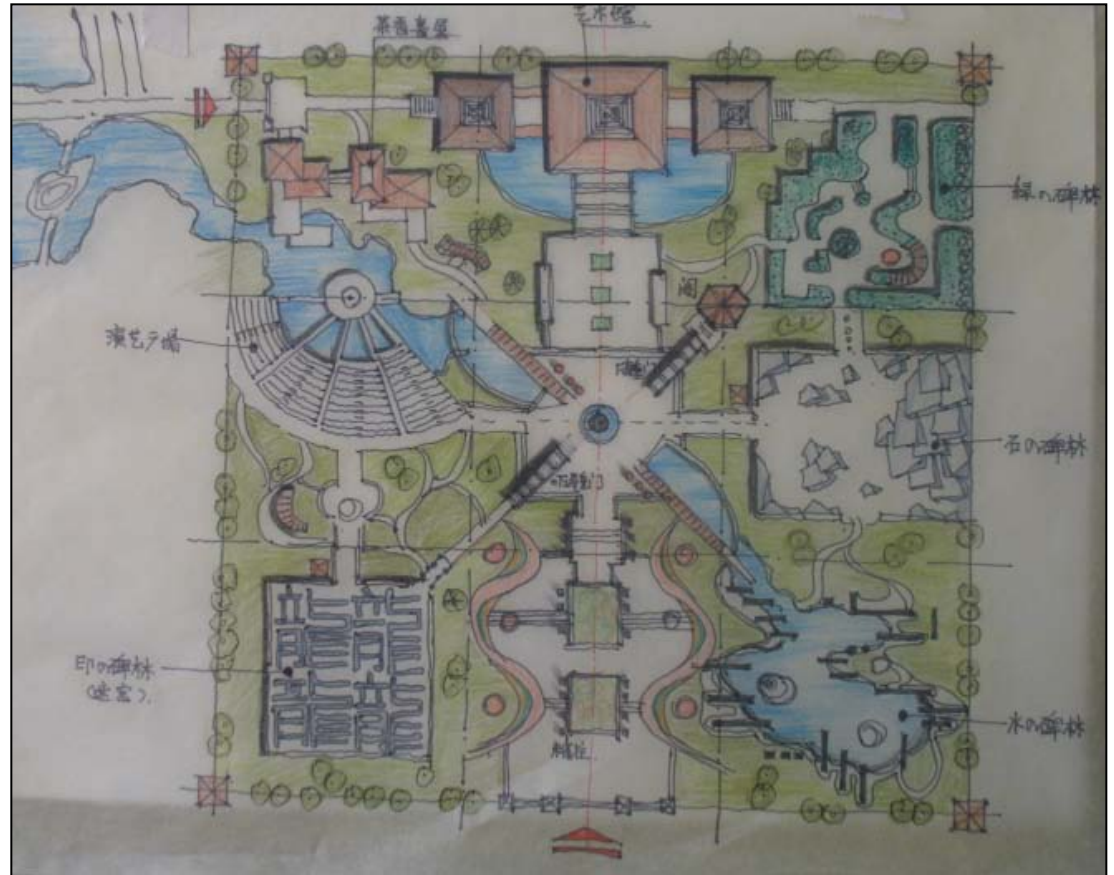
		
<p>Characteristic: park layout patchwork, taking into account the external water reference, but too much water and line the trails do not meet people's standards.</p>	<p>Characteristic: the clarity of layout, building distribution is reasonable. But the central area than air, water features combined with a lack of overall planning.</p>	<p>Characteristic: Park Planning and Design Division clear static clear-cut functions. But the straight line, the lack of nodes, do not meet people's mode of operation.</p>

- Multi-program discussion

4. 3 多方案探讨

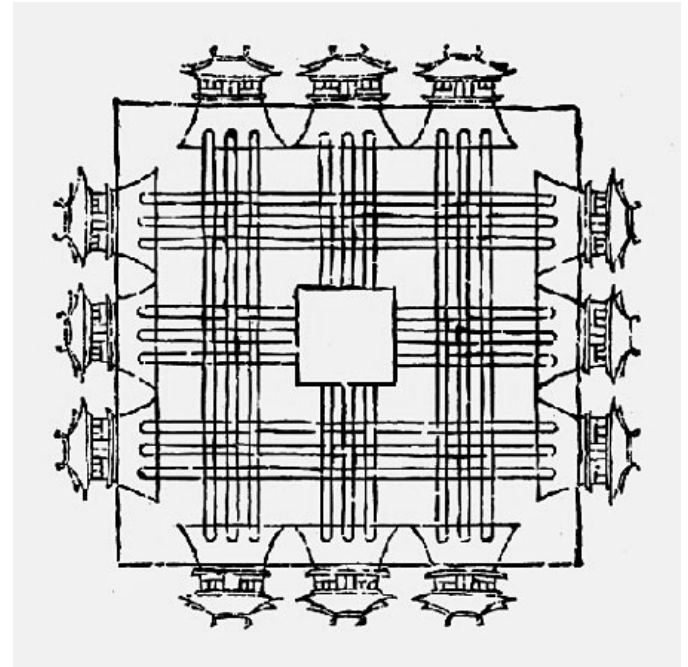
Multi-program discussion

- Under the support of the GPS investigation , and through a multi-program discussion, we got the initial idea of the program.



4. 4 方案设计构思 Design concept

- “Zhou . Kao Gongji” in Chinese Spring and Autumn Period
- “Jiu Gongge” a sector format of Chinese calligraphy imitation
- Conclusion of GPS investigation.



4. 5 方案设计总平面图 Cases of Master Plan



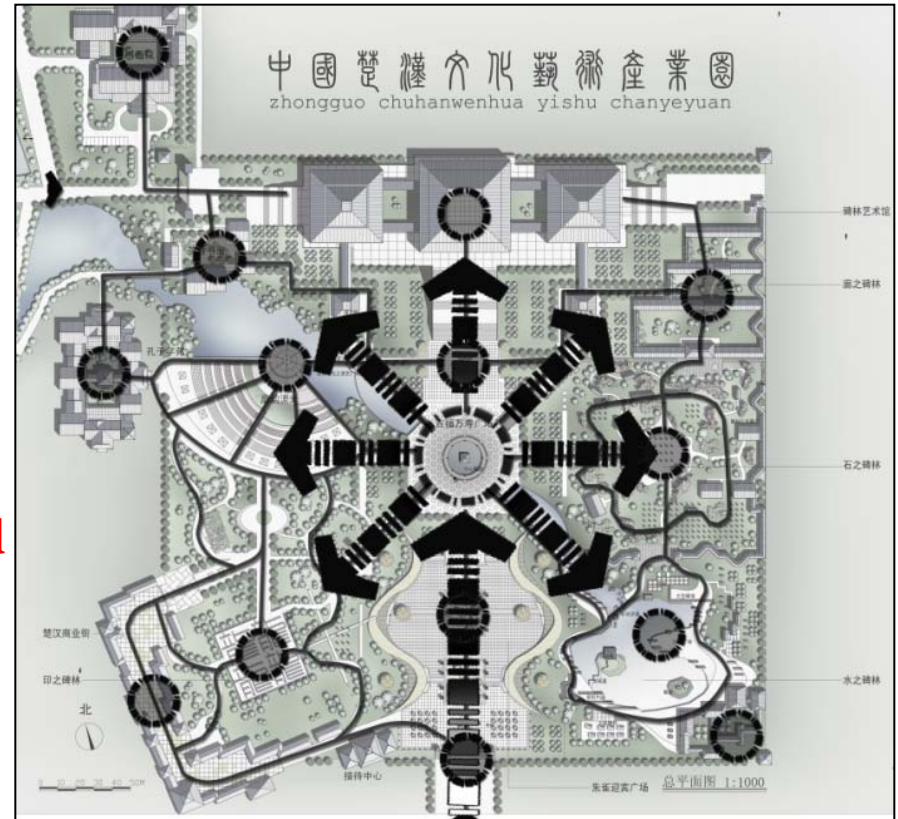
○ Cases of Master Plan

4. 6 园区功能设置和研究成果的应用 (二)

Park feature setup and application of research findings



3) Due North - Beilin Museum: The museum is the largest building in the park, and it is also an important subject matter in the park. According to the survey findings of the study, "**near the construction office's operations will be significantly accelerated pace,**" so be deployed in the most northern, can effectively avoid the interference to garden visitors.



Cases of Flow Line analysis

4. 7 园区功能设置和研究成果的应用

Park feature setup and application of research findings



- **South East –Shuizhi Beilin:** The Shuizhi Beilin's design is somehow derived from the research in the conclusion: **"People are more likely to have water in the landscape of the trail on the action, but the landscape layout of facilities along the water features are more attractive to stay."** So arranged along the surface of the water landscape installations and stone, both to meet the human action model, also increased the degree of ornamental stone.

4. 8 方案设计鸟瞰图 Cases of Bird's eye



○ Cases of Bird's eye

5. Future Research

- Through the case (Industrial Park of Chu and Han culture and the arts design. Hefei), the researchers will study the results of GPS investigations to guide planning and design of theme parks. In the case of practical application, it can be found in the analysis of GPS research on spatial planning as reference.



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