

# Analysis of Spatial Composition in the Therapeutic Landscape

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**Abstract:** After the epidemic of Covid-19, people's demand for healthcare is increasing, and the demand for landscape municipal facilities as healthy cities and green gardens have also sprung up. Therapeutic landscape space is needed for people who is looking for a place to be physically and mentally comfortable, not only limited for patients, but also for city workers who are under pressure. In this paper, we analyzed on how to create or design a healing health landscape, starting from the design space of therapeutic landscape to its design methods.

**Keywords:** Landscape; Therapeutic space; User needs; Patient needs

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## 1. Introduction

In the present situation, treatment is not only limited to the medicine based clinical treatment, but also more relaxing treatment space which can provide positive vibration and comfortable for the patients. Gesler et al., believes that therapeutic space which, is used for healing purposes, should build based on the social conditions, and human perceptions <sup>[1]</sup> which, can be accepted and recognized by the general public, therefore can provide better treatment outcome.

The therapeutic landscapes are applicable to a wide range of people, example is therapeutic landscape for nursing homes for elderly. To make the place is more suitable and relaxing for them, more plants or trees can be planted by including the opinion of the elderly on the choices of the tree that they like <sup>[2]</sup>.

Unlike other man-made landscapes, by including plants, sounds and smells in the therapeutic landscapes may directly influence the feelings and emotion of the space users. For patients with physical, and mental illnesses such as, Alzheimer's disease and dementia, a therapeutic landscape can provide them more relaxing sensation which can help to improve the treatment management and outcome. Additionally, TG (Therapeutic gardens) should be extended, provided, and suggested to more patient populations, or groups as a route for quick recovery <sup>[3]</sup>. For children and military personnel with PTSD, green environment and outdoor treatment, respectively will be more beneficial and useful to overcome the anxiety, or the work trauma <sup>[4,5]</sup>. In the community, the therapeutic spaces should also be valued <sup>[7]</sup>. The healing-themed landscape spaces or therapeutic activities should not only be limited to the medical facilities. The landscape can also be designed in different location, especially in rural and suburban areas, by considering one's social characteristics and natures <sup>[6]</sup>, subsequently the therapeutic landscape should be accepted and valued by the community <sup>[7]</sup>.

In the present situation, most of the people are having a medical card which, can help them to have a better or more relaxing treatment space in the future, and also to have a good time in the therapeutic

landscape after retirement when needed. Therefore, in the near future, therapeutic landscape may be an important aspect to look forward. In this paper, questionnaires combined with the spatial division in landscape design were used to gain information's on a person's expectation and willingness on the therapeutic landscape.

## **2. Materials and Methods**

The basic knowledge of spatial division in landscape design was collected, and a questionnaire was prepared using a professional division system. Further, the outcome of the questionnaire on the people's opinion on the concept and expectation of the therapeutic space were used to develop in-depth analysis and discussion.

### **2.1. Basis of space division**

The basic design of the therapeutic landscape, which are the matrix, corridor, and patch as are still followed in the research [8].

#### **2.1.1. Matrix in the therapeutic landscape**

The matrix mentioned in this paper is referring to the different geographical locations of the therapeutic landscape, such as fields, cities, and forest especially for TG design.

#### **2.1.2. Patches in the therapeutic landscape**

The Patche also interpreted as functional partitioning is an important aspect to be considered during the designing of the therapeutic landscape. The functional partitioning is aimed to be patient-orientated and depends on their needs, or lifestyle. For example, different functional partitioning for those who need more exercise with one that need less movement.

#### **2.1.3. Corridors in the therapeutic landscape**

Include a discussion on understanding and development process of the Master Teacher Studio. The Studio of Master Teachers and Principals was first documented on Education Bureau of Luwan District on September 8, 2000.

## **2.2. Questionnaire**

According to the above spatial analysis, it is not enough to draw the primary and secondary relationship of functional spaces in the therapeutic landscape directly, and also on what kind of landscape space is most needed in TG. Therefore, to obtain more comprehensive results, or information the questionnaire was distributed to a different age and professions groups.

### **2.2.1. Set up the questionnaire**

Few important questions that were included in the questionnaire are as follows:

1. What is the public acceptance of this new treatment option?
2. What is the people's psychological attitudes or reaction to illness, especially information on the ability to socializing?
3. What are the people's demands on space allocation, to ease to design the therapeutic landscape which can be more patients orientated?

**Table 1.** Survey on users' perception of space in the therapeutic landscape

1	Have you ever heard about or been to the therapeutic gardens?	YES	NO	NEVER HEARD	
2	Do you live in a place that provides space for patients to move around?	YES	NO		
3	Do you think appropriate outdoor activities help patients recover?	YES	NO	MAYBE	
4	Should the patient's psychological condition be a concern?	YES	NO	MAYBE	
5	If you are a patient, are you depressed because you are not able to go out?	YES	NO		
6	If you were a caregiver, would you respond positively to the patient's need to go out?	YES	NO		
7	If you are a patient/caregiver, would you like to be active in the therapeutic gardens?	WILLING TO	OFTEN	SOMETIMES	UNWILLING TO
8	If you are a user in a therapeutic garden, which of the following experiences do you value more? Please rank.	ACTIVITY	SOCIAL	PRIVATE	
9	Do you think the auditory, visual and olfactory experience in a wellness garden is important?	YES	NO		
10	Do you think the correct planting of flowers and color combinations are beneficial to recovery?	YES	NO	OTHER: _____	

**Table 1** summarized the general questions which were included in the questionnaire. The questionnaire is categorized into three parts as follows.

1. Questions 1-2 are designed to gather information on the concept of TG
2. Questions 3-6 are used to gather information on people psychological expectations of TG, and their acceptance on this concept;
3. Questions 7-10 are used to gather information on people spatial demand for TG

### 2.2.2. Questionnaire results

Below are the summary results obtained from 212 questionnaires.

For the first part of the questionnaire (Q1-Q2), more than half (51.89%) of the respondents indicate that they have never heard of the TG concept, and 56.6% of the respondents stay in a place which do not have a dedicated, or specific space for patients.

For the second part of the questionnaire (Q3-Q6), more than 93% (93.87%) of the patients think that outdoor activities are beneficial to their health, and more than 97% (97.64%) of the respondents are concerned about the psychological condition of the patients, and 81.13% of the respondents agree that the patients should go out and do activities.

In the third part of the questionnaire (Q7-Q10), 65.09% of the respondents would be happy to stay in the TG, but about 2% (2.36%) were very reluctant. In the choices of privacy, sports and social demands, sports were highly demanded with a weight of 1.54, social experience is 1.46, and private experience is 1.25. More than 94% (94.81%) of the respondents think that sensory experience is very important in the

design of the space, and 97.17% of the respondents think that pleasant plantation and colors in the space are good for health.

### **3. Results and Discussion**

In summary, people's expectations for the design of therapeutic landscape on space allocation are ranked as follows: 1. Public activity space; 2. Private space; 3. Sensory space. In order to create appropriate therapeutic landscape spaces, it is important to understand the biophysical environment, and the way people use or manage these areas<sup>[8]</sup>. The next section will summarize and analyze these three compositional spaces.

#### **3.1. Public activity spaces**

Based on the questionnaire, importance was given on the ability or opportunity to exercise and socializing in the TG. Therefore, more dynamic landscape<sup>[9]</sup>, including space for running and jumping should be included in the designing of TG.

##### **3.1.1. Interactivity**

TG can be either patients oriented or non-patients oriented, therefore before designing a space, the patients' opinion and needs to be considered. Example, for inpatient with children they need more space for interaction, play, and a space not only for the patient but also for the children to feel relax. However, the condition is differed for elderly who tend to decline in the physiology, they need less space for physical interaction, mostly engaged with slower-paced activities such as walking, meditation, and general exercise. Report also suggests that, elderly may also fell relax by watching the children playing<sup>[11]</sup>.

##### **3.1.1. Safety flexibility**

Public space should have different functional spaces to cope with multiple interactive needs, therefore it is important to have a flexible activity line in the space, with appropriate safety measurements.

In this space, it is necessary to give priority to the processing of space flow or corridors. Safety measurements should be given when designing space facilities, such as using soft and warm materials, and also avoiding the sharp edges of the equipment to avoid injury during running or other physical activities.

#### **3.2. Private space**

The space that is not disturbed by the outside world is known as anonymous space<sup>[11]</sup>, and may give a sense of security and individuality to the patient. Many respondents also mentioned, that it is important to have a private space, where the patient can go when they felt like retreating or want to be alone.

##### **3.2.1. Spatial scale and psychology**

Studies also have shown that people feel safe when they see a crowd, but should have sufficient distance to have their personal space<sup>[12]</sup>. In TG, the private space cannot be completely closed because closed landscape space can bring more stress and anxiety to the patients, for example, patient with Claustrophobias disease. However, an overexposed private space would not meet the privacy needs. Generally, the design of intimate distance is between 0cm -45cm, personal distance is between 45cn -120cm, social distance is between 120cm - 360cm, and the public distance is above 360cm<sup>[13]</sup>.

### 3.3. Sensory space

For the last question in the questionnaire, some respondents also give their thoughts on sensory space (Figure 1). However, all the respondents agree that the sensory experience varies from person to person, and needs to be taken into account the patient opinion in the design. The right combination of plantation and colors make the patient feel more pleasant [14].

10. Do you think the correct planting of flowers and color combinations are beneficial to recovery?		
number	Time	Answer text
59	20:39 on May 12	Each person aesthetic different feeling arrives at correct collocation, it is very hard to say.
89	21:13 on May 12	There are specific collocation effects.

Figure 1. Other ideas: Respondents #59 and #89 suggest other ideas.

#### 3.3.1. Vision

At the visual level, the color palette directly affects people psychological changes to TG. The colors are not only limited to the facilities, but also the way the plants, and other combinations used.

Therapists like to use warm colors and funny graphics in their treatment rooms to treat inpatient children [5], which can also be implemented in the TG, such as, painting walls with cartoon patterns, paint the wall with bright colors, and also by making some medical equipment into cute cartoon shapes. It is known that, plants with different textures and forms are important for tactile stimulation, while plants that produce light, color, and motion stimulate vision in the elderly [14].

#### 3.3.2. Smell

Smell is often overlooked by designers, however, people are majorly influence by smells, therefore, it is important to include this point when designing the landscape. Plants can be chosen for this purpose, however priority should be given on the choosing the correct or suitable plants, with less or minimum smell, and also small size plants or plants should be considered.

#### 3.3.3. Tactile sense

Tactile experience means the feeling brought to the user through the material surface of the facility in the space. In TG, there are users with mobility problems, so sharp and smooth materials should be avoided, and replaced by materials with high friction and easy to grip, such as wood or fabric. In addition, safety measures should be in place, such as, using handrails with wooden or rubber which can avoid slipping or cover the sharp corner of the table.

### 4. Conclusion

The aim of the paper is to analyze the composition relationships within the therapeutic landscape space by combining the needs of the public or community. From the survey, we know that the availability of the public activity space place plays an important aspect in the designing of the TG. Information gathered from this research are very useful in designing therapeutic landscape, and will be helpful for further research.

In the present, most of the landscape designs are lack of humanistic care, therefore, the health environmental ministry in China is gradually moving towards to a scientific and rigorous path supported

by data and theory in the designing landscape. Therefore, the therapeutic landscape ideas will not be going to be a ‘flash in the pan’ during this epidemic phase, it will be a major advantage in humanistic landscape and social well-being.

### **Disclosure statement**

The author declares no conflict of interest.

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