

# Pressure-less Playground Design for Nanyang normal University

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## Abstract

Nowadays, most of the campus environments in China are still only in the preliminary stage of greening planning analysis and construction process, and less attention is paid to the healing role of the campus landscape, while the psychological problems of college students are becoming more and more serious, so how to design and build a campus environment that is conducive to the physical and mental health of college students' groups is a challenge faced by the discipline of landscape architecture at present. This paper takes the pressure relief theory as the theoretical basis, analyzes and considers the landscape space, physical environment, and crowd demand in three dimensions, and summarizes and analyzes the results of the research, in order to design a healing landscape suitable for college students in Nanyang Normal College, to provide them with a green space for relieving the fatigue and pressure of the body and mind after studying and working and to provide theoretical and practical reference for the design of the healing landscape in colleges and universities. It also provides theoretical and practical reference for the design of healing landscape in colleges and universities.

**Keywords:** healing landscapes; campus landscapes; stress relief; college student mental health

## 1.Introduction

College students are in a critical period of their lives, and need to face various pressures, which not only come from their own psychological state, but also from the social environment and campus environment, especially during the global outbreak of the new coronavirus pneumonia in 2020, the physical and mental health of college students is under greater threat. After the outbreak, a series of psychological problems caused by the more severe employment situation and heavier pressure of study and life will become a physical and mental health hazard that will be difficult to eradicate in the future.

Science and technology to develop the country, talent-oriented, China in vigorously promoting the development of higher education in the process, should not only focus on the cultivation of students' professional knowledge and skills, but also need to pay attention to the physical and

mental health of college students and care, in recent years, there are a lot of scholars to study the environment for the physical and mental health of the impact of people, the relevant cases have been proved that the environment on the physical and mental health of the human body and mental health has a certain role in promoting when people are in the natural landscape. When people are in the natural landscape elements, their body and mind will be soothed and calmed, and engaging in related landscape gardening activities can exercise the body and reduce people's stress. However, more healing concepts are found in hospitals, nursing homes and other health care places, and healing landscapes are not common on college campuses, so it is difficult to meet the psychological healing needs of college students.

China's university campus landscape construction has been relatively backward, with a single form of campus landscape, a lack of functional places, and a lack of therapeutic and practical design, which can not meet the psychological healing needs of the users of the university campus environment. Nowadays, applying the concept of psychological healing to the university campus environment to meet the physical and mental health needs of college students and related users is one of the trends in the development of university campus landscape.

## **2.Theoretical overview and practical implications**

### **2.1 Overview of theories related to stress relief**

(1) Stress Relief Theory. Professor Roger Ulrich proposed the stress relief theory in 1983. The stress relief theory suggests that individual stress arises from its three dimensions: psychological, physiological and behavioral, and that it is a human response to the possible challenging or fearful nature of the environment. However, the environment has a certain degree of positive effect on human emotional recovery and physiological health. A beautiful natural environment has a significant relief effect on the mental stress of the person experiencing it, and can have a positive effect on people's emotions, favoring the recovery of attention, thus relieving the spirit of the stressed people who are in a state of tension. In contrast, artificially constructed landscapes impede the release of stress and have no positive effect on stress relief. Subsequently, Mr. and Mrs. Kaplan carried out further in-depth research on the "stress relief theory", and concluded that the environment itself is not restorative, but rather the restorative properties are reflected in the interaction between people and the environment.

(2) Attention Restoration Theory. In a given environment, people receive messages by directed attention and spontaneous attention. Directed attention means that people must pay a certain amount of energy in the process of dealing with things, automatically and consciously focusing on the mental way of activity, and spontaneous attention refers to the passive unconscious to deal with the strong temptation or their own conscious tendency to a certain cognitive way of activity. Attention recovery theory is that when people are in the natural environment, people observe the landscape or are attracted to the landscape does not have to produce directed attention, on the contrary, the natural environment can help to supplement the restoration of people were consumed by the directional attention, reduce people's stress, relieve

fatigue. Reducing stress requires restoring attention, and requires people to actively contact and interact with nature.

### 2.2 Implications of Stress Relief Theory Applied to College Landscapes

Research shows that 71.3% of Chinese college students suffer from great or greater health and psychological stress in their study and daily life respectively; 70% of Chinese college students lack correct understanding of stress relief, and the proportion of psychologically unhealthy college students in the society has been increasing year by year. College campus is the environment that college students are most likely to be influenced by and come into contact with during their school years, and the landscape construction of college campuses is crucial to the physical and mental health of college students. At present, China's healing landscape is more embodied in the medical rehabilitation landscape environment, the healing landscape for the public is mainly based on popularization of science and education, and the campus landscape design and research for improving the subhealth status of teachers and students is less. Campus landscape construction is also centered on cultural connotation, local special culture, campus spirit, etc. Therefore, the application of stress relief theory and attention restoration theory in university campus landscape design can have a positive impact on college students to improve their health level.

### 3. Analysis of the current status of the project

#### 3.1 Site overview

The study area is the western part of Nanyang Normal College, which is located in the Wolong District of Nanyang City, Henan Province, China. Nanyang is situated in the transition zone from the subtropical to the temperate zones, and belongs to the monsoon continental humid and semi-moist climate, with four distinct seasons. This campus was built in the 1950s and belongs to the traditional 1950s and 1960s form of campus landscape planning and architectural layout design in China. As of March 2024, the school occupies an area of 2,460 acres, with a building area of 833,000 square meters (excluding construction in progress). (Figure 1)

*Figure 1: Nanyang Normal College Campus Plan*



*Source: Little Rad Book*

## **3.2 Spatial analysis of the landscape**

### **3.2.1 Analysis of the current state of the landscape**

Through the on-site research method, the following aspects of the problem are summarized: in the functional partition, the lack of spatial connectivity, the current situation of the main teaching building, sports fields, green areas and other functional areas of the rule row layout, functional layout is single, and each function is independently set up, the lack of connectivity; in the traffic flow, the campus traffic line is basically dominated by the trunk road, the line of pedestrian traffic dependent on the two sides, reducing the efficiency and accessibility of pedestrian traffic, which may occur at any time, also reducing the comfort and sense of security. Efficiency and accessibility of pedestrian traffic is reduced, and the possibility of pedestrian-vehicle mixing at any time also reduces the comfort and sense of security. The current parking situation is dominated by on-street parking along the main road of the campus, and there is a lack of centralized parking lots.

### **3.2.2 Characterization of current space use**

Student activity space is mainly distributed in the central, eastern and western teaching and living areas; the flow of people appears obvious tidal phenomenon, the distribution of vitality space in each period of time is in line with the school's development of the event arrangement; the teaching area crowds are mainly distributed in the main teaching building, the library and the practical training building nearby.

## **3.3 Analysis of student needs**

### **3.3.1 Survey on stressful situations faced by students**

According to the questionnaire released, 88% of the respondents said that they felt different degrees of pressure in school work and daily life, and the pressure mainly came from academics, interpersonal relationships, employment and other aspects, and they thought that the current campus environment could not effectively meet their needs for interpersonal communication, sports, solitude, labor, movie watching and other stress reduction, because the current campus landscape generally lacks the corresponding stress reduction facilities and spaces. They believe that the current campus environment cannot effectively meet their needs for stress reduction such as interpersonal communication, exercise, solitude, labor, movie watching, etc., because the current campus landscape generally lacks corresponding stress reduction facilities and spaces.

### **3.3.2 Decompression space preference research**

People's preferred environments have a driving effect on the expression of their emotions, making it easier for people to rely on such environments and create a sense of identity, which

leads to a restorative experience and helps them reduce stress [1]. By organizing students to post their preferred stress-reducing methods and spatial preferences on the campus map, the results of the research are analyzed and summarized, with a view to transforming stress-reducing preferences into corresponding spatial patterns.

### **4. Landscape design for college campuses with stress-relieving features**

#### **4.1 Design concepts**

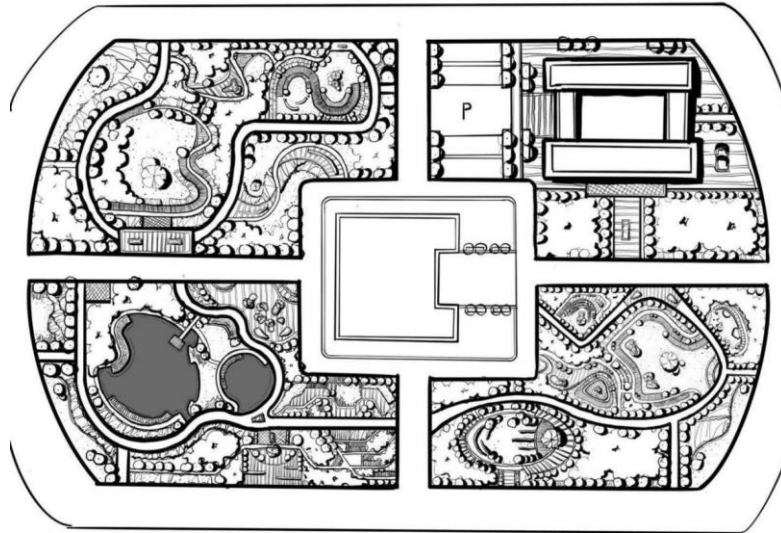
Su Yanjie in the book "Environmental Psychology" in the study of adolescents to release pressure conditions, found that adolescents tend to recover their emotions in the environment with a high level of attachment [2]. This concept fits the core viewpoint of stress relief theory, so the design and layout of the campus landscape of colleges and universities take stress relief theory as the guiding idea, emphasize and play the role of the environment to enhance health, and give teachers, students, faculty and staff a landscape environment to relieve tension and release pressure [3].

#### **4.2 Design layout and zoning**

In the process of overall landscape planning and layout, we should be committed to fully meet the stress reduction needs of students, and realize this goal by carefully designing and arranging diversified stress reduction areas. The spatial layout of each level mainly relies on rich vegetation for enclosure, which aims to achieve a smooth transition of the natural environment, thus minimizing the oppression felt by users. For the spatial composition of those non-crowded areas, the main choice is to use plant materials, minimize hard paving and strong artificial boundaries, in order to create a more natural and harmonious environment.

In the overall design scheme, the overall coordination is planned and strengthened to ensure a convenient pathway system to connect the various spaces in the campus. According to the theory of stress relief, this spatial layout can effectively optimize the user's perceptual experience, so that they can relax in a vibrant and energetic environment, thus achieving the effect of stress reduction. Through this design, I hope to create a more comfortable, pleasant and healthy campus environment for students. (Figure 2).

Figure 2: Landscape plan of Nanyang Normal College near the library in the western district of Nanyang Normal College



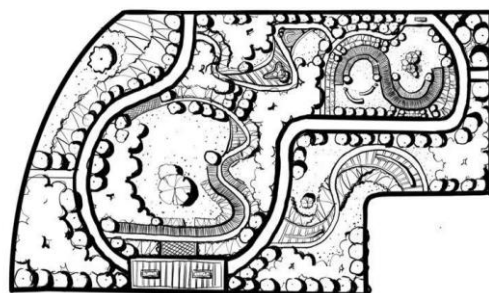
Source: Author's own drawing

### 4.3 Design objectives and content

#### 4.3.1 Utilizing negative spaces to revitalize positive campuses

space for solitude. The underutilized site on campus with low surrounding foot traffic shapes the ideal resting space for teachers and students to meditate and study, a semi-enclosed campus courtyard area with a more open space as a whole, mainly consisting of sandstone paving and wooden seating to form a quiet and peaceful atmosphere, a design technique that allows users to perceive the different contexts of life, shaping a unique emotional healing power. (Figure 3)

Figure 3

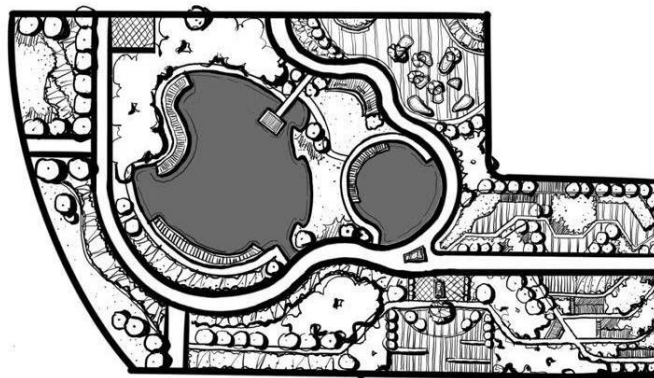


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#### 4.3.2 Improve the physical environment and activate the green campus

Waterfront. Water represents the source of life in landscape design, and its existence gives users a strong pro-natural response. The transformation of Xizi Lake, the design of activity space around Xizi Lake, and the installation of water-friendly facilities allow users to easily touch the water, and in the process of contact with the water body can obtain the power to heal emotions, and can also enhance concentration and memory. On the other hand, the waterfront plaza can reduce noise pollution and improve the campus environment. (Figure 4)

*Figure 4*



*Source: Author's own drawing*

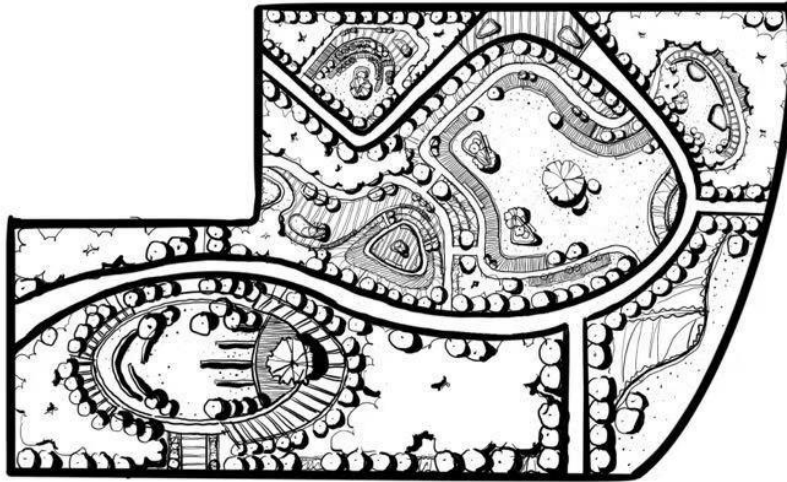
#### 4.3.3 Reshaping Interactions to Build a Healthy Campus

space for maneuver. When designing, the open-space oriented layout can effectively utilize various landscape elements, such as plants, structures and vignettes, to create a vibrant and healing environment. By arranging these elements, the students' five senses of sight, hearing, smell, touch and taste can be fully mobilized to achieve the effect of relaxation.

The diverse selection and layout of plants can provide students with a green visual feast and help them relieve visual fatigue. Green plants not only purify the air, but also bring a vibrant atmosphere to the campus. In addition, structures such as pavilions, promenades and sculptures not only have practical functions, but also become visual focal points that stimulate students' imagination and creativity. Seats and flower beds not only beautify the environment, but also provide a place for students to rest and communicate with each other, and some of the spacious areas opened up can be used for students to engage in sports activities and group games.

Through this arrangement of landscape space, students can find a place to relax after a stressful day of study. The green color of the plants and the lines of the structures can soothe their visual fatigue, while the comfort of the vignettes can provide a relaxing physical environment. In addition, the layout of the open space promotes social interaction among students, enhancing their sense of belonging and team spirit.

Figure 5



Source: Author's own drawing

## 5. Results

In this paper, I explore in some depth the three key dimensions of campus landscape space, physical environment, and crowd demand in the western district of Nanyang Normal College. Through careful analysis of these dimensions, I analyze and summarize how to effectively apply stress relief theory to college landscape design, and further give specific design goals and contents. My goal is to enhance the health of users through campus landscape design, which not only needs to take into account the psychological needs of users, but also pay attention to their behavioral patterns. The design should be able to satisfy the users' needs and preferences, and then guide their behavior to be healthier and more positive.

In order to realize this goal, future research should apply theoretical analysis more deeply, make extensive case comparisons, and accumulate rich practical experience. Through these methods, a more complete and systematic theoretical system as well as a more scientific and practical design model can be gradually established in the future. Such a theoretical system and design model will help us better cope with the current increasingly serious public health problems and provide strong support and guidance for the optimization of campus environment.

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