RESEARCH ON THE RATIONALIZATION OF CAMPUS SPACE RESOURCE ALLOCATION

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Received : September 9, 2024; **Revised** : March 20, 2025; **Accepted** :April 29, 2025

Abstract

Campus space resource allocation is an important technology and management resource for schools in the process of management and teaching. There have been many discussions about the understanding of its spatial resource, but it has not been given enough attention as a resource in education. This study constructs a conceptual framework based on the theories of spatial power regulation and hierarchical needs, and explores the current situation of campus space resource allocation and the connotation of rational campus space resource allocation from the perspective of the needs of users, especially students, in campus space. It reveals the impact mechanism of spatial power regulation on it. This study adopts a qualitative research method. Using a university in Nanjing, where the researcher works, as a case study. Collect data through interview, observation, and case studies, and use grounded theory analysis to conduct three-level coding of the data. The study found that there is a serious power space in the allocation of campus space resources in the case, and in fact, designers and managers have absolute discourse power, with almost no participation from students. There is a serious phenomenon of segregation, segmentation, objectification, and standardization in the allocation of campus space resources, which cannot meet the needs of students for privacy, popularity, gathering, transportation, participation, and support; The rational allocation of campus space resources should meet students' spatial physiological needs, spatial safety needs, spatial belonging needs, spatial communication needs, and spatial acquisition needs.

Keywords： Campus Space, Resource allocation , Spatial power regulation

Introduction

With the development of modern universities and disciplines, the allocation of university space is becoming increasingly important for the development of universities. When it comes to campus space, the vast majority of people are familiar with it. As people delve deeper into space itself, the fields of using space for research are becoming increasingly diverse. On the one hand, universities are situated in traditional physical spaces, which still exude a unique charm; On the other hand, universities are also seeking more optimized resource allocation in the "new" space. We can give it various names in our current era, one of which is the "era of space", and university space is also in the period of "explosion of space";

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Foucault (2001, p. 18) also pointed out that 'the present era may be the era of space'. In this era of space, it is worth conducting in-depth research on how universities can break through tradition in campus space, respond to challenges and opportunities brought about by changes in space, and achieve rational allocation of campus space resources.

As a special form of spatial existence, campus space is constructed by both material and social connotations. Examining the spatial order of schools, as a bounded form of spatial construction, there are often practical problems of limitation, closure, and segregation in physical form. Therefore, this to some extent limits the tension of diversified learning for students, and also restricts the sharing of educational resources; However, buildings such as classrooms, corridors, and libraries, as well as the natural environment they are attached to, not only exhibit materiality, but also have extremely rich sociality. In terms of social form, spatial empowerment and marginalization of vulnerable groups among students, as well as neglecting the power of student subjects, exacerbate the imbalance of educational equity. Reconstructing campus space should adhere to the student-centered spatial thinking, creating open, shared, and free physical spaces to meet students' personalized and collaborative learning needs. At the same time, space is a "container", and whether the allocation of space is fair and the construction form of space is reasonable will directly affect college students in the "container" of space. Therefore, campus space should create a fair and just educational environment for students' growth and development.

Existing literature on campus space research mostly focuses on the design of the space, but there is little concern among researchers about whether these spatial resources have been utilized and how they have been utilized after the space design is completed. Universities have put a lot of effort into designing spaces, but the reality is that there is a lack of attention to the management of space use and a lack of research on the relationship between space and the main students in universities.

Literature Review

At present, the focus of research on campus space is mainly on the space of primary and secondary schools, focusing on the educational value and implementation path of campus space (Liu Tao, 2022). Liu Houping (2019) starts from the analysis of the driving force of school space change, determines the direction of school space change, and constructs a theory of school space change. Some scholars have also taken university campus space as their research object. Liu Wanli (2009) conducted research on campus space from a cultural perspective, and through the introduction of interdisciplinary theories such as higher education and university culture research, constructed a theoretical framework for studying the cultural nature of campus space, breaking through the limitations of simply studying the spatial form of the campus itself. University space is an important educational resource that holds significant importance for students' learning from its material, spiritual, and structural perspectives. At present, there are two main perspectives in academic research on campus space in China: one is to approach it from the perspective of the discipline of education, studying the relationship between campus space and education, focusing mainly on the educational value of campus space from the perspective of education, and exploring the impact of different campus spaces on educational and teaching activities; Another approach is to approach from the perspective of design studies, studying the relationship between functionality, artistry, and technology in school buildings or campus spaces. From the literature search, there is still a lack of interdisciplinary research on campus space, especially from the perspective of management, education, and design.

The literature on spatial resource allocation found in the current search mainly focuses on macro perspectives such as urban space, land resources, and maritime space, with relatively few studies involving spatial resource allocation in universities. One aspect is the research on the spatial distribution of universities as educational resources. Chen Huiqing and Shi Qiuheng (2011) analyzed the distribution and spatial characteristics of Chinese universities, and summarized the distribution rules based on factors such as the number, level, and type of

universities. Educational resources were classified into uniform distribution and random distribution, centralized distribution and dispersed distribution, strip distribution and block distribution. Zhou Hongli (2013) believes that the spatial layout structure of universities is an important indicator for judging whether the allocation of educational resources is in line with social development, especially focusing on the spatial layout of vocational education. Luo Xiang, Lai Zhiyong, and Chen Jie (2022) analyze the spatial resource allocation of urban kindergartens in Shanghai from the perspective of temporal accessibility. On the other hand, it is to focus the perspective on a certain local space of the school, especially the research library space. Among the few studies on the campus space of universities themselves, Zhang Kai and Zhao Qiang's (2014) research is noteworthy. Their research involves the exploration of space in Chinese and foreign universities, exploring the allocation of spatial resources in research universities in the United States and China, and proposing optimization suggestions.

There are also many related studies on the allocation of campus spatial resources and the theory of power space. Cheng Jiankun and Yan Conggen (2024) believe that the scientificization of learning space has led to the objectification of campus learning space. The divided learning space is like a monitoring institution, but it belongs to all learners rather than "power holders" and "teachers". They advocate returning spatial power to students, breaking the constraints of scientificization, and shaping personalized learning spaces.

There are many studies on the allocation of higher education resources abroad. Thompson (2002) proposed that the spatial configuration suitable for serving the core figures of one school may not meet the requirements of another school. At the University of Birmingham, it is more likely to allocate buildings to various colleges in order to maximize building efficiency. He believes that space utilization should not only consider space intensity and frequency, but also the way space is used. University Guest Network provides spatial management for universities and economies, offering high-quality standards within the minimum space requirements. Designing a campus on a human scale is a method that emphasizes design details, such as paying attention to where people sit and speak, which encourages social interaction and connectivity (Chapman, 2006, p. 180).

Temple (2008) argues that we do not have a proper understanding of how the physical environment of universities contributes to their academic work. He believes that the space in universities is the result of the decisions and actions of its designers, users, people who manage it in various ways, and those who take care of it. Hnat, Mahony, Fitzgerald, and Crawford (2015) used an explanatory qualitative method of semi-structured interviews to study the resource allocation of higher education equity used by leaders of nine colleges when determining the allocation of resources to faculty and academic units (such as salary increases, travel expenses, faculty strength, etc.) from the perspective of distributive fairness. Five sub principles were derived from the analysis of interviews: (a) quantity and quality of research publications, (b) external research autonomy, (c) teaching quality, (d) impact on students, and (e) quality service.

The above research explores spatial resource allocation from different perspectives. Firstly, there is more attention paid to macro perspectives such as land resources, urban space, and educational resource distribution, while there is less attention paid to spatial resource allocation in universities; Secondly, there are more suggestions and less exploration of the logic behind the allocation of spatial resources in universities; Thirdly, there is no clear definition or description of spatial resource allocation.

Research Methods

This article focuses on the analysis of campus space resource allocation, with a particular emphasis on the rational allocation of campus space. Constructing the dimensions of campus spatial resource allocation from a micro perspective using qualitative research strategies such as case studies, interviews, and text analysis. This study uses qualitative research to obtain first-hand research data on campus spatial resource allocation. The specific research methods include:

1. Text analysis method

In order to comprehensively understand the allocation of campus space resources and the current research status of learning in the field of education, this study sorted out and analyzed the origin of campus space resource allocation and related literature at home and abroad, clarifying the connotations and main characteristics of concepts such as campus space, resource allocation, and learning.

2. Interview method

This study conducted interviews with direct users of campus space, and improved and supplemented the theoretical framework of campus space resource allocation through interviews with leaders, teachers, and students, in order to understand the current situation of campus space resource allocation in reality and the spatial characteristics that users, especially students, are concerned about. This study conducted semi-structured in-depth interviews with 33 interviewees from universities to understand their feelings during the process of campus space resource allocation. Each interview takes approximately 20-60 minutes, with a total of 1459 minutes for 33 interviews.

3. Observation method

This study observed various learning spaces on campus and recorded students' behaviors in real learning. The researchers focused on minimizing the impact on the observed individuals as much as possible. While observing, interviews were conducted with the observed subjects in order to gain a deeper understanding of the reasons behind their behavior and obtain corresponding analytical data. Researchers observed 7 college students in different campus spaces, with each observation lasting about 30 minutes, for a total of 227 minutes.

4. Case analysis method

Conduct a case study on a university in Nanjing as the research subject. Case study method is an empirical research method that approaches or delves into phenomena in real life environments, especially when there is no clear boundary between the phenomenon to be studied and its social environment background. In order to further analyze the allocation of campus space resources and student learning, this study uses case study method to summarize and generalize the data obtained from interview and observation methods, and further elaborates on the relationship between campus space resource allocation and student learning through case studies.

Research result

Maslow's hierarchy of needs theory divides human needs into physiological needs, safety needs, social needs, esteem needs, and self actualization needs, with levels gradually increasing. Based on this theory and combined with the results of three-level coding, the article summarizes the five dimensions of campus spatial resource allocation: spatial physiological needs, spatial safety needs, spatial belonging needs, spatial communication needs, and spatial acquisition needs. Spatial physiological needs refer to the individual's needs to meet basic physiological functions in the spatial environment, such as appropriate temperature, humidity, air quality, lighting conditions, and sufficient activity space. These conditions are crucial for the physical health and learning efficiency of teachers and students. Space physiology needs are the most fundamental learning infrastructure and environmental requirements; Space security requirements refer to the individual's need to ensure their own safety and avoid potential threats and dangers in the spatial environment. In the campus environment, this demand is particularly crucial because teachers and students need to learn, work, and live in a safe and stable environment. Security needs include both material security needs and psychological spiritual needs; The need for spatial belonging refers to an individual's need to develop a sense of identity, belonging, and attachment to a certain spatial environment. In the campus environment, teachers and students long to find their own space and feel a sense of belonging and identity in this space. This demand is of great significance for the mental health and social interaction of teachers and students. The demand for spatial communication can be understood as the needs and expectations of students, faculty, and other

members to engage in social interaction, knowledge exchange, emotional communication, and other activities in the campus environment. This demand is not only reflected in physical spaces such as classrooms, libraries, cafes, rest areas, etc., but also encompasses how these spaces promote effective connections and interactions between people. It requires campus space design to create a good environment that promotes individual learning and growth, as well as facilitates collective communication and cooperation, thereby meeting the diverse social and learning needs of teachers and students. Space acquisition demand, in short, refers to an individual's desire and need to acquire and utilize specific spatial resources. In the campus environment, this demand is reflected in the acquisition and utilization of various spatial resources such as learning, research, and leisure by teachers and students. Considering the particularity of campus spatial resources, it can be understood as the need for students to participate in space allocation, have their rights recognized and respected by the school, demand fairness in space allocation, and facilitate their pursuit of their own abilities or potential in the space.

The establishment of dimensions for rational allocation of campus spatial resources lies in comprehensively improving the content of each primary indicator and secondary indicator, striving to encompass all demand factors for campus spatial resource allocation. In the process of improving the secondary indicators, two methods were adopted: literature review and interview research. Literature review involves referencing relevant literature, combining the research objectives and characteristics of the article, and extracting, analyzing, and summarizing the relevant classification indicators obtained by existing scholars. Interview research involves collecting one week's worth of data and conducting three-level coding using grounded theory to derive relevant dimensions.

In this study, the researchers conducted a systematic analysis of all genera and selected the highly summarized and integrated "core genera" to string other genera together as a whole, as shown in Table 1.

Table 1 Level 3 Encoding (Core Login)

Level 3 coding (core login) result	
Core category	Subclass genus
Characteristics of rational spatial resource allocation	Spatial physiological needs
	Space safety requirements
	Space ownership requirements
	Space communication needs
	Space acquisition demand

There is a serious power space in the allocation of campus space resources in the case, in fact, designers and managers have absolute discourse power, and students have almost no participation. Moreover, there are situations where the allocation of campus space resources in terms of home design, auxiliary equipment, and potential environment cannot meet the most basic physiological needs of students; There is a serious phenomenon of segregation, segmentation, objectification, and regulation in the allocation of campus space resources, which cannot meet the needs of students for privacy, communication, participation, support, and fairness. The rationalization of campus space resource allocation is reflected in the ability to involve students in the allocation and meet their needs for campus space, which is a further optimization of Foucault's spatial power regulation. A feature model for rational campus spatial resource allocation was constructed based on grounded theory, which includes five dimensions: spatial physiological needs, spatial safety needs, spatial belonging needs, spatial communication needs, and spatial acquisition needs. The regulation of spatial power is an important influencing factor in rationalizing the allocation of campus spatial resources. The regulation of spatial power has a profound impact on students' physiological needs, safety needs, belonging needs, communication needs, and acquisition needs in the campus space of universities. Profound and complex. It is not only related to the layout and utilization of

material space, but also involves the integration and embodiment of power relations, social structure, and educational concepts.

Firstly, spatial power regulation ensures the orderly allocation and utilization of campus spatial resources. In the specific social space of campus, power is reflected and operated through spatial layout, facility configuration, and usage rules. School leaders and teachers, as the main controllers of spatial power, plan and manage resources such as classrooms, laboratories, libraries, and activity spaces by formulating and implementing relevant rules and regulations to ensure that they can meet the needs of education, teaching, and student development. This power regulation mechanism enables the rational allocation of campus space resources, avoiding waste and abuse of resources. Secondly, spatial power regulation also promotes the efficient utilization of campus spatial resources. Under the influence of power regulation, schools will dynamically adjust and optimize spatial resources according to actual situations. For example, by adjusting the layout of classrooms and laboratories, adding facilities to activity spaces, and improving the environment of rest spaces, the utilization and comfort of space resources can be improved. This efficient utilization not only enhances students' learning experience and quality of life, but also promotes the improvement of education and teaching quality. However, spatial power regulation may also bring some negative impacts. For example, excessive power regulation may lead to rigid allocation and single use of campus space resources, ignoring the diverse needs and personalized development of teachers and students. In addition, power regulation may exacerbate power inequality and social stratification on campus, putting some vulnerable groups at a disadvantage in spatial resource allocation.

Discuss

Whether discipline is good or bad is not a simple question. Discipline naturally has its negative effects. In Foucault's book, we see discipline hidden in various corners of society in a more covert way, all for the purpose of creating people who are subject to discipline. To some extent, it is a form of suppression and restraint that limits individual freedom and creativity. As an educational activity aimed at cultivating students, the target audience is living individuals, and this set of training mechanisms will make the educational space look more or less like a monitoring, distinguishing, and screening learning machine. But modern society is operating in such a way that it not only meets the requirements of modern instrumental rationality, but also reflects the industrial society's need for talent. Looking back at our field of educational practice, it serves as a discipline that constrains students' daily activities and learning through the establishment of various systems and norms, corrects non compliant behavior, controls bad habits and misconduct, and enables students to better meet social needs and integrate into society. Through strict training, actors who have mastered a certain skill have been cultivated; Through standardized operating procedures, we obtain the recognized 'truth'; Through rules and discipline, people are constructed.

The spatial power discipline emphasized by Foucault is a coercion of students in campus space, making them "submit". Obviously, this is very different from the needs of students and extremely inconsistent with modern educational theory. We need to re-examine the spatial power discipline. Through the eyes of students, when they re-examine campus space, they will find that they long for a safe, comfortable, and free campus space where they can engage in their favorite activities. At the end of the article, perhaps we should also fundamentally ask: what is the connotation of campus space? It is no longer a cold building, nor a "container" for storing tables, chairs, and students, but a concept of humanity and sociality that can deeply interact with students and have an impact on them. How to balance the roles of multiple stakeholders in the planning and design process of campus space, which is receiving increasing attention? As the primary users of campus space, how can students balance the spatial needs of different users in the campus space? Perhaps this requires comparative analysis from the perspectives of different subjects and users. The impact of

space on students can be positive or negative. From the perspective of students, their expectations for campus space can to some extent reflect their spatial needs, but there are still many unrealistic aspects and possible negative impacts. Especially in the current trend of complex development of campus space, it is important to explore and effectively utilize the space.

Summary and suggestion

1. Optimize spatial applicability to meet physiological needs

We should follow the principles and standards of disciplines such as ergonomics and environmental science to optimize the configuration of campus space for physiological needs in universities. In terms of planning and layout, it is necessary to apply theories such as spatial syntax and landscape ecology to scientifically plan the distribution of buildings, the direction of roads, and the configuration of green vegetation, in order to create a campus environment that meets both aesthetic and physiological requirements. At the same time, architectural design should fully consider physiological factors such as indoor air quality, lighting environment, and thermal environment, ensuring that indoor spaces can provide suitable temperature, humidity, lighting, and air circulation conditions to meet the basic physiological needs of students and faculty.

2. Reasonably plan the space to meet safety requirements

In terms of spatial layout, reasonable spatial planning can effectively enhance the safety of campus space. For example, through scientific architectural design, such as setting up emergency evacuation routes and installing monitoring equipment, the probability of safety accidents can be significantly reduced. At the same time, the concept of space design that combines closure and openness is also considered to help ensure rapid evacuation in emergency situations while safeguarding the learning environment for students. This design concept reflects a profound understanding of the subtle relationship between power regulation and spatial security.

3. Return to the concept of "student-centered" to meet the need for belonging

The current arrangement of learning space elements is mainly aimed at facilitating management and adult convenience, with the slogan of "student centeredness" lacking implementation in practice. Adhering to student centeredness means following the perspective, experience, and position of students in the design of space, configuration of elements, and layout. Students are the main body of universities, and whether they have campus space and can find their own space is the foundation for them to build a sense of belonging. Therefore, their spatial belonging needs should be met in terms of planning and cultural atmosphere creation.

4.Create open spaces to meet communication needs

Creating free and open learning spaces requires changing the form of partitioned and enclosed spaces to meet the personalized learning needs of students, such as collaborative learning and inquiry based learning. Change the spatial relationship between teaching spaces and achieve connectivity between spaces. Replacing physical walls between spaces with activity partitions, sound insulation materials, and mobile soft walls provides students with a broader learning and communication space, achieving shared educational resources between classes.

5. Adhere to fair power to meet the demand for access

Participation is crucial in the relationship between people and space, which reflects the logic behind the allocation of spatial resources. Students should have the right to participate in the relevant process of spatial resource allocation. The campus space is filled with a series of educational unfairness phenomena, which are reflected in various aspects of the school through spatial thinking, exacerbating the learned helplessness of learners, especially those who are "disadvantaged groups", and limiting the development mechanism of students. To maintain fairness and justice in campus space, we should adhere to safeguarding the interests

of vulnerable groups, pay attention to the development of each student, and build equal relationships between students and teachers.

The reconstruction of campus spatial order should adhere to the "student-centered" spatial thinking, break through the problems of segregation and enclosure in school physical space, create an open and functionally composite campus space, provide a more open and interactive spatial environment for students' diversified and personalized learning, and demonstrate the human nature of campus space in a physical form. At the same time, attention should be paid to the equal construction of social relationships between actors in campus space, ensuring that social subjects can enjoy spatial rights relatively equally and freely, and providing a more harmonious and equal interpersonal communication environment for the growth and development of learners.

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