Discussion on the Organization Structure of Large University Campus Planning

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Abstract. After the expansion of college enrollment, China's university campus area has become larger and larger. The traditional university campus planning in China is influenced by the planning method of the Soviet period, which emphasizes the function zoning. This increases the distance between the student dormitory and the teaching building, the dining hall and so on. And this has brought trouble to the study and life of college students. So scholars must study the planning and organization of large-scale campus. The most important function of the university campus is to provide students with ideal learning and living place. Designers should adopt the idea of "student oriented" to construct the college campus. The university campus planning should be committed to building a suitable walking space to meet the daily activities of students. For large university campus, in order to create a suitable space for walking, designers should gather the students' daily life, learning function in a walkable space, forming a composite "functional group". In order to meet the requirements of the appropriate walking distance, each functional group should have a proper service radius. Functional groups can form a composite space. Thus, functional group of university campus planning organizational structure can help to solve this problem. It is more suitable for large-scale campus planning.

1. Introduction
Since the end of the 20th century, major policy decisions of enrollment expansion of higher education were made in China, the national ordinary university enrollment has increased dramatically. The preceding campus area is relatively smaller, and the original students capacity is limited, which directly leads to new upsurge of campus construction in colleges and universities. Having one thing in common this round of the new campus, the campus covers an area more than before in the size of the campus (Figure1、Figure2) [1]. In the new campus of Zhejiang University, zijingang campus, for example, the new campus is divided into two parts, where only the east part which has been completed is about 3200 mus(1mu=0.1647369 acre), and from south to north it is more two miles apart. If coupled with the west, the total area of the campus is about 5900 mus. Obviously the campus is very big. After the campus size becomes bigger, the university campus planning organization methods should be changed.
2. Significance of research
"University", that is the place to impart the universal knowledge. While the university campus, it provides a place for the teaching of knowledge. Therefore, the university campus should be able to meet the students' learning needs. However, with the university campus large-scale, the scale of the university campus has been beyond the acceptable range of people. This has brought inconvenience to the exchange of teachers and students, it also has a negative impact on students' learning. This research is aimed at the large-scale campus, and discusses the organization method of university campus planning, seeking a more reasonable function layout, in order to promote students learning and scientific research work.

3. Current status of research
University campus has nearly one thousand years of development process, and presents a different development characteristics. Because western university has a long history, it is influenced by the layout of the traditional university in the planning and design, often in the form of courtyard. Its space density is high, and the scale is of human nature. In addition, the foreign university campus is often mutually integrated with the city and the community's function space, and there is no obvious spatial boundaries, especially the living area is usually integrated with the community as a whole[2].
The origin of China's modern higher school is in the late nineteenth century of the Westernization Movement, and the development is of a relatively short history. Because at the same time, it is influenced by the space of Chinese traditional academy and the thought of the campus planning of the west, it has a definite function and structure, and the life service area is relatively independent. Some university campus is the axis of symmetry approach to the layout, the road is the rules of geometry and to highlight a central region, but it ignores the convenient connection between functional areas. Besides, as a result of campus planning and design practices are similar, some university campus layout is similar, larger scale, and lack of corresponding personality and cultural characteristics.

4. Traditional university campus planning function zoning and limitations
The traditional university campus planning in our country is influenced by the planning method of the Soviet period, which emphasizes the function zoning. In accordance with the division of functions, traditional campus generally includes university campus entrance area, campus center district, teaching and scientific research area, dormitory life service area, sports area, district administrative office, green leisure communication area, traffic system and so on.

In order to pursue the campus image, the traditional campus planning usually takes the teaching and scientific research area, the administrative office area as the center of the building image better, to organize the campus planning. For the smaller area of the university campus, the planning organization method is effective, without affecting the normal use of the case, to create a better campus image. But for more and more large campus, that method easily causes the students dormitory partial in the corner, which brings a lot of inconvenience to the student's study and lives, seriously and even affects the students' learning enthusiasm. Zhejiang University Zijingang east campus, for example, the distance between the north and south of the campus is about 2 km, which requires students to spend more than 20 minutes from the south to the north to walk, 10 ~ 15 minutes if by bike. Due to the strict functional zoning, it results in the separation of teaching and scientific research area and dormitory living area, which leads to the difficulty of students walking to class. At present, teachers and students are required to use a bicycle or car "pendulum" between the dormitory and the classroom (Figure 3). During the study the students generally reflected: When we go to the classroom, we have a traffic jam and a slow speed; The distance between professional classroom and public class is too long, we often walk ten minutes. This makes the original tense learning life become more tense. Students midday rest time was diverted to traffic time, which is bound to affect the students' learning and health.

Figure 3 Crowded bikes

5. Large-scale university campus planning organization method
The large scale of university campus in China has brought great inconvenience to students' daily study and life, so that the traditional concept of university campus planning has been a serious challenge.
Therefore, designers should actively adjust the planning concept, to seek the planning and organization methods corresponding to large university campus.

5.1 The design concept of "student oriented"
"People oriented" is the core of scientific outlook on development. With the development of society and the progress of the times, "people oriented" has become one of the basic principles of all our work. Obviously, designers should follow the "people oriented" design concept in the university campus planning. The "people" in the university campus is mainly the students and teachers. The most important function of the university campus is to provide students with ideal learning and living place. Therefore, the concept of "people-oriented" university campus planning and design, in fact, is the "student oriented" design concept.

Any plan is to meet the needs of users with high efficiency as the basic starting point, the educational functions of the university campus planning is also the case. If the university campus planning achieves the "student oriented" design concept, researchers must study the activities of students on campus before planning. In addition to the weekend, the activity path of the students inside the campus is regular. If researchers take a working day of 24 hours as a research time period, it can be roughly described as follows: From 22 PM to 7 am next day, students have rest in the dormitory; From 7 to 8, students go to the canteen to eat from the dormitory, or go to the canteen to buy food and then return to the dormitory to eat; From 8 to 12, the students go to the classroom from the canteen or the dormitory (including the cultural lessons, the experimental class or the physical education class); From 12 to 13:30, the students go to the cafeteria to eat and then return to the dormitory to rest; From 13:30 to 17, students go to the classroom to study from the dormitory (including the cultural lessons, experimental class or physical education, etc.): From 17 to 18, the students go to the canteen to eat and then return to the dormitory to rest; From 18 to 22, students go to the classroom to study or to participate in recreational activities; After 22 students have rest in the dormitory, and then start a new cycle.

As people can see from the students' activities, students' dormitory plays an important role. Dormitory is the starting point of students in the campus activities, transfer stations and the return point, and the dormitory and classrooms, dormitory and canteen have very frequent contact. "Student oriented" college campus planning should fully take into account the activities of students, both meet the needs of students inside the campus activities, but also facilitate the learning needs of students.

5.2 Comparison of College Campus Based on the concept of "students oriented"
In order to find out problems, research team research the multiple university campus, and focus on the comparative analysis of the Zijingang Campus of Zhejiang University and Yuquan campus. Zijingang Campus of Zhejiang University is the new campus of Zhejiang University, which is about 5900 mus(1mu=0.1647369acre). The campus is divided into East and west regions, only the early completion of the construction of the East is about 2000 meters north-south, 1000 meters east-west. Eastern has been built using the partition function, the northern section for dormitory area, southern for teaching, research, office area, central for sports area and landscape leisure area. From this people can see that in such a large scale of campus, if designers use the functional division, it may be able to meet the requirements of the campus image and landscape. However, this will inevitably increase the distance between the dormitory and the classroom, canteen. According to the students' activities, the link between the dormitory and classroom and canteen is close. Due to the functional division, during the class, students have to spend more time in the three of the traffic, which gives the student's learning, life and even physical and mental health adversely affected.

The same is the Zhejiang University, research team take Yuquan campus for comparison. Yuquan campus is one of the old campus of Zhejiang University. Yuquan campus is very similar with Zijingang Campus in Layout and function. Basically, the campus is also divided into the north of the dormitory area and the south of the teaching and scientific research office area and the middle of the sports area. But from the actual investigation of the situation, few students of the Yuquan campus
complain about the problem of running back and forth between classes. This proves that this method of planning and layout of Yuquan campus is reasonable. Why does the similarity of the layout for different campuses produce different results? Research team look at the size of the Yuquan campus, Yuquan campus covers an area of about 1700 mus (1 mu = 0.1647369 acre), about 1200 meters north and south, about 600 meters west and east. Students reflect that most of their activities on campus, basically be able to reach by walking.

Therefore, the suitable walking distance is very important. Whether it is suitable for the students' daily activities walk, is an important standard to judge whether the campus plan is "student oriented".

5.3 "functional group" type of planning organization method

Based on the foregoing analysis, the university campus planning should be committed to building a suitable walking space to meet the daily activities of students, especially learning activities. For the relatively small size of the university campus, the traditional function partition can meet the needs of the appropriate walking space. For large university campus, in order to create a suitable space for walking, designers should gather the students' daily life, learning function in a walkable space, forming a composite "functional group". And the whole university campus is composed of a number of similar functional groups. The author proposed similar concepts - composite space, in my master's thesis completed in June 2005. "......The dormitory is a link to other spaces. So it is not difficult to understand......"[3]. Coincidentally, Feng Gang, doctor of Tianjin University, also put forward the "group style university campus" concept in his graduation thesis completed in June 2005. "Contemporary China's University City and new campus are very large in the scale...... Simple amplification of the traditional mode of campus is not feasible...... Usually, there are two ways to decompose a large campus, one can be built in different ways to spread the campus...... The other is to implement the decomposition in the campus. Designers gather the buildings closely linked to reduce unnecessary long distance transportation. This can reduce the space scale through breaking up the whole into parts."[4]

In fact, this planning idea is to accord with the planning theory of New Urbanism. New Urbanism theory is formed in 1990s, and functional composite and suitable walking is the core of its planning theory. New Urbanism emphasizes people-oriented City. It advocates urban planning should be suitable for walking principle. In the neighborhood or within a suitable for walking radius from the center of the bus station, designers should gather residential district, shops and services, green, primary and secondary schools, and as much as possible jobs composite function, to meet the needs of people's daily work and life. People oriented city is the case, students oriented campus should be the case too.

In order to meet the requirements of the appropriate walking distance, each functional group should have a proper service radius. Japanese famous architect Luranraison has proposed that, in general, a pleasant walk distance is about 300 meters, the relatively suitable distance for walking is about 500 meters.[5] Therefore, the size of each functional group within the university campus should be controlled at 250 meters, that is, the diameter of the coverage is of 500 meters. The function of each functional group is complex, including one or more college students dormitory, teaching building, etc., and it is equipped with the necessary service facilities. Students' daily study and life, and so on, can be completed in the functional group by walking.

The traditional planning theory emphasizes the function partition, however, the planning theory of New Urbanism emphasizes the function of composite. In fact, this seemingly contradictory sides of the two sides can coexist in the large-scale campus planning. Within each functional group, the planning scheme emphasizes the complex function; In the whole university campus, the planning scheme can consider the function partition. The above organization mode of the large-scale campus planning can not only efficiently meet the requirements of the students, but also take into account the image and landscape needs of university campus.
6. Conclusion
Through the above research and analysis, the author thinks that this kind of functional group structure of the university campus, can solve the problem of the inconvenience caused by the large scale of the campus to the students. Therefore, this kind of organization is more suitable for the planning of the large university campus. Research team hope that the research can bring some help to the future construction of the large campus. These views are only on behalf of the author's own views.

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