UNB AND ITS SOCIAL SPACE

Milena Baratta Monteiro de Melo Nunes
Universidade De Brasilia

Abstract
The paper studies distribution of people in the campus of the University of Brasilia (UNB) by investigating relationships between configuration, land use and distribution of people in space. Morphological and social variables will be dealt with. Morphological variables are worked by means of space syntax tools and social data are obtained through stratified interviews with students, teachers and civil servants of the university: who is doing what, where, with whom, and how they evaluate the places. The main aim is to understand the social logic of the UNB campus: morphological reasons behind people’s movements and concentration inside spaces.

Introduction
The objective of this paper is to demonstrate that the formal-spatial configuration of the University of Brasilia (UNB) is related to the way places are utilized. The study is divided in four parts. The first part centers on the study of how the building and open space configuration, meaning barriers and permeabilities to the movement and opacities and transparencies to vision, implies desirable relations among persons and groups. The second part refers to the identification of campus users. The third part identifies how campus users are distributed in available space, what they do there, where and when. It also identifies how campus users evaluate some spatial aspects that can be related to its use. At last, the analysis of the social logic of the formal-spatial configuration of UNB is done with the objective of determining the reasons originated in its configuration.

Installed in a land located between North Wing and Lake Paranoa, UNB was founded in December 15, 1961, defined spatially by directives of the Pilot Plan of Brasilia Report, having its first urban plan made by the architect Lucio Costa in 1960. Costa’s conception of UNB campus is a continuation of his pilot plan for the new capital. He defines the university space of Brasilia as a vast park open to the
population. The inside configuration has large shares of land separated by avenues forming different blocks where the buildings responsible by the nuclear development of the campus are located around a central area. The main access to the UNB campus nucleus passes through isolated buildings of common interest to university and city users, such as Rectorate, Library and University Museum (figure 1).

After Costa, many studies about the ordinate development of the campus space were done. Table 1 presents UNB’s plans and urban projects during its existence. In 2006, UNB’s spatial configuration concentrated the majority of its activities in the west part of the campus, which became the main entrance to the university complex. In opposition, on the east side the majority of open green spaces are concentrated (figure 2).

Table 1: Projects for UNB’s campus through time

<table>
<thead>
<tr>
<th>DATE</th>
<th>AUTHOR</th>
<th>PROJECT PROPOSAL OR REALIZED</th>
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<tbody>
<tr>
<td>1960</td>
<td>Lucio Costa</td>
<td>Central Institutes, Professionalizing Faculties, Central Square, Rectorate, Central Library, Museums, Audiences, Leisure and Cultural Center, Residential Area, General Services, Sports Area</td>
</tr>
<tr>
<td>1962/1964</td>
<td>CEPLAN Oscar Niemeyer</td>
<td>CIS (Central Institute of Science), Professionalizing Faculties, Central Square, Rectorate, Central Library, Museum, Audiences, Leisure and Cultural Center, Residential Area, General Services, Sports Area</td>
</tr>
<tr>
<td>1964/1975</td>
<td>CEPLAN</td>
<td>Construction of the buildings: House of the University Student, Students Center, School of Technology, Social Studies and Health Sciences and University Hospital</td>
</tr>
<tr>
<td>1965/1966</td>
<td>CEPLAN</td>
<td>Construction of the buildings: City Hall, bloc of multiples uses I and II</td>
</tr>
<tr>
<td>1987/1988</td>
<td>City Hall</td>
<td>Document: Considerations about the Physical Development of UNB Campus. Study without a project proposal</td>
</tr>
<tr>
<td>1998</td>
<td>CEPLAN</td>
<td>Document: Directive Physical Plan of the University Campus Darcy Ribeiro. Study without a project proposal</td>
</tr>
<tr>
<td>1999</td>
<td>City Hall</td>
<td>Construction of the buildings: Pavilion Anísio Teixeira and João Calmon, Community Center</td>
</tr>
<tr>
<td>2002</td>
<td>CEPLAN</td>
<td>Document: Building Plan for UNB XXI. Study without a project proposal</td>
</tr>
<tr>
<td>2005</td>
<td>CEPLAN in partnership with Maria Elaine Kohlsdorf (org.)</td>
<td>Document: Morphological Analysis of UNB. Study without a project proposal</td>
</tr>
</tbody>
</table>

In spite of changes in campus zoning, it maintains some strong characteristics from its conception times, such as the dissociation of the vehicle paths from the walking paths and the large green open areas, which implies a lot of walking required to cover the open spaces and reach the buildings. This isolated distribution, according to
Zimbres, Kohlsdorf and Carneiro (1986, p.371) are “objects emphasized in a landscape more than volumes whose plans define open spaces”.

Figure 2:
Map of 2007 space configuration

Urban Configuration of the University of Brasilia

In this part, the variable form-space of the campus is examined in order to reveal the accessibility between parts of the campus, the barriers systems and the permeability of the intern space, the transparencies systems and the opacities to vision, the distribution of uses and services, as well as the flux and permanency of persons in open spaces.

The axial technique of the theory of Spatial Syntax was utilized to analyze UNB in its urban context. This technique allows decomposing the space in units of one dimension, the axial lines that represent the elements of circulation. As a first step in the analysis, the map of axial lines in the global instance, considering the district inside the metropolitan system of the Federal District (FD) was processed: The streets to motor vehicles were reduced to axis, composing an “axial map”, which, after being processed by the graphic software Mindwalk, reveals the relative accessibility inter parts of the city indicating the most accessible and the most segregated in face of the metropolis as a whole. As much accessible is an axis, less travel inflexions exist between this and other system axes (color growing to red in the map), and as less accessible or segregated is the axis, more travel inflexions exists between this and other system axes (color growing to blue in the map), as shown in figure 3.

The reading of the axial map informs how much the UNB space is segregated from the rest of the city of Brasilia. Isolated from its surroundings, the university campus is an urban enclave, which makes its access and even its perception face to the population difficult.

To comprehend UNB’s internal configuration, it was necessary to realize a field research to identify the distribution of the activities inside campus, utilizing the map of land occupation, the map of local axially referring to the pedestrian paths and vehicle roads, as well as the map of visibility. The map of land occupation has five most important uses (among others), respectively teaching and research, administration, commercialization and services, leisure and mixed use. The analysis shows that the majority of the activities, such as teaching, research, administration, commerce, services and mixed uses, occur in the west portion of the campus. The east portion has some activities of administration, teaching, research and leisure. The north portion has primarily college homes and some teaching and research
buildings, while the south portion besides college homes has also the leisure area of the Sports Center and activities of teaching, research and mixed uses (figure 4).

The segregation of the campus internal space becomes evident through the distances between the places where many activities are developed, which indicates the difficulty of locomotion inside the campus. The big distances between residential areas and the places where teaching, research and leisure activities are developed, as well
as between campus and the rest of the city, force the use of vehicles instead of walking. A rare exception occurs in the place of music, located in the central area of the west section of campus, where many different activities are distributed equidistantly.

The axial map processed locally, when analyzed by the optic of integration relations with neighborhood, it shows the ways pedestrians and vehicles move inside campus. In the specific case of automobiles it was used ray six in the software Mindwalk, who generated the axial lines considering the relation of each axis with the others, up to six axis in distance. In the case of the axial map for pedestrians, the area under consideration was isolated and the integration relations were obtained for each axis comparing to all campus, using ray “n” (figure 5).

The analysis of the axial map for vehicles shows that the area containing the most integrated lines is composed by the roads surrounding the building of the Central Institute of Sciences (CIC). It calls attention the low degree of integration of the internal avenues and those accessing the campus, pointing to a complete isolation of UNB’s space and the city road system.

The analysis of the axial map for pedestrians shows that the most integrated line is the internal path situated west of CIC and its connections with north and south roads of the same building, with path L-3 accessing campus and with academic activities located at the north side of campus. It highlights the high accessibility of CIC.

Comparing maps, it is observed that the most integrated axis for pedestrians and vehicles is the internal road located west of CIC, the same pointed by the land occupation map as having many uses. This fact demonstrates the importance of the morphological reasons in the location of activities.

To analyze the visual integration of the UNB campus, another technique of the Spatial Syntax theory, the map of visibility, was used. This map was obtained with the help of the software Depthmap, which calculates the measure of visual integration. In this software, open spaces are decomposed in cells that have its size determined according to the necessity of analysis. The software calculates relations between each of these cells (figure 6). The visibility map was set to a cell of five meters in size, having its borders determined by the area where the majority of the buildings are located.

The map shows a red spot at south boundaries of CIC, representing high visibility, since the area is still free of visual barriers. It also shows that the access areas to the buildings at north and south campus, as well as CIC entrances have moderately high visibility. More important than this, however, is the fact that the visibility map points the same as that the axially map pointed, the fact that the area contained inside the internal road of campus located west of CIC, it has medium
visibility, as well as the axes starting at the entrances of CIC. It is not by chance that the concentration and variety of activities takes place there, not even that the most integrated paths are congruent to these areas.

Figure 6: Visibility map

However, to o a more precise statement about the probability of meetings in these areas, an empirical observation of the pedestrians flux and retention of people inside open spaces was conducted. It was noticed that the pedestrian flux is more intense at sections where there exists a large variety of activities and for buildings considered poles of generation of flux, such as the Library and the campus Cafeteria. Analyzing the places where people stay most, it was found that it is inside the buildings, leaving the open spaces free. Rare exceptions were detected in some places of the university complex, entrances of buildings and food services.

It was observed about the urban configuration of UNB that it is a consequence of formal values, where the systems of barriers and permeabilities places difficulties to the permanence of people in open spaces, they dissociate the pedestrian paths from the roads system, exacerbate the open and public spaces and isolate the campus from the surrounding city. These values characterize the form how social relations happen inside UNB campus. Similarly to what happens in the Pilot Plan, it is observed specific meeting points concentrated in areas close to services and mix activities, where social relations are developed and to where the pedestrian flux intensifies.

Social Characteristics of UNB’s Population

This part of the article refers to information collected by means of a questionnaire applied to a UNB’s population sample composed by 384 persons. The size of the sample was found by statistics formula:

\[ n = \frac{z^2 p(1 - p)N}{(N - 1)d^2 + z^2 p(1 - p)} \]

Where:
- \( N \): size of population
- \( p \): population ratio to be esteemed
- \( d \): error of sample
- \( z \): normal value that establishes the confidence in estimate
- \( n \): size of sample
A probabilistic stratified sample was used. The population was divided in three groups: civil servants (7.8%), teachers (4.4%) and students (87%). UNB’s active and fixed population is distributed among men and women, presenting equilibrium between these two genders. The majority part of people that attend regularly the campus (47.4%) has between twenty and twenty five years of age and 21.9% has less than twenty years, conducting to the conclusion that UNB’s population is composed in its majority by young persons. Investigating place of birth of active users, 51% are born in Brasilia. By means of time residence, 74.4% of the population lives in Brasilia for five or more years, 18.5% between one and five years and 6.8% for less than one year. These numbers suggest that Brasilia is a city of immigrants and that UNB participates as a polo of attraction for the students around the country.

The geographic disposal of residences among the users of the university shows greater incidence on the north and south wings of the Pilot Plan (46.3%) and in the satellite cities (24.5%). The location of the residences suggests that the majority of the campus users belong to the medium class. This conclusion coincides with that made by Holanda (2002, p.345) that affirms: “Is clear the predominance of the medium class in all areas …” The way to access UNB is in 86% of the cases done by motor vehicles (buses, cars and motorcycle), 1% by bicycle and only 13% accesses the campus walking. This reinforces the segregation of the university space by the road system of the city that imposes long distances to be traveled and separates the vehicle roads from the pedestrian paths. The active and fixed population of UNB is characterized socially and economically as belonging to medium class inhabitants, composed in its majority by young people and well distributed between men and women.

**Spatial Appropriation**

The analysis of the variables that investigates who are the people, where are they, what are they doing and how do they evaluate their satisfaction level related to the place of permanence, shows that, in their free time 73.2% of them remains nearby the places of unrestricted access (buildings and common areas inside them), 15.9% remain in open places and 10.9% remain in places of restricted access. Crossing data related to the place of permanence with those of the reason of permanence in the place, it was found that 38.2% of those who stay inside closed spaces of unrestricted access, they do it because they consider them a place where they can meet friends as well as a place to rest, to have fun and to eat. 19.4% of the sample also consider them a good place to study. The satisfaction level with the three types of places was classified as good. The reasons that influenced most this classification were the lack of urban furniture and the bad condition of the few existents, the possibilities to meet people, the good infrastructure of these places and their agreeability. This information makes evident that the multifunctionality of space and its capacity to integrate people is what makes a space used.

The evaluation of the satisfaction level with the physical characteristics of the open places showed that 86.2% of the campus users classified it between regular and very good, due to the variety of services offered in the campus, 68.5% due to the distance between the services and 63.9% due to walking conditions of the paths.

The visual integration of UNB’s space was considered good by 54.2% of the sample that considered that the space provides perception and interaction with others. However, the research shows that persons’ interaction occurs in the courses and working places and not outside of them as 79.4% of sample answered that they relate with colleagues of work and teaching courses in their free time.
In relation to the orientability of space 89.1% considers it very bad to be regularly resolved. The reasons that contribute to this classification are the lack of signalization, the distance between them comparing to the size of the campus and the fact that the majority of the signalizations are expressed in acronyms of difficult comprehension.

The last part of the questionnaire evaluated if the symbolic, emotional and aesthetics characteristics have influence in the spatial appropriation. The research shows that the most remembered place in the campus is the CIC building pointed by 70.05% of the answers, followed by 4.01% of the answers that pointed the open green places as the representative place of UNB’s campus. It is interesting to realize that the most remembered place is directly related to the strong configuration of the CIC building and its symbolic power, since 45.77% of the interviewed chose the CIC as the university’s symbol, followed by 24.3% that chose the main axes of access and 10.21% that chose the map of the UNB as the symbol of the university. Totaling answers, 80.28% of them relates to the space configuration.

Investigating the aesthetics aspects, 51.44% considers UNB’s landscape beautiful identifying the main reason as the abundance of green areas (45.48%). This fact was comproved by the answers on what they consider the most pleasant thing on space (36.54%). When asked about what was the most unpleasant thing on campus space, the majority answered to be the lack of infrastructure, the lack of maintenance and the long walking distances.

As it was asserted, the open green spaces are pleasant on the aesthetics and visual points if view, and unpleasant because they difficult the movement and the integration of persons.

**Conclusion: Analysis of UNB’s Social Logic**

The UNB’s urban configuration is characterized by its specialized use zoning, the lack of continuity with city roads, the large free areas without defined destination, the long distances between service equipments and buildings, all this resulting in a space lack of information and of hard appropriation. What is observed from the UNB’s urban configuration is that it results from formal values, which characterizes the way social relations occurs and how they influence the spatial appropriation by campus users. The spatial appropriation of UNB’s campus is related to its spatial configuration and to the services offered, as well as to the satisfaction level that results from its green open spaces, even though under utilized, or as Holanda (2002, p. 352) said: “essentially expressive (they appreciate it visually), and not instrumental (they don’t use it)”.

**References**


