

*Seeking the Social Spaces for Students in High-Rise Vertical University Campuses of Bangladesh: An Emerging Need in Higher Education*

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**Abstract**

In recent times, with constrained land scenarios, the university campuses have been designed as high-rise vertical buildings under private governance in Bangladesh. The essential educational functions are tightly arranged within the high-rise building while the social spaces often remain inconsiderate. Building's circulation spaces like lift lobbies, stair or corridors are used as interaction spaces by the students. In the rented campus, the students are merely allowed to stay in these spaces after class hours. Although social interaction among students in the higher education sector influences lifelong learning. Professional architects try to design internal open space or plaza as the social spaces in the high-rise universities. However, this research tries to find a pattern of social spaces integrated within the whole building system. Student interview and observation methods are used in two case studies to find the existing social spaces, designed or modified within the campus. The space syntax method is used to find the spatial structure of these social spaces within the building system. The case studies represent different architectural characters, which helps to explore the common pattern of social spaces. It is found that the spatially most integrated and well-connected spaces of a vertical university are chosen as social spaces by the students. Findings also reveal that, there is a need of social space for the students staying in the upper floor classrooms. Hence, students functionally modify provided spaces as their comfortable social space.

Keywords: Higher Education, Vertical University Campus, Student's Informal Interaction, Social Spaces, Informal Learning at University Campus

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## Introduction

The higher education facilities in Bangladesh were inaugurated in 1921 during the British reign (Miah, 2012). The first university of Bangladesh was Dhaka University modeled after British Universities. The political change throughout the 19<sup>th</sup> century led to plan and establish new universities under the multiple former governments. In 1971, after the liberation war, Bangladesh was formed as a new nation with its own authoritative body. The ‘University Grant Commission’ was formed in 1973 to monitor and circulate the higher education facilities with administrative authority among Bangladeshi nation (Sarkar & Hossain, 2018).

The demand for higher education facilities in Bangladesh increased among the people eventually. The population number was such increased that, it created immense pressure on student’s admission in the existing public universities and resulted in session clogging. Since 1990, government encouraged private organizations to provide higher education facilities with administrative and infrastructural support. These support systems are monitored by University Grants Commission (UGC) of Bangladesh. According to UGC, there are 55 public universities and 110 private universities till year 2023. Among these private universities, only 44 universities are operating in their own campus (University Grants Commission, 2023).

The public universities are often designed as horizontal campuses, with multiple buildings accommodating multiple departments and functions. These buildings are designed and built according to phase-wise master planning. Eventually government occupies a huge amount of land area and proposes phase-wise expansion for these public universities (Sarkar & Hossain, 2018). The Chittagong University occupies the largest land area of 2100 acres and Bangladesh University of Textiles (BUTEX) has the smallest land are of 12 acres, among all other public universities (University Grants Commission, 2023). In this big amount of land area, there are ample opportunities for ambiguous or designed social spaces used by the students. Sometimes the surroundings of cafeteria building or the auditorium complex or the department are used as social space by the students.



Figure 1: Student’s Social Interaction in the ‘Teacher- Student Center (TSC)’ at Dhaka University

On the other side, the private universities usually accommodate the educational functions and administrative departments in a same building. Due to land constraints and other financial factors, the minimum built area (rented or owned) of a private university is defined as 25,000 square feet by UGC. The table 1 shows the land area of some renowned private universities of Bangladesh. This data was found in their accompanying websites.

Sl no.	Name of the University	Land Area
1.	East West University	2.45 Acres
2.	Ahsanullah University of Science and Technology	1.676 Acres
3.	State University of Bangladesh	3 Acres
4.	BRAC University	7 Acres
5.	South East University	1.3 Acres
6.	University of Asia Pacific	1 Acre
7.	North South University	5.5 Acres

Table 1: List of Some Renowned Private Universities With Their Land Area

This universities are designed as high-rise building, accommodating all the necessary functions in different floors or wings. Professional Architects design internal plaza or open space, terraces, wide corridors to fulfill the social need for the students. Although often the architects are pressurized by the university administrative team to design least ambiguous open spaces due to the financial factors. Sometimes they pressurize modification after construction too. In the rented campus, these ambiguous spaces are also considered for rent. Eventually, in some cases these spaces are considered as less important. As a result, the ambiguous spaces which are somewhat used as social spaces, remain inconsiderate. In this research, the author tries to find the spatial pattern of social spaces within the restricted land scenario. Two case studies have been chosen where the ambiguous open spaces and terraces or corridors are not modified after construction and remained as per design with regular use by the students.



Figure 2: Wide corridor (15 feet) in front of the classrooms designed by the Architect of University of Asia Pacific, where students can interact. The corridor is equipped with drinking water provision and signage.

### Why Social Space in University Campus?

Social space is a virtual or physical place where people gather and interact. For the city people, the city centers, public spaces or parks, restaurants etc. act as social space. This is an informal kind of space which are produced by the society according to the spatial practices that exist in the society (Carter, 2004). Purpose of social spaces are mostly recreational, motivational and information sharing. University is a formal educational institute where students are adult learners. Numerous studies discuss about the importance of university campus environment not only for education but also as a center of community development (Gulwadi, et al., 2019). To ensure lifelong learning for an adult learner in higher education, both formal and informal learning are necessary in university campus (Rownak, K.S., 2023).

Hence spaces for both formal and informal learning are equally important in university campus.

Informal learning spaces are defined as non-discipline specific spaces frequented by any users where self-directed learning activities are undertaken by the learners outside the classroom period (Harrop & Beatrice, 2013; Ibrahim & Fadzil, 2013). These spaces are ambiguous like the open spaces, terraces or lobbies- corridors etc.



Figure 3: Terrace at Southern wing designed by the Architect of North South University, where students can interact. The terrace is equipped with drinking water provision.

According to Fisher (2005), there are three learning possibilities in university campuses- i) instructional learning, ii) practice-based learning and iii) informal learning or self-directed learning. The self-directed learning is a primary criterion for adult learners in higher education (Knowles, 1975). Hence, it can be said that the social spaces in universities are the spaces where the learners interact and attain the informal learning process. There is no way to ignore these social spaces in university campus.

### **The List of Student Activities As Informal Learning Process in University Campus**

To understand the social experiences in campus learning process Crook & Mitchell (2012), taken a rigorous field survey with student's interview, recording audio diaries and spot conversation. They found four types of social engagement in learning scenario, which are:

- Focused Collaboration: Occasions of traditional and relatively intense joint problem solving. These are likely to be planned and strongly outcome-oriented.
- Intermittent Exchange: Whereby students convene for independent study that permits an occasional and improvised to-and-fro of questioning or commentary.
- Serendipitous Encounter: that is, Chance meetings with peer in which study related issues (and perhaps other matters) are discussed briefly and on the fly.
- Ambient Sociality: Students identify the importance of simply 'being there' as participants in a studying community.

Based on their research and a pilot study, in 2017 Wu., X. et.al. divided the socializing and informal learning activities into six degrees of informal learning process. Both of these

research lead to the overall scenario of the student activities in their university campuses. These student activities are quantified during field survey. The activities are summarized in the following table 2 (Rownak, K.S., 2023):

Activity Code name	Campus Activity Name	Type of Social Engagement/ Interaction in Learning Scenario	Degree of Informal Learning Process	Type of students' Activity on campus	State of Activity	Volume of Activity
(a)	Classes	Ambient Sociality	—	Formal	Static	8 person or more
(b)	Lab/Studio Sessional Work	Focused Collaboration	—	Formal	Static	8 person or more
(c)	Group Study/ Discussion Upon any Ideas from Books / Internet or other resources	Focused Collaboration	Focused informal Learning/ Intermittent Exchange	Informal	Static	2, 3-5, 5-7, 8 person or more
(d)	Study Alone	Ambient Sociality	Focused Informal Learning	Informal	Static	--
(e)	Having Snacks/ Coffee/ Lunch	Serendipitous Encounter	Dietary related activities	Informal	Static/ Moving	2, 3-5, 5-7, 8 person or more
(f)	Casual Meet up with Friends	Serendipitous Encounter	Focused Socializing	Informal	Static/ Moving	2, 3-5, 5-7, 8 person or more
(g)	Play Games	Focused Collaboration	Focused Informal Learning	Informal	Static	2, 3-5, 5-7, 8 person or more
(h)	Wait For Someone/Group	Serendipitous encounter	Serendipitous encounter	Informal	Static	2, 3-5 person
(i)	Student Club Meeting/ Practice	Focused Collaboration, Intermittent exchange	Intermittent exchange	Informal	Static	2, 3-5, 5-7, 8 person or more
(j)	Exhibition/ Student's Fair/ Cultural Program/ Flash mob/ Festival	Focused Collaboration, Ambient Sociality	Focused Socializing, Ambient Sociality	Informal	Static/ Moving	8 person or more
(k)	Seminar/ Workshop	Focused Collaboration, Intermittent Exchange	Intermittent exchange	Formal/ Informal	Static	8 person or more
(l)	Class Presentation /Jury	Intermittent Exchange	---	Formal	Static	8 person or more

Table 2: List of Student Activities in University Campus

## Methods

The case studies are selected upon representing different morphological characteristics. The floors of University of Asia Pacific are vertically well-connected and the floors of North South University are horizontally well connected. The UAP (University of Asia Pacific) campus has square form plan whereas the NSU (North South University) has two linear wings connected through bridges. Survey at two different kind of case studies unveil the spatial logic for student's interaction in the social spaces.

For conducting student's interview, a focus group of 10 students are formed. They are provided with the questionnaire format and floor plans. Individually they interviewed 10 other students and note down their preferred social space. In UAP there are 111 responses and in NSU there are 123 responses. Multiple observation points are defined from where the time-lapse videos and still photos are recorded to monitor students' informal activity locations.

The space syntax method is used to understand network representations of space to find the relationships between space and the society for the purpose of architectural research design (Al-Sayed, 2014). The axial map is the fundamental syntactic representation of space. An axial line is defined as the longest line representing the maximum extension of a point of space (Hillier, 1984).



Figure 4: Convex Space and Concave Space with an Internal Axial Line

The integration value of an axial line depicts a normalized measure of distance from a space or origin to all others in a spatial system (Hillier, 1984). The higher integration value of any axial line in any space means the space is nearer to the origin of space in the system. The highly integrated spaces create a foreground network of that system which holds the top 10% of integration value in the system.

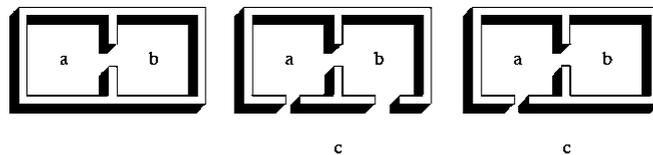


Figure 5: Configurational difference of spaces which are apparently symmetrical according to their permeability (Hillier, 2007)

Local integration value means the normalized measure of origin of space at local radius 3, which forms the local pattern of spatial networks. The global integration value means the normalized measure of distance from the space of origin at infinite radius. The connectivity value means the number of other spaces connected to the specific space. Higher connectivity value of an axial line of any space depicts higher connection of that space with other spaces. These measures are found from a simulation software named—Depthmap. Simulating all the

floor plans together in this software provides the syntactic analysis defined by the space syntax theory and thus calculate these spatial measures.

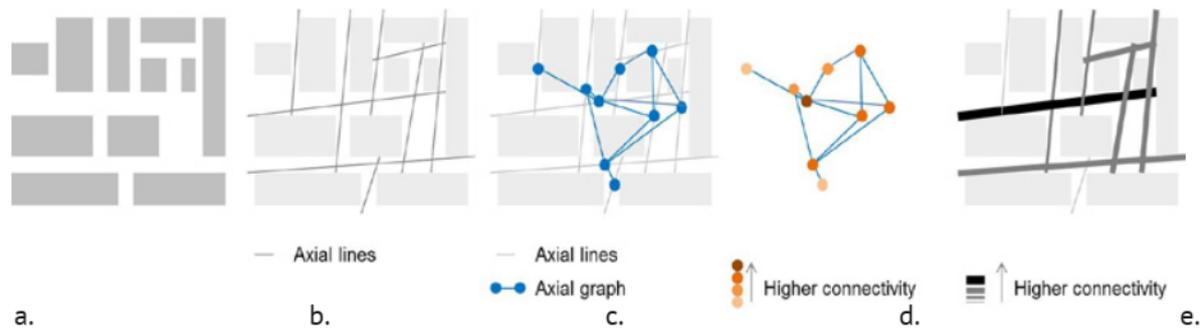


Figure 6: The axial representation of space syntax. An urban space (a) represented by the fewest and longest axial lines (b), axial lines are represented by a graph (c), The graph connectivity is by highlighted in (d & e) (Al-Sayed, 2014)

### Analysis and Findings

In the case study UAP, the internal open space is made of front plaza, internal plaza and the back plaza. The recorded student activities are highest in these cumulative spaces. Right after comes the classrooms itself and the corridors and library. Finding the spatial values, it is seen that these spaces hold the top 10% spatial values of the system.

Top 10 % values range of the spatial system in this case study:

- Local integration: 2.71-3.705
- Global Integration: 1.148-1.587
- Connectivity: 11-23

Space name	Average Local Integration value	Average Global Integration value	Average Connectivity value
Front Plaza and Plaza Stair	2.7	1.085	10.78
Internal Plaza with Transient space and extension	2.92	1.15	12.69
Back Plaza with transient space and extension	2.71	1	11.3
Cafeteria & Juice Bar	2.67	1.12	9.8
Auditorium	2.48	0.911	7.5
Multipurpose Hall	2.6	1	9.11
Library	2.48	0.95	10.75
Classrooms/ LAB	2.98	0.98	4.11
Corridors	2.84	1	15.7
Lift Lobby	1.9	0.85	8

Table 3: Average Spatial Values of the Social Spaces at UAP

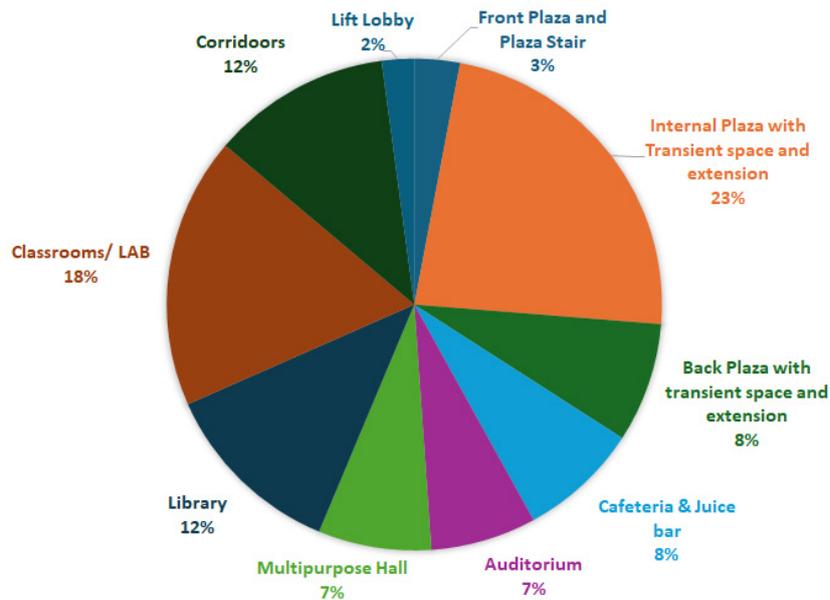


Figure 7: The Percentile Value for the Recorded Informal Activities in UAP Campus

In the case study NSU, the entry plaza, gallery plaza, north plaza, east plaza, amphitheater and the upper plaza made up the internal open space. The survey reveals that these parts altogether accommodate the highest informal activities. Right after comes, cafeteria and the terraces. Regarding the spatial values of these spaces, it is also seen that they contain the top 10% spatial values of the system.

Top 10 % values range of the spatial system in this case study:

- Local integration: 2.99-6.51
- Global Integration: 1.07-1.3
- Connectivity: 12-48

Space name	Average Local Integration value	Average Global Integration value	Average Connectivity value
Entry plaza with entry lobbies	4.11	1.25	36.00
Gallery plaza with transient spaces	3.55	1.13	26.00
North plaza	3.27	1.03	17.50
East plaza	3.30	1.10	19.14
Open Amphitheatre	3.61	1.06	25.57
Upper Plaza with sideways	2.65	1.00	8.66
Female and Male Lounge	3.85	1.20	28.50
Cafeteria and snacks bar	3.69	1.19	27.50
Club rooms, Exhibition spaces and Gymnasium	2.37	1.00	6.37
Corridors	3.43	1.25	19.25
Study Hall	3.32	1.09	16.40
Auditorium lounge and Rehearsal room	2.90	0.85	9.46
Library	3.53	0.78	14.40
Terraces	2.52	1.01	8.71
Upper Terraces	2.35	0.82	6.09
Multipurpose hall	2.88	0.67	9.23
Classrooms	2.05	0.825	3.00
Classroom Corridors	3.25	0.88	5.00

Table 4: Average spatial values of the social spaces at NSU.

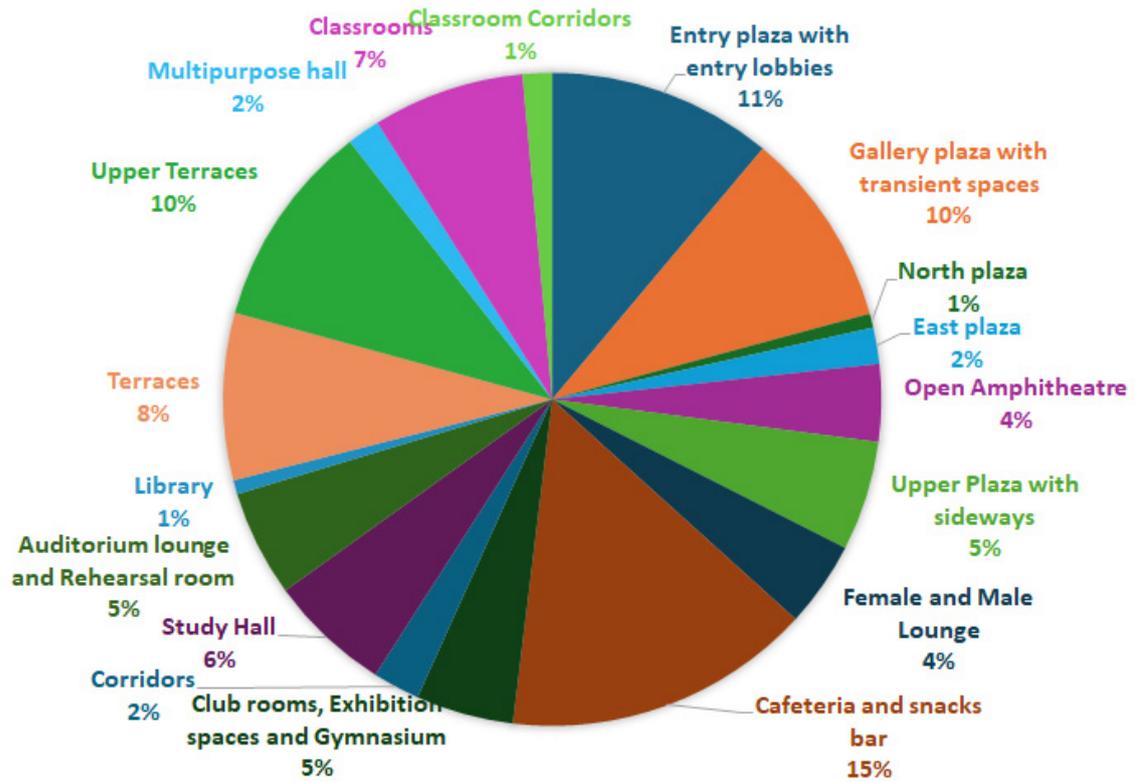


Figure 8: The Percentile Value for the Recorded Informal Activities in NSU Campus

## Conclusion

From the analysis above, it can be said that the main social space of a vertical university campus is its internal open space. The more integrated and connected parts of the internal open space attracts more social interaction. Apart from the internal open space, students adopt other spaces like, classrooms, corridors, terraces or cafeteria as their comfortable social space if these spaces belong to the top 10% spatial value of the system. Further research is needed to find the gender priorities of the social spaces, surveillance in these spaces, the area of required space according to the volume of user group and focus upon any specific informal learning activity in university campus.

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