Creation the space for communal learning place in the area between buildings

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Abstract. One of the objectives of outdoor space planning and campus building is to accommodate students need for learning activities and social interactions. The Faculty of Mathematics and Natural Sciences one of the 15 faculties in the University of Sumatera Utara has a uniqueness in the use of gathering space on campus. By using mixed research methods, it found many students use almost their time in outdoor communal space. The students transform the outdoor space between building from relax space to be learning activities space. Because of limited outdoor spaces and many works have to be finished the students adapt the outdoor space for their needs with their own ways. Their activities and interaction create space that fit to them and characterize the area.

1. Introduction
In the era of technological advances, the major challenges for colleges and universities today are to create a seamless learning environment and technology capability for faculties and students, one that addresses the use of all learning space. Salama (2008) [1] stated that architects typically develop statements that clarify their design philosophy, intentions, and imperatives by which they pursued their design tasks, architects in these statements emphasize their complete awareness of cultural, environmental, and perhaps economic constraints, but users are always in the shadow and are simply taking a back seat. These statements fail to reflect or address a major component—that is people or users. Before making the design the architect have to investigate one of the initial intentions in the design of the campus, how users comprehend it, see it, and actually use it. In the planning of the campus not only focuses on the 'built space' physical space, which concerns the morphology, perception, function, and meaning of the space; the thing that attracted the attention of architects, but need to pay attention to the physical characters of the 'social space' as a present in conjunction with the phenomena that occurs in society (social).

Faculty of Mathematics and Natural Sciences (FMIPA) is one of 15 faculties in the University of Sumatera Utara (USU), consists of 4 departments and divided into 18 courses. Geographically, this campus flanked by the Faculty of Agriculture, Faculty of Forestry, and Faculty of Engineering. Based on the discipline of the student spent their time most in the laboratory. Besides they need space in support of higher student learning performance, they also need learning facilities and receptacles that facilitate student expression space in order to do relaxation. It is an open space. The open space is a place for sports, recreation, play, brooding, conducting meetings and social activities. The physical environment in terms of open and structured space can be defined as an environmental utility for individual and social use. The high-quality open space is supporting the relationship between students personal and improving
the quality of university life. Such areas must be designed and managed to serve the needs of their users, accessible to various groups and provide freedom of action or expression. In this case, university and campus architects are responsible for understanding and serving the needs of campus room users, not only building up to look good visually. This paper will be discussed how students of FMIPA utilize the outdoor space campuses daily.

2. Method
Faculty of Mathematics and Natural Sciences (FMIPA) is the research locus in the planning and performance of the social space. This research uses a mixed research method with qualitative and quantitative research. The previous research conducted before study became researcher's guide to understand the form, pattern and characteristic of activities and students interaction in using and creating the space on campus. The research method is done by collecting data through observations for two weeks in the morning, noon and afternoon throughout the outside of the area to find student gathering points; monitoring, and counting the number of user spaces and activities as well as performing the depiction of the gathering point map and doing questions and answers about the student's activities being performed.

3. Results and discussions
3.1. Student activity vs communal space facilities in Faculty of Mathematics and Natural Sciences

The campus of FMIPA (Figure 1, point 9) this faculty consists of Department of Mathematics, Biology, Chemistry, and Physics located in Bioteknologi Street has formal and informal space. The formal spaces are used for teaching and learning activities such as classrooms, laboratories, and halls. While the informal spaces are the space to support student learning activities on campus, such as of canteen, pendopo, and gazebo. As the largest faculty of science in Sumatera Utara, this faculty has large laboratories and complete equipment. The condition then makes this place also widely visited by students, researchers, lecturers to conduct research practices in the laboratory. Based on data obtained from the information site of USU students in 2018, this faculty has 4043 students, 170 lecturers and 54 employees, the number of students makes FMIPA ranks 7 out of 15 faculties (Figure 2). But the user of
spaces is not only from this faculty, but also the students and lecturers of the Faculty of Agriculture, Faculty of Pharmacy and Faculty of Engineering join with them, but also some universities in the city of Medan regularly every week are using the laboratory faculty of MIPA.

![Number of Students in Faculties](image1.png)

**Figure 2.** Number of students in Universitas Sumatera Utara.

Every day the campus area looks crowded and busy. Based on the results of the study it was found that FMIPA has the highest number of space users, 2897 students of a week, compared to 14 other faculties (Figure 3). The students with white uniforms will look everywhere with paper and stationery in front of them (Figure 4). The serious expression and concentration reflected through their facial expressions and movements. Some interactions are seen in progress, but merely some of them are even seen delaying interactions with others in order to do their activities. Working on a research report is a moment that is very much time consuming. For the students Department of Kimia and Biologi's activities laboratory schedules dominate their time each day. It makes them every time after the laboratory should summit report, so as not to lag and accumulate the next day.

![The User of Communal Space in USU](image2.png)

**Figure 3.** User of space in Universitas Sumatera Utara.
Informal space is a place where these scientific students have a great opportunity to interact with each other in a campus environment. In this place, they have the freedom to utilize a good time to socialize, develop science, and improve creativity with their talents. A good university setting is essential to facilitate cognitive and social development of students (Johnson & Lomas, 2005) [2]. The limited classrooms provided by campus planner and time of use of the laboratory make them unable to engage in indoor spaces, choose to do their journaling activity in outdoor spaces while waiting for their next schedule. The research finds that MIPA area has 15 outdoor communal spaces, 9 are spaces provided by the campus (Figure 5). The outdoor space is commonly used by students including corridors, canteen, the place in front of the classroom and seating under the trees (Figure 6). In the space, they tried to adapt to the environment.
Roger Scruton (in Beng-Huat, 1992) [4] explains that the term public space/communal space refers to the location those are: (1) accessible to any person, (2) less appropriate for individual use, (3) the user's behavior of space bound by the norm of applicable social media. Salama, in his findings, states that the best outdoor space for students interested in terms of green space, enough shading devices, nice seating, and good meeting spots. The gathering space available at the MIPA campus itself is largely a space facilitated with seating, located under the tree and accessible. But according to the students, the available gathering space is not effective in accommodating their needs. This is because space availability has not been able to accommodate student volumes. The seating facilities, tables, internet, and electricity provided are very limited. The lighting in the room is still poor, make student utilize the light of a portable computer for night on campus. The space provided by the campus is limited. Therefore, students choose to use the existing space. In the spot close to the laboratories and classrooms. There are 6 out of 15 students use to accommodate their needs (Figure 7). In that space they utilize benches and floors, sat down, discussing and writing journals (Figure 8).

![Figure 6](image)

**Figure 6.** 3 of 9 outdoor communal spaces provided by campus.

![Figure 7](image)

**Figure 7.** Location the communal space adapted by students.
Figure 8. 2 of 6 the communal space adapted by students.

In the space in the faculty is not possible to use, they use the space outside the area such as USU library (9). They also work in the cafeteria area to finish the journal, under the tree and around the pool (Figure 10).

Figure 9. Student out of Faculty of Mathematics and Natural Sciences to find a space that accommodates their needs.

Figure 10. Students use the communal outdoor space outside the Faculty of Mathematics and Natural Sciences area.
3.2. Outdoor communal space by student

The limitations of the outdoor space created by the planner and built by university cannot accommodate the activities of students. Students create spaces by utilizing the corridors located in front of a classroom or laboratory building. They also gather in the communal buildings such as canteen (cafeteria), student society buildings, and main corridors.

In the same time the space for learning is also limited, it does not become an obstacle to students on their learning process. In their own way they find alternatives to accommodate their needs. Every day they struggle to find and create the space to use. They adapt the condition by using every desk they find in cafeteria. So the space between building and circulation in this area become the favourite spaces for student. It because the solution of the limited space for work. Students adapt the communal space to be the work space for solving problem.

The cafeteria is the choice for students to work outside the classroom or laboratory. In this area, the cafeteria takes place in the middle of the area, locates between building in the area (figure 11). Students are also from other faculties and outside university. The laboratory is actively open in a weekend then make this cafeteria become very crowded with students for eating and drinking. There the students not only drink and eat, they work to finished their reports that have to submit every time finishing their laboratory work by using the desk of the cafeteria (figure 12).

![Figure 11. Location of communal space in Faculty of Mathematics and Natural Sciences area.](image-url)
4. Conclusions
Faculty of Mathematics and Natural Sciences in Universitas Sumatera Utara does not have enough spaces for students to do their regular academic works every day in a week. The limitation of spaces built by university makes the students of Science Faculty and other faculties have to find the solution by themselves. Students try to fulfil their needs of space by using communal space outside the buildings for their work spaces. Cafeteria which is on the circulation spaces between buildings become the choice. Here, they adapt the gathering space for eat and drink to be the space where they can finish reports of their actively laboratory's every day. Space between building is not an empty space but they are able to be transformed as the solution of the lack of work space.

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