

# Studio Learning Expansion: Space Used to Guarantee Architecture Students Study Activities

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**Abstract**—Studio architecture, as the core of education in architecture, is a simulation and project-based multimodal learning. Studio-based learning has the main characteristic of being hands-on, which allows students to think, learn, and do at the same time. Apart from being done in the studio, studio learning can be done anywhere and anytime, so it creates an informal learning space. This study took a sample of undergraduate architecture students to see the spatial expansion that occurred in order to support studio learning. Data collection was carried out through observation and interviews to understand space utilization, as well as image documentation to process the data and interview validation. Studio-based learning, because it has the longest duration and the biggest load in one semester, tends to be a priority for students compared to other architecture courses. The study process is carried out iteratively for one semester, with the final output being a design product. Thus, the study process is not only carried out in studio time but continues in expanding space. Places that have become studio learning expansions are campus facilities such as libraries and off-campus facilities such as cafes and boarding houses. The boarding house is the most dominant expansion of studio learning because students have maximum control over the use of space so that the continuity of learning activities at the design execution stage can be guaranteed.

**Keywords**—Architecture studio, learning space, territory.

## I. INTRODUCTION

Architecture students have studio-based learning activities that have a deadline of up to one semester. Studio-based learning are the most dominant subjects with the highest credit hours per week when compared to other architecture courses (Ibrahim & Utaberta, 2012). Studio architecture, as the core of education in architecture, is a simulation and project-based multimodal learning (Desiyana, 2019). Design simulation involves various drawing media, both manually, such as drawing using drawing tools and digitally with the help of software. In addition to design drawings, there are times when architecture students also make models to create design objects. All types of models discussed, especially in the studio learning process, can be considered as study models. Study models are divided into two distinct groups namely primary models that are concerned with the evolution of designs and secondary models that are concerned with the part of the project that is given special attention. Activities in making models are very diverse, from cutting materials, gluing components, to finishing (Mills, 2002).

The purpose of architecture studio-based learning is to make students learn to think and act as architects (van Dooren, van Dorst, Asselbergs, van Merriënboer, & Boshuizen, 2019).

The studio learning model has the main characteristics of hands-on or first-hand experience or learning by doing. Design studios teach critical thinking and create an environment where students are taught to question everything to create better designs. Most studio activities, individually or in groups, are carried out in a studio room accompanied by a number of mentors (Rijal & Aldy, 2012). Even though every architectural education has a different studio culture and even though each studio is different, there are common aspects that are clearly visible (AIAS Studio Culture Task Force, 2002). The same behavior among architecture students in the studio learning process can be divided into positive and negative aspects (Lueth, 2008). Positive aspects include the potential for integrative learning in the design process, the design process through project-based assignments that allow students to think, learn, and do at the same time, student-to-student learning that allows students to share a sense of friendship and mutual respect, and learning structures studios provide opportunities for students to understand differences and make choices based on these differences (AIAS Studio Culture Task Force, 2002). In addition to the positive aspects, studio culture also raises negative aspects including unhealthy student health and work habits such as all-nighters behavior (Fisher, 2001), the tendency to isolate by spending most of the time with people in the same discipline (Anthony, 1991; Boyer & Mitgang, 1996), may ignore other subjects and only focus on the studio because they regard the studio as a master value, have expectations that do not match reality because often new graduates become a source of labor and not ideas (Gutman, 1997), design competition which causes tension because they have to perform better than other students, lack of liberal arts and/or broad interdisciplinary education, incomplete instructor education (architects are taught to be architects -not teachers who are faced with educational theory), lack of student-centered assessment in In studio learning (students tend to interpret worth over grades) (Kohn, 1999), this very common form of evaluation is sometimes seen as a place of harsh judgment (Anthony, 1991).

Studio learning is mandatory to do in the studio. However, learning activities can also occur outside the formal system in traditional schools such as watching video lectures at home or even doing assignments in a cafe. This is called the flipped classroom concept (Abeysekera & Dawson, 2015). This term was further popularized as an informal learning space (ILS) by Walton & Matthews (2018). ILS locations can be divided based on student needs, where on-campus spaces are mostly

used by students to work in groups and homes tend to be used as private study spaces (Beckers, van der Voordt, & Dewulf, 2016). However, it seems that today's learning activities can be carried out anywhere and anytime, giving rise to informal learning spaces. Thus, this study will look at which spaces are used by architecture students in order to ensure the continuity of studio learning.

## II. METHODOLOGY

The space used by architecture students in order to ensure the continuity of studio learning will be seen based on the theory of territory and privacy. Territory means area and territoriality is an area that is considered to have become someone's right. There are three classifications of territories namely primary, secondary and public territories (Altman, 1980). Primary territory is a private place that can only be accessed by the owner or people who have received permission. Secondary territory is a place that can be accessed jointly by a group of people. Public territory is a place that is open to the public. Privacy in this study is discussed in order to show efforts to optimize the fulfillment of the needs of architecture students as residents to support their studies. Altman (1975) in Hutchison (2015) defines privacy as selective control over access to one's self or group. This concept includes two key components: privacy means having control over one's own information and relationships with others. Kupritz (2003) in Hutchison (2015) has expanded on Altman's ideas by making a distinction between speech privacy (being able to hold a conversation without being overheard) and visual privacy (free from unwanted surveillance).

The method used in this study is qualitative, relating to efforts to explore and understand individuals or groups associated with certain phenomena (Creswell, 2013). The phenomenon to be observed is how architecture students expand space in order to support studio learning. The data used are in the form of narrations, images, and other audiovisual materials that are able to represent student experiences. Data collection begins with distributing questionnaires as an initial survey to architecture students to obtain a representative number of samples. In this study, questionnaires were distributed and 213 respondents were obtained for general domicile mapping. Domicile data is needed to see the occupancy patterns of architecture students because Beckers, van der Voordt, & Dewulf (2016) stated that houses tend to be used as private study spaces. Meanwhile, the types of houses are very diverse. From the results obtained, more than half of the respondents live in boarding houses (55%), the rest live in residential houses, apartments, rented houses, dormitories, and live in colleagues' houses (45%). Of the total respondents, a purposeful sample was selected to become research participants (Dukes, 1984; Creswell, 2013) to conduct interviews regarding the expansion of studio learning. The participants in this study were architecture students from tertiary institutions who had accreditation A. These participants were considered sufficient to represent the research context because they were filters resulting from cohort effects (Rapoport, 2005), namely similarities between groups of individuals. Thus, wherever research is conducted,

architecture students are the same group of individuals and their lifestyle will also be the same. An interactive model was employed for the data analysis in this study. Data reduction, data visualization, and conclusion drawing/verifications are the three flow of activities that occur simultaneously in qualitative data analysis, according to Miles & Huberman (1994). By choosing, concentrating, abstracting, and changing the data included in field notes and transcripts, data reduction is accomplished. Presentation of data in this case is in the form of narration and images. Conclusions are drawn by testing (testing) to ensure the correctness of the research results by reviewing the quality of the data and asking for feedback from participants.

## III. RESULT AND DISCUSSION

Architecture students use a multimodal learning method, which in this case is an architecture studio which is the core activity of lectures. Studio-based learning or architectural design studio learning activities, hereinafter referred to as studio learning, has the longest duration and the heaviest load compared to other architecture courses which usually consist of 6 to 8 credits in one semester. The study process is carried out from the beginning to the end of the semester and the final output is a product whose design process is integrated from the start. Studio learning is considered the most basic course in the field of architectural studies because it is in the form of design activities. Some students even stated that studio learning was their favorite subject. One of them was expressed by participant K.

*"Actually, to be honest, among all the subjects, the studio is actually the most exciting because yes, it's architecture, design, that's how it is, I like it" –K, 2023*

The architectural education system is unique compared to other fields of study. The architecture education system in Indonesia adapts the past education system where the learning process focused on learning models in the studio. What is meant by a studio in this study is a room provided by the department as a place for students to work on assignments given by supervisors. This learning model is modeled on the Beaux-Arts era where aspiring painters and sculptors worked in the studio accompanied by their masters. Many things can be learned by students in studio learning regarding conditions to problems in the design process. Studio-based learning must be carried out effectively, efficiently and professionally. Studio-based learning has the main characteristic of hands-on which allows students to think, learn, and do at the same time.

Of all other architecture courses, studio has the highest credit load, namely 6 to 8 credits. When converted, the final studio score of 6 or 8 credits has the greatest impact on a student's GPA in one semester. Therefore, the workload for studio learning is the heaviest and tends to be a priority for students. This causes students to constantly think about studio assignments and try to make them as good as possible.

*"For the most part, there are also a lot of tasks, for sure it's like the main priority is doing the studio's assignments the most. The assignments, the thoughts, like thinking oh earlier I was missing this... lacking this... I thought I haven't entered this.." –B, 2023*

Studio learning has 6 to 8 credits. Based on the 2019 Campus Academic Regulations, semester credit units (credits) are the measurement of study time charged to students per week per semester. In 1 studio credit, study time is 170 minutes. This is of course different from 1 credit of lectures which only lasts 50 minutes because lectures prioritize aspects of knowledge while studios lead to learning that involves psychomotor skills. In one meeting, the studio class takes place from 07.00 to 16.20 WIB. Studio learning is basically very flexible. Studio assignments can be completed anywhere and anytime. In fact, students already have an individual place to work even with minimal control, namely a study table in the studio. However, because studios are usually only open during working hours, there are two categories of places that students usually go to work on studio assignments, namely campus facilities and places off campus. During studio hours, 10 participants worked on assignments in the studio. During class hours but not studio hours, 3 participants sometimes do assignments in the library and 3 participants in the café, while the rest return to the boarding house. However, all of them stated that the boarding house was a place to do their assignments when they were not there. The choice of where students work on studio assignments can be seen in the image below.

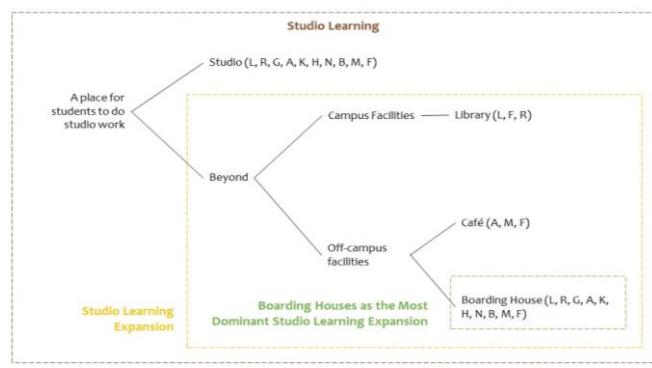


Fig. 1. Studio Learning Expansion

During lecture hours, students usually take advantage of campus facilities such as the library. The campus library, hereinafter referred to as the library, is one of them. The library, apart from being chosen because it is located quite close to the Department of Architecture, which is only about 100m past the Rectorate, is considered to have very adequate spatial conditions for conducting studies. A quiet room without any sound disturbance, there are sockets at various points, enough desks to open a laptop, making students feel at home doing their assignments for a long time. There are at least 2 of the most adequate locations in the library, namely the creative co-working space (CCWS) on the 1st floor and several rooms on the 3rd floor. Based on the results of the interviews, participants stated that they prefer the 3rd floor because it tends to be quiet compared to the 1st floor which also has a place to sell coffee.

*"Sometimes I even move to another place. I often go to the library" –R, 2023*

*"The library isn't so noisy, it's cool too. Not much traffic either" –L, 2023*

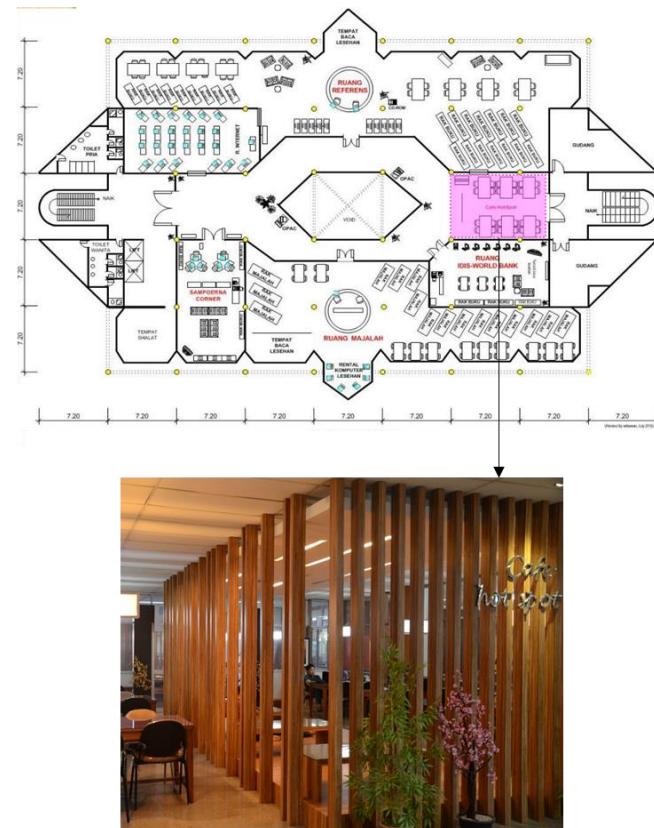


Fig. 2. The 3rd Floor Library which is the Favorite Place for Studio Expansion in the Campus Facilities Category

The 3rd floor library has several rooms that can be used by students and can be selected according to their needs. From the results of the analysis, it can be concluded that there are at least 3 main reasons why the library is a favorite spot for architecture students, namely the library is able to provide thermal comfort, visual privacy, and sound privacy. Usually, when it is past working hours and studio learning is still continuing, students will move to places off campus which they think are comfortable. Café is one of the places to go. Students stated that the reason for choosing a café as a place to do their assignments was the atmosphere. The atmosphere is considered to be a trigger for a sense of comfort that can support work productivity. In fact, to choose a café that is considered comfortable, some students are willing to travel quite a distance.

*"Yes, the cafe is the one I visit the most. The ones I visit the most are L in pucang and K in pocan. It is far? really far. The cafe ambiance also affects productivity, so it doesn't matter much as long as the cafe atmosphere is good" –A, 2023*

Among the many cafés in Surabaya, participant A mentioned that there were 2 places that were visited the most, namely café L and café K. After being analyzed, the reason for choosing the two cafés was because both of them were able to provide an atmosphere that supports the spirit of learning. What's more, Café L, which is her favorite, provides a study booth or what she usually refers to as an introverted cubicle. This booth is able to present a sense of comfort because it is far from visual nuisance. Noise nuisance also does not occur

because cafes tend to provide good music and make it more comfortable.

*"The ambiance here (talking about Café L) is good for learning because in my opinion, the interior concept of the café is considered. The view is good, it has an opening with a street view. There is also a study booth, if I call it an introverted cubicle, and in my opinion studying in that cubicle is very comfortable. (Café K) the reason is almost the same because it provides a good view, big windows that directly see the toll road, and good sunsets. Moreover, the songs played in the cafe are also pleasant to hear" –A, 2023*

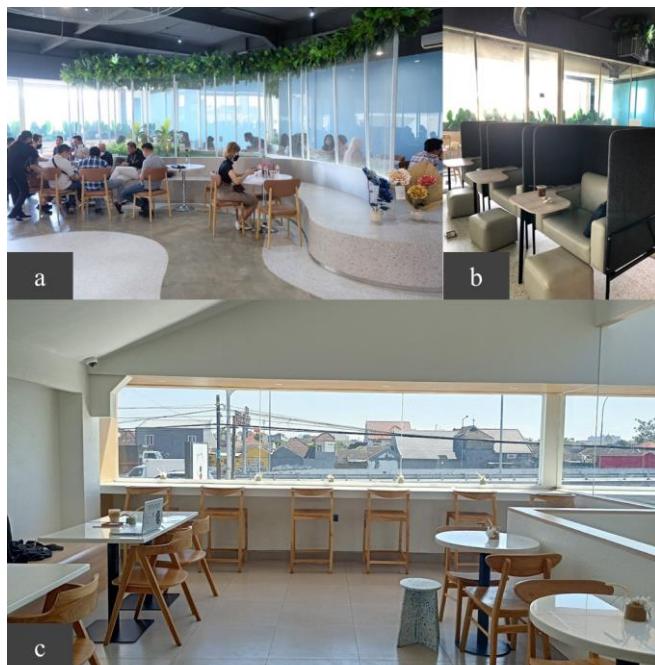


Fig. 3. Atmosphere of Café L (a) with Introvert Booth as Favorite Spot of Participant A (b) and Café K Atmosphere with View Facing Toll Road (c)

This does happen often, but it doesn't apply to everyone. From the results of the interviews, more people chose to do their assignments at boarding houses than other places such as libraries or cafes. Café, mentioned indirectly as the second choice of students in doing assignments after the boarding house was not able to fulfill it. This also relates to student finances.

*"The first thing I did was try to do my college assignments at the boarding house first so that I would minimize expenses. When I run out of inspiration, I feel like I'm really bored at the boarding house, then I might look for inspiration outside or maybe a coffee shop or a friend's boarding house" –M, 2023*

There are several reasons why boarding houses are the first choice. The first reason is because students have a primary territory so students can do activities in it without worry. In addition, visual privacy can be achieved because students have a private room, namely their own room. Of the 10 participants interviewed, none of them denied that boarding houses were the most frequent and effective destination for studio work. Therefore, boarding houses can be interpreted as the most

dominant expansion of studio learning. Boarding houses are the best choice for students when not doing assignments in the studio. In it, they can freely express and issue ideas without experiencing worries such as not being able to enter because the studio hours are not offline, the library closes when it's not working time, or the cafe closes when it's midnight. Inside the boarding house, they can be free to create for 24 hours straight. The laptop can be on all day and tasks can be done at any time. The current need for students is a laptop because designing it involves almost 100% digital technology. Therefore, it is not uncommon for laptops to not even be turned off on purpose. It's different when doing tasks elsewhere, of course expanding a place for 24 hours straight is something that could be possible, but rarely happens.

In the design process, students divide it into two main activities, namely brainstorming and execution. Brainstorming, which was dominated by discussion activities in conceptualizing designs, was mostly done in the studio because there were many friends with the same understanding to discuss with. Of all the participants interviewed, all gave the same opinion. This is because the entire studio is an architectural friend of the same generation. However, when the execution session was dominated by the activity of making 2D and 3D images using the help of software, students were more likely to choose to be alone because they needed peace.

*"When I'm looking for design ideas, I like being with friends in the studio. But if the execution is like CAD plans, 3D, rendering, I prefer to do it myself at the boarding house" –K, 2023*

*"Actually students, if I look at them and myself, (in the studio) mostly at the beginning of the semester right in the analysis stage and then also exploring forms like that because there we can have discussions and so on. If the previous one that was expanding to the boarding house maybe it's right at the end when it comes to detailing and finishing" –F, 2023*

Studio learning is iterative, which means that the design process will be carried out continuously for one semester. With a long duration, there is a division of time when students work in the studio and when they move places. Several students stated that the use of the boarding house to do studio assignments was in the final session during detailing and finishing. When the execution session is carried out, students choose another place, especially in the boarding house to do the assignment.

#### IV. CONCLUSION

The architectural education system is unique compared to other fields of study. Studio-based learning has the main characteristic of being hands-on, which allows students to think, learn, and do at the same time. Because the study process is carried out iteratively in one semester, the expansion of studio learning occurs in places that are possible to reach, including boarding houses as substitute residences for architecture students who migrate. The boarding house as a support for study activities is mainly used for execution sessions, namely the stage of working on tasks that tend to be carried out alone, such as working on 2D, 3D drawings, or

making models. The multimodal learning method, which is used in the architecture studio, requires using more than one strategy in learning. Because it requires more concentration than unimodal students, privacy is needed to ensure the continuity of architectural student study activities. Studio expansion occurs because these places are able to provide privacy. In the brainstorming stage, the majority of students will choose to work in the studio because there is a community, namely architecture students. Most of the studio assignments in the execution stage occur in places that are able to provide more privacy, such as boarding rooms, or cafes with places that tend to be quiet. Of the available options, boarding houses are the most dominant means of studio expansion because students have maximum control over the use of space.

#### REFERENCES

- [1] Abeysekera, L. & Dawson, P. "Motivation and Cognitive Load in the Flipped Classroom: Definition, Rationale and a Call for Research", *High Education Research Development*, Vol. 34, pp. 1–14, 2015.
- [2] Altman, I., & Chemers, M, *Culture and Environment*, Brooks/Cole, Monterey, 1980
- [3] American Institute of Architecture Student (AIAS) Studio Culture Task Force. (2002). The redesign of the studio culture: A report of the AIAS studio culture task force, American Institute of Architecture Students, Inc., Washington.
- [4] Anthony, K, *Design Juries on Trial: The Renaissance of the Design Studios*. New York: Van Nostrand Reinhold, 1991.
- [5] Beckers, R., van der Voordt, T., & Dewulf, G. "Learning Space Preferences of Higher Education Students", *Building and Environment*, Vol 104, pp. 243-252, 2016.
- [6] Boyer, E. & Mitgang, L, *Building Community: A New Future for Architectural Education and Practice*, N.J.: Carnegie Foundation for the Advancement of Teaching, 1996.
- [7] Creswell, J, *Qualitative Inquiry & Research Design: Choosing among Five Approaches 3rd edition*. Thousand Oaks: SAGE, 2013.
- [8] Desiyana, I. (2019). Strategi Gaya Belajar Vark Pada Studio Arsitektur Tingkat Dasar Secara Daring. Universitas Multimedia Nusantara.
- [9] Fisher, T.R. *In the Scheme of Things: Alternative Thinking on the Practice of Architecture*, Minneapolis: University of Minnesota Press, 2001.
- [10] Fleming N, & Mills C, "Not another inventory, rather a catalyst for reflection", *To Improve The Academy*, vol. 11, pp. 137–155, 1992.
- [11] Gutman, R. (1997). Professions and their Discontents: The Psychodynamics of Architectural Practice. Practices 5/6. Cincinnati: Center for the Study of Practice.
- [12] Hutchison, E.D., *Dimensions of Human Behavior: Person and Environment*. Thousand Oaks: SAGE Publication Inc. 2015
- [13] Ibrahim, N.L.N., & Utaberta, N, "Learning in Architecture Design Studio", *Procedia - Social and Behavioral Sciences*, vol. 60, pp. 30–35, 2012.
- [14] Imene, K, & Saliha, A, "Learning Styles of Architecture and Interior Design Students: A Review of The Literature". *Technium Social Sciences Journal*, vol 37, 2022.
- [15] Kohn, A, *Punished by Rewards*, Boston: Houghton Mifflin Co, 1999.
- [16] Liew, S.C., Sidhu, J., & Barua, A, "The relationship between learning preferences (styles and approaches) and learning outcomes among pre-clinical undergraduate medical students", *BMC Medical Education*, 2015.
- [17] Lueth, P.L.O, "The architectural design studio as a learning environment: a qualitative exploration of architecture design student learning experiences in design studios from first- through fourth-year," Ph.D. dissertation, Department of Curriculum and Instruction, Ames, Iowa, 2008.
- [18] Miles, M.B., & Huberman, A.M., *Qualitative Data Analysis*, 2nd ed. Thousand Oaks: SAGE, 1994.
- [19] Mills, C.B., *Designing with Models*, 2nd ed. Canada: John Wiley & Sons, Inc, 2008.
- [20] Rapoport, A, *Culture, Architecture, and Design*. Chicago: Locke Science Publishing Company, 2005
- [21] Rijal M, Aldy P, "Implementasi Metode Studio-Based-Learning Dalam Pengelolaan dan Prosedur Pembelajaran Studio Perancangan Arsitektur", *Journal of Education and Learning*, vol. 6, pp. 15-22, 2012.
- [22] Van Dooren, E., Van Dorst, M., Asselbergs, T., van Merriënboer, J., & Boshuizen, E, "The Tacit Design Process in Architectural Design Education", *Design and Technology Education: An International Journal*, 2019.
- [23] Walton, G. & Matthews, G, *Exploring Informal Learning Space in the University: A Collaborative Approach*. Routledge. 2018.