

Conducive Learning Space for Design-Based Students in Open and Distance Learning (ODL) Implementation

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Abstract. This paper discusses the spatial significance within Online and Distance Learning (ODL) environment for design-based students. Due to the challenges in online design learning, there is a need to uncover the aspects of supportive learning space that inspires creativity and nurtures the students' independence in managing their Personal Learning Environment (PLE). Hence, this study was conducted to investigate the design-based students' perception of an ideal learning space in the ODL approach. The objective is to identify the aspects of conducive learning space in the ODL implementation from the students' point of view. The methodology employed is an open-ended design brief that constructs students (n=65) to create their ideal learning space for ODL implementation. Findings of this study assert that a conducive ODL environment for design-based students consists of the physical aspects as well as psychological aspects within a space.

Keywords: Learning Space, Open and Distance Learning (ODL), Design-Based Students, Personal Learning Environment (PLE)

1 Introduction

Numerous human activities, especially those involving social interaction, were impacted since the Coronavirus outbreak at the beginning of 2020. Education is one of the sectors significantly affected by the pandemic, which has urged schools and higher education institutions to implement online teaching and learning thoroughly. As a result, public and private universities have entirely run the Online and Distance Learning (ODL) approach to sustain the education system during the lockdown and movement restriction order. ODL is an approach that utilizes e-learning tools and open educational resources in meeting the needs of distance education; thus, it is considered suitable for the pandemic situation.

While there are increasing numbers of scholarly studies concerning the online teaching and learning method since 2020, little has been discussed on the students' learning space in the ODL implementation. The learning environment that the students are surrounded with should be conducive for them to engage in ODL sessions efficiently. Therefore, this study was conducted to investigate design-based students' perception of an ideal learning space in the ODL approach. The objective is to identify the aspects of conducive learning space in ODL implementation from the students' point of view. The topics discussed in this paper include the spatial significance during the Covid-19 crisis, the issues pertaining to isolated learning

space, ODL in design-based curriculum, and the essential of a conducive learning environment.

2 Literature Review

2.1 Spatial Significance during Covid-19 Crisis

At the beginning of the Covid-19 pandemic crisis, almost all countries worldwide imposed nation lockdown to restrain the unprecedented spread of the Coronavirus. The months of staying at home have made many people realize the significance of living space for human survival. The lockdown has incited people to reflect on the condition of their living space, especially on what elements in the interior are necessary for a comfortable living and fulfilling the basic human needs. As Inully, an international design practice, stated that “society is now more conscious of the importance of attending to elementary aspects: natural light and ventilation, the appropriate dimensions and flexibility of the spaces, the use of sustainable materials, and the incorporation of technologies that connect us in many different ways” [1]. People have now become more aware of the spatial significance in daily life [2][3].

With the lockdown, various activities happened in ones’ household, namely the children online classes and parents’ working from home, while also running house chores like cooking and cleaning on a daily basis. For some people, home can be seen as “the source of refuge, security, and stability” amid global health crisis, while for others, home is unsafe and lacking in many ways; poor ventilation, minimal natural light, and overcrowding, to name a few [3]. Home has also become a crucial source of mental well-being, primarily due to the restriction to other social activities such as going to the office, working out at the park and attending face-to-face classes [3]. This supports the notion of living space as a constitutive aspect of one’s life, most crucially in the challenging time of the pandemic crisis.

2.2 Issues Pertaining to Isolated Learning Space

As highlighted earlier, the pandemic has significantly affected the global education system, thus bringing about the issues of isolated learning space. While some students may have the comfort of their home, those who are less fortunate may not have a practical living space for conducive learning. Some examples of the spatial issues pertaining to learning from home include the lack of privacy and poor acoustic quality within the study space [2]. Moreover, some students are not only lack facilities that are readily available at the school or university campus, such as unlimited internet connection and computer lab, but they may have also become demotivated due to the drastic change in the teaching and learning landscape.

The lockdown has also caused a downturn in mental health, especially among students who experience difficulty in adapting to the social restriction and studying without friends’ companions and teachers’ guidance. Recent studies found that most online students are exposed to depressive symptoms because of isolation and loneliness during the pandemic crisis [4][5][6][7]. Not being able to interact with other people in person contributes to loneliness and demotivates people to perform well at work or study. These spatial and mental health issues related to online learning are evidence for research on the conducive learning environment that the students can independently manage at home.

2.3 Online and Distance Learning (ODL) in Design-Based Curriculum

The implementation of ODL due to the Covid-19 outbreak has resulted in some positive impacts; namely the rise of Blended Learning, full utilization of Learning Management Systems, increase the use of paper-less learning materials, advancement in collaborative work, development in digital literacy, and more global exposure via digital connection [8]. The ODL has revolutionized education beyond the classroom, where teaching and learning are accessible to anyone, anywhere and anytime [9][10]. With the ODL implementation, students and teachers can gather in affinity spaces that revolve around the same teaching and learning goals. Besides, precedent studies have recognized that digital media integration may enhance the teaching and learning activities in a design-related course [11][12][13][14]. However, learning design competency merely through a virtual screen has been challenging in many circumstances for studio-based students.

Online design learning differs from the studio pedagogy that has been long considered the essence of architectural education. The studio environment provides an active learning space which is said to be affiliated with improved learning outcomes and better student engagement in learning activities [15]. Studio learning involves efficient critique session that develops design understanding through active interactions between teachers and students [16][17][18][19]. Following the ODL implementation due to the pandemic social restriction, among online design learning challenges are the students' difficulty understanding the assignment brief, internet connection problem, and lecturers' struggle to engage all students actively during an online critique session [20].

2.4 The Essential of Conducive Learning Environment

Considering the challenges of the design-based ODL curriculum, there is a gap in finding a spatial design solution to improve the students' experience in online and distance learning. Many studies establish that the learning environment is a significant factor in university students' academic excellence [21][22][23]. According to Che Ahmad et al. [24], a classroom environment is adequately crucial as the teachers' role in influencing the teaching and learning process. The physical features of a learning environment contribute highly to performance-design-interaction and variability in the cognitive skill of students [25]. A learning space needs to be designed as a supportive and stimulating environment for the learners' thinking process [18]. And most importantly, in the design discipline, a conducive learning environment is crucial to develop critical thinking and inspire creativity [26].

Moreover, a good learning environment also contributes to an individual's motivation. Asiyai [27] establishes that the physical learning environment can influence students' motivation to participate in academic activities actively. A study with 918 participants found that university students' affective ties to their learning space are comprised of these factors: "functionality and layout; cosy and pleasant; concentration and comfort; modern design; daylight and outward-facing; and artificial lighting" [28]. This is evidence that the physical learning environment plays a significant role in students' academic performance. When the surroundings are conducive and more learning-friendly, the students will feel encouraged to study competently. Moreover, with supportive study space, students can also manage their Personal Learning Environment (PLE) better, especially when in the state of isolated and distance learning.

3 Methodology

This study employed a qualitative method of an open-ended design brief that constructs 65 interior architecture students to create their ideal learning space in ODL implementation. Each student was assigned an approximately 340sqft studio apartment space to design the conducive ODL environment. Figure 1 shows the studio apartment layout that was provided as the site in the design brief.

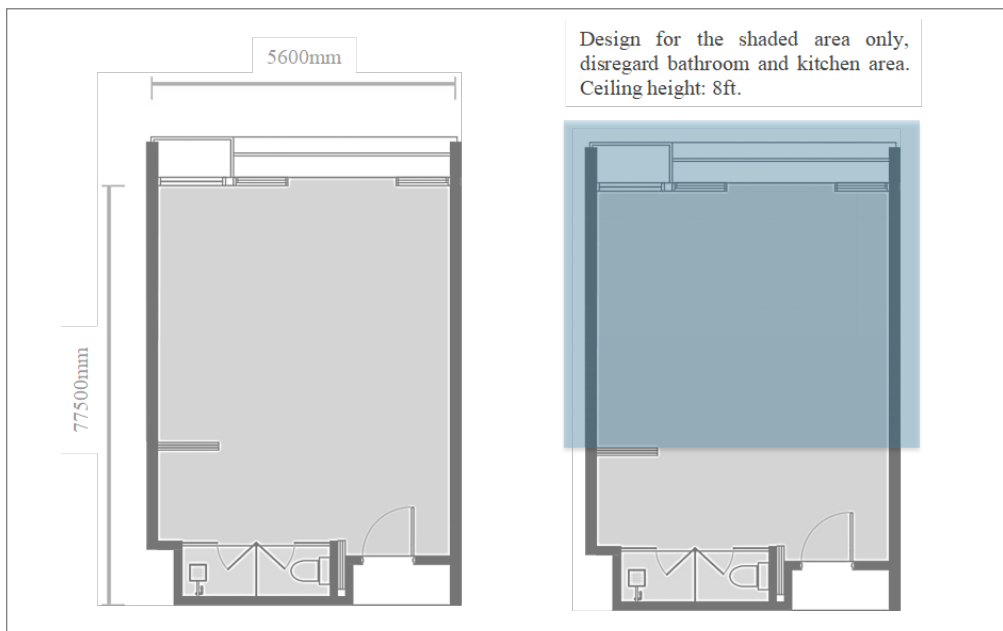


Fig. 1. The studio apartment layout to be designed as each student’s conducive ODL space.

Spatial design drawing can be referred to as a ‘non-verbal interview’ outcome, a qualitative methodology indicated by Ray Lucas in his *Research Methods for Architecture* book [29]. The drawings are also complemented with the explanation on aspects of conducive ODL environment as required in the design brief. This is parallel with the ‘non-verbal interview’ method that is often supported with verbal (or written) elaboration [29]. This methodology focused on the needs and design ideas of the respondents themselves, meaning that its data are primarily from the users’ point of view. Examples of the design outcome are shown in the following Figure 2 and Figure 3.

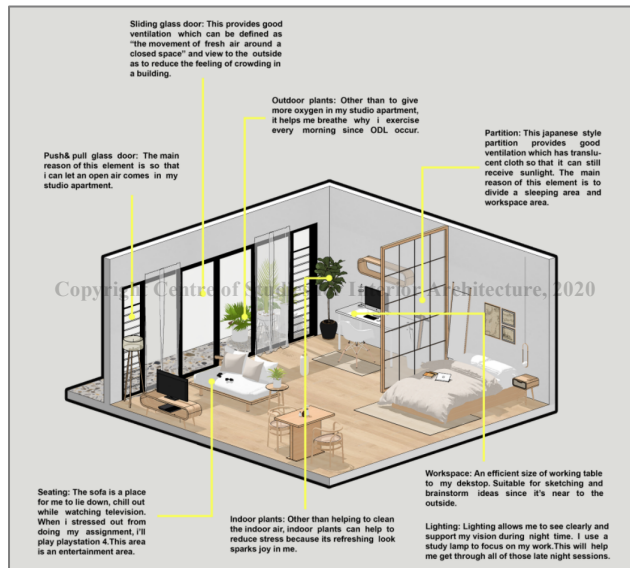


Fig. 2. My Ideal ODL Space by Muhammad Raziq Hirzan, 2020.

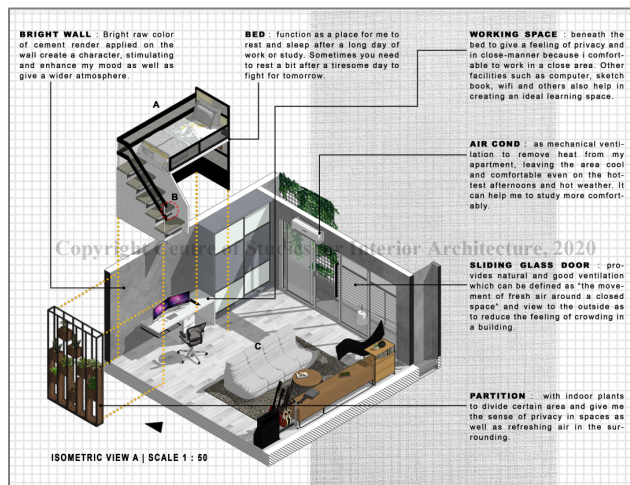


Fig. 3. My Ideal ODL Space by Muhd Hafizuddin, 2020.

The descriptions of each aspect of conducive ODL space provided by the respondents were analyzed through content analysis. All data were analyzed and tabulated into simplified and organized information. The responses were categorized according to different aspects of a conducive learning environment. Regarding the limitation of the study, the data were derived from a group of interior architecture students; therefore, it should be informed that students from other fields of study may have different needs that fulfill their curriculum approach and requirement.

4 Findings and Discussion

Table 1 summarizes the proposed aspects of conducive ODL space by the design-based students who participated in this study. The responses are categorized into 13 main aspects; studying and working space, digital technology, connection to the outside, connection to nature, relaxing space, good ventilation, organized and neat space, entertainment, hobby and other interest, design ambience, privacy and acoustic, self-care, and pet companion.

Table 1. The aspects of conducive learning space for design-based students in ODL implementation

No.	Main Aspect	Description	Quantity of Response (n=65)
1.	Studying and working space	Large and comfortable table for design tasks such as sketching, manual drawing and model making; comfortable chair with good ergonomics; good task lighting for study purposes.	54 (83%)
2.	Digital technology	High-performance laptops or computers for the computer-aided design tasks in interior architecture course; dual-screen PC for multitasking; high-speed internet connection.	50 (77%)
3.	Connection to the outside	Glass wall/window that provides a view to the outside and allows natural light into the enclosed space.	50 (77%)
4.	Connection to nature	Indoor and outdoor plants at the balcony as the connection to nature; interior plants are good for indoor air quality and help release the stress of working for long hours.	49 (75%)
5.	Relaxing space	Sofa, bean bag or bed for relaxing and resting; to freshen up the energy.	49 (75%)
6.	Good ventilation	Good ventilation through the operable sliding doors and windows; mechanical ventilation.	38 (58%)
7.	Organized and neat space	Having ample storage and shelves to organize and keep the students' design tools, books and stationery neatly; storage for clothes and other items; board/ notes to keep track of lists to do and assignments.	35 (54%)
8.	Entertainment	TV, music, video gaming and board game for entertainment while taking a break from studying and working.	29 (45%)
9.	Hobby and other interest	Students' hobbies or interests include arts, painting, car model making, and reading; good for mental well-being while being isolated and studying alone.	27 (42%)
10.	Design ambience	Having a particular interior style that they prefer; a colour scheme to create an ambience that suits their personality.	27 (42%)
11.	Privacy and acoustic	Partition to create a sense of privacy; plants as noise barrier; application of acoustic wall panel.	13 (20%)
12.	Self-care	Space for indoor exercise activities; having nice clothes collection to look good every day; meditation or praying space.	13 (20%)
13.	Pet companion	Pet companion such as cat and fish is good to reduce stress and avoid depressive symptoms due to isolation and loneliness.	3 (5%)

From Table 1 above, the aspect largely proposed in the students' personal ODL space is comfortable studying and working space (83% responses), particularly a table with ample

working space and chair with good ergonomic. Having reliable digital technology, namely high-performance laptops or computers, to complete computer-aided design tasks is seen as highly necessary to the students as well (77% responses). Similarly, connection to the outside view through a glass wall or window is also adequately significant for being confined during the lockdown (77% responses). The students also emphasized the necessity of connecting to nature by having some outdoor and indoor plants in their learning space (75% responses). Many students indicated that the plants are good for indoor air quality and help to release the stress of studying and working for long hours. And because of the long hours of studying and completing academic tasks, many students also indicated the need for relaxing space with a sofa, bed or bean bag to take a break and re-energize (75% responses).

Other aspects of a conducive ODL space, according to the respondents, are good natural and mechanical ventilation (58% responses), organized and neat space for them to stay focused in the study (54% responses), entertainment to release stress (45% responses), space for their leisure activities or hobby (42% responses), design ambience such as a specific interior design style and room colour scheme (42% responses), appropriate sense of privacy and good acoustic to focus on their learning activities (20%), space for self-care activities such as exercising and praying (20%), and having a pet companion which helps in reducing stress and avoiding the feeling of loneliness (5% responses).

The most noticeable pattern from the students' responses is how they mention that some aspects may help in reducing stress and avoiding depressive symptoms. This is parallel with recent studies on the mental health effect of social restriction and loneliness among online students due to the Covid-19 outbreak [4][5][6][7]. Therefore, it is recommended that active and supportive interaction in ODL sessions, whether between students and teachers or among the students themselves, is encouraged to care for the anxiety, depression or other mental sicknesses that are vulnerable to online students, especially during the pandemic crisis.

Another significant finding of this study is that the aspects can be classified into physical design and psychological elements. Half of the aspects proposed by the respondents fall into the interior design elements, namely the comfortable and ergonomically designed studying space, connection to the outside view and natural light, efficient ventilation, organized space layout, spatial ambience, sense of privacy and good acoustic. This supports the previous studies that establish physical features in learning space as important contributors to students' academic performance [25]. The other aspects of a conducive learning environment found in this study imply the psychological needs of online students. The students' highlight of connection to nature, relaxation, entertainment, leisure activities, self-care activities and good company speaks to their needs for mental and emotional support within the learning environment. This finding entails that for a learning space to be convenient and supportive, both tangible and intangible elements in the interior design must be considered.

5 Conclusion

The findings of this study assert that a conducive ODL environment for design-based students consists of the physical aspects as well as psychological aspects within a space. Besides reliable digital technology for smooth online learning, the ODL students also need a learning environment that supports their personal space and physiological needs, especially in the midst of a global health crisis. Indeed, living space plays a crucial role in influencing the way people react to challenges and building self-determination.

In a way, the research outcome also demonstrates how the students manage their PLE to suit an online design-based curriculum. With the help of mobile technology, students nowadays can access, plan and configure their learning activities within a flexible time and space. Self-discipline, good mental health and strong motivation, which can be nurtured from the students' living space, are required to succeed in the ODL. From the proposed design by the respondents of this study, it is manifested that PLE is also articulated within one's personal space consisting of physical and psychological spatial aspects.

References

- [1] Inully. Inully Instagram post. Retrieved on 19 June 2020 from <https://www.instagram.com/p/CAC5fhRpXNK/?igshid=x165n4jdmwv>
- [2] Chayka, K. How the Coronavirus Will Reshape Architecture - What kinds of space are we willing to live and work in now? By Kyle Chayka, 17 June 2020. The New Yorker <https://www.newyorker.com/culture/dept-of-design/how-the-coronavirus-will-reshape-architecture>
- [3] Meagher, B.R. and Cheadle, A.D. (2020). Distant from others, but close to home: The relationship between home attachment and mental health during COVID-19. *Journal of Environmental Psychology*. 2020; 72: p1-10. <https://doi.org/10.1016/j.jenvp.2020.101516>
- [4] Faronbi, J.O., Adebisi, A.T., Idowu, A.O., Faronbi, G.O. and Irinoye, O.O. Predictors of depressive symptoms and effective coping strategies among open and distance learning nursing students. *International Journal of Africa Nursing Sciences*. 2021; 14: p1-7. <https://doi.org/10.1016/j.ijans.2021.100295>
- [5] Holmes, E. A., O'Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L. and Ford, T. Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. *The Lancet Psychiatry*. 2020. [https://doi.org/10.1016/S2215-0366\(20\)30168-1](https://doi.org/10.1016/S2215-0366(20)30168-1)
- [6] Mel'endez, J.C., Satorres, E., Reyes-Olmedo, M., Delhom, I., Real, E. and Lora, Y. Emotion recognition changes in a confinement situation due to COVID-19. *Journal of Environmental Psychology*. 2020; 72: p1-6. <https://doi.org/10.1016/j.jenvp.2020.101518>
- [7] Pfefferbaum, B., and North, C. S. Mental health and the Covid-19 pandemic. *New England Journal of Medicine*. 2020. <https://doi.org/10.1056/NEJMp2008017>
- [8] Dhanalakshmi, R., Mary, A.A., Shrijith, D., Vijayaraghavan, N. A Study on Covid-19 – Impacting Indian Education. *Materials Today: Proceedings*. 2021. <https://doi.org/10.1016/j.matpr.2021.02.786>
- [9] Appavoo, P. Open and Distance Learning: An Unavoidable Pillar in the Building of a Knowledge Society. *Progressio: South African Journal for Open and Distance Learning Practice*. 2018; 40 (1 & 2): 15 pages. <https://doi.org/10.25159/0256-8853/4712>
- [10] Bidarra, J. and Sousa, N. Implementing Mobile Learning Within Personal Learning Environments: A Study of Two Online Courses. *The International Review of Research in Open and Distributed Learning*. 2020; 21(4): p181-198. <https://doi.org/10.19173/irrodl.v21i4.4891>
- [11] Abdul Kadir, S. The Use of Social Media in Millennials' Teaching and Learning Activities in Design-Related Course. *Environment-Behaviour Proceedings Journal*. 2020; 5(13): p133-141.
- [12] Afacan, Y. Exploring the effectiveness of blended learning in interior design education. *Innovations in Education and Teaching International*. 2015; 53: p508-518.
- [13] Blaschke, L.M. Using social media to engage and develop the online learner in self-determined learning. *Research in Learning Technology*. 2014; 22: 1-23.
- [14] Dabbagh, N. & Kitsantas, A. Personal Learning Environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning. *Internet and Higher Education*. 2012; 15: p3-8.
- [15] Talbert, R. and Mor-Avi, A. A space for learning: An analysis of research on active learning spaces. *Heliyon*. 2019; 5: p1-19. <https://doi.org/10.1016/j.heliyon.2019.e02967>

- [16] Abd El-Latif, M., Al-Hagla, K.S. and Hasan, A. Overview on the criticism process in architecture pedagogy. *Alexandria Engineering Journal*. 2020; 59: p753–762. <https://doi.org/10.1016/j.aej.2020.01.019>
- [17] Crowther, P. Understanding the signature pedagogy of the design studio and the opportunities for its technological enhancement. *Journal of Learning Design*. 2013; 6(3): p18-28.
- [18] Royalty, A. Design-based Pedagogy: Investigating an emerging approach to teaching design to non-designers. *Mechanism and Machine Theory*. 2018; 125: p37–145.
- [19] Scagnetti, G. A dialogical model for studio critiques in Design Education. *The Design Journal*. 2017; 20(sup1): S781-S791.
- [20] Fleischmann, K. From studio practice to online design education: Can we teach design online? *Canadian Journal of Learning and Technology*. 2019; 45(1): p1-19.
- [21] Folkins, J.W., Friberg, J.C. and Cesarini, P.A. University Classroom Design Principles to Facilitate Learning. *Planning for Higher Education Journal*. 2015; 43(2): p45.
- [22] Nugroho, K.Y. and Wulandari, D.F. Developing a Learning Model for Knowledge Quality Enhancement Through Constructivist Learning Approach. *The 6th ELTLT Conference Proceedings*. 2017; October 2017: p295-299.
- [23] Usman, Y.D. and Madudili, C.G.. Evaluation of the Effect of Learning Environment on Student's Academic Performance in Nigeria. Published on 20 November 2019.
- [24] Che Ahmad, C.N., Shaharim, S.A. and Abdullah, M.F.N.L. Teacher-Student Interactions, Learning Commitment, Learning Environment and Their Relationship with Student Learning Comfort. *Journal of Turkish Science Education*. 2017; 14(1): p57-72.
- [25] Dzakiria, H. and Mohamad, B. Communicating Effectively the Lifelong Blue Print and Its Demands to Improve Open Distance Learning (ODL) *Ergonomics. Procedia - Social and Behavioral Sciences*. 2014; 155: p539-546.
- [26] Pujiriyanto, Mulyoto, Haryanto, S. and Rochsantiningsih, D. How Project Based Learning Boost Learning Environment. *Advances in Social Science, Education and Humanities Research (ASSEHR)*. 2017; 66: p169-175.
- [27] Asiyai, R. Students' perception of the condition of their classroom physical learning environment and its impact on their learning and motivation. *Coll. Stud. J*. 2014; 48: p716-726.
- [28] Castilla, N., Llinares, C., Bravo, J.M. and Blanca, V. Subjective assessment of university classroom environment. *Building and Environment*. 2017; 122: p72-81.
- [29] Lucas, R. *Research Methods for Architecture*. London: Laurence King Publishing Ltd; 2016.