

The Impact Of Interior Layout On Human Behavior; A Study Of Co-Working Spaces

with reference to Colombo, Sri Lanka

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Abstract. While coworking has been a trending topic globally since the new millennium, the Sri Lankan coworking industry gets started with the economic boom at the end of the war. As coworking is a new concept in the country, its adaptations and impacts need to study in future adjustments and growth. Hence, as the first research in the subject area, a broad framework is developed while using the Theory of Proximity and the Five Coworking Core values as the base. The layouts of two Colombo-based coworking environments were examined; Co-nnect and Likuid Spaces. The results showed that both the coworking environment layout arrangements and co-workers' attitudes should improve in being true to core working core values. While it gives a standard framework for future research, it sheds light on the Sri Lankan interior designers, business researchers, and venture capitalists towards new opportunities in the coworking industry.

Keywords. *Coworking, Interior Layout, Human Behaviour, Proxemics, Core Values*

1. Introduction

From the very beginning of humanity, the interaction between human and their environment has been spontaneous and unavoidable. Environmental Psychology, which is derived from the field of behavioral science based on the impact of environmental conditions on human behavior, has an in-depth theoretical background for understanding the interaction between humans and their environment as a research field.

Coworking is a social working system, teamwork is always performed in interior spaces, and there is a vast dynamism related to it. In the places which gave birth to the coworking concept, people were more eager to interact with each other than in conventional working environments. And as a new concept with a mass growth in the working world, the adaptations of the core idea of coworking in different socio-cultural conditions would give a complete contemporary understanding of its future shape. So, this dissertation focuses on the interaction between human behavior and the interior, especially concerning the coworking spaces of Sri Lanka.

As we trace the history and the origin of the concept, we see that coworking is a product of Europe and Western cultures. So, as it is a product of their nature, the Western community knows the coworking system's flow and process. However, being a new formation of human arrangement foreign to their nature, most other regions faced some issues adapting to the concept.

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its future shape. So, this dissertation focuses on the interaction between human behavior and the interior, especially concerning the coworking spaces of Sri Lanka.

2. Literature Review

As it is a new concept in the country, the impact of Sri Lankan culture in adapting to coworking should be examined in future adjustments and growth. Five Coworking Core value system and The Theory of Proximity paved the ground for the study.

2.1. START OF COWORKING

Software development and related technologies were introducing and developing the latest advancements of human creation since it was produced on a mass scale after the 1980s. Due to the nature of the requirement of high efficiency in production methods, software architects and software developers still think of new dimensions to introduce more efficient ways of process handling.

The practice of the idea was first elaborated as hackerspaces in Germany in the mid-1990s. According to the ethics of the hackerspace concept, the places were community-operated physical places where people could meet and work on their projects. The exact functioning varied from place to place and was determined by its members. But they generally followed a 'hacker ethic.' (Kostakis, Niaros, & Giotitsas, 2014) Germany's Berlin located c-base e.V. established in 1995, is considered the first notable coworking space that influenced so many likewise spaces later. Then, due to the many plus points of the concept, coworking became popularized among many freelancers who share common values. (Weijs-Perrée et al., 2018)

Before coworking (the 1950s - 2000s) popularized, stark, zero-atmosphere offices and cramped cubicles were the norms. When this new idea of coworking came out, the shift was inevitable; many companies adopted the related new concepts into their working environments to energize the workforce to get the most out of them. The open plan was the first big step when workspaces began to change.

Coworking is primarily popular among the new generations named Xennials and Generation Y of the working population. But not that popular among Generation I, Generation II, and Generation X, who are much more familiar with the older setting.

2.2. INTENDED ADVANTAGES AND DISADVANTAGES OF COWORKING SPACES

The main advantages of the coworking spaces are the productivity boost, the inspiration from the diverse community, and the flexibility of the culture.

The infrastructure and the facilities (ex: Location, Community, culture, Inviting Space, Facilities, Flexibility, Cost, and Promotions) of the coworking environment are critical. (Miller et al., 2016)

Coworking is still in its developing and expansion stage. Hence, the disadvantages like Lack of Privacy, Diminished Productivity, Tech Headaches and Hassles, Lack of frequentation, etc., are not that discussed.

In analyzing and systemizing the coworking concept toward shaping it into a global movement, initial contributors have identified five core values of coworking. According to Kwiatkowski A. & Buczynski B., 2011 those five are.

2.2.1 Community

The focus on community means emphasizing the people, their interactions, and the relationships they form. That formation and humanity in it are above everything else. No one governs the community in a centralized way as in a traditional office. The shape or the color of the community is a product of the members. The Manager and the management are facilitators and do their participation may be measured by the facilitation and infrastructures provided.

2.2.2 Openness

It is about being more transparent, more expansive, more liberal, and more inclusive in both moral and economic perspectives. Making coworking 'open' could evolve into something much more significant than any one of the founders could control. It is the potential of openness. Hence, openness builds trust and the strength of the community.

2.2.3 Collaboration

Sharing the shared values and common goals as a community and helping each other co-workers as a part of the daily routine, both as a consultant and a newbie, are significant parts of the coworking concept. Sharing the shared values and common goals as a community, helping each other coworker as a part of the daily routine, both as a consultant and a newbie are significant parts of the coworking concept. The mix of people with different abilities and experiences creates a large pool of knowledge.

2.2.4 Accessibility

Accessibility can be viewed in financial and physical dimensions. While the financial perspective aims to provide the necessary infrastructure for the early stages of a start-up without having substantial initial investments, the physical view ensures the accessibility of the spaces for members at any time. Moreover, accessibility can be viewed in financial and physical dimensions. While the financial perspective aims to provide the necessary infrastructure for the early stages of a start-up without having substantial initial investments, the physical perspective ensures the accessibility of the spaces for members at any time (24-hours-access).

2.2.5 Sustainability

Sustainability requires a contained system or process that can continue without drawing upon resources outside. In coworking spaces, it means making sure the businesses and communities related to the co-workers are structured to create a continuous loop of giving and receiving, balancing the persistence of the community. Sustainable engagement on the economic and environmental levels can be achieved through the collective use of resources.

2.3. COWORKING IN SRI LANKA

The idea of coworking came to Sri Lanka as an emerging business venture with the end of the war (in 2009). The tech-savvy independent freelance workers and the startup companies that did not see the importance of maintaining a 24/7 workspace in the high-cost Colombo city area were grabbed by the idea initially.

Here is a list of contemporary operating coworking spaces in Sri Lanka; Business Hubs, Agaya Holdings, HUB9, Coco-space, Cafe Sociale, HomeTree Coworking, Wehive, Likuid Ventures (Likuid Spaces), Colombo Cooperative, Loft 1024, John Keells X, Y Impact Hub, Shangri-La Hotel Chain (Co-nnect), Hatch, MAS (Catalyst HQ, The Hive, MAS Active), Orion City (NEST, Kitted Out, Warm Shell).

The price range differs per person from 500 LKR to 30,000 LKR based on the days booked in the coworking spaces of Colombo and suburban contexts.

In the study, three categories were identified as short-term (from One Day up to 1 Week), mid-term (up to 2 Weeks/ 1 Month regularly), and long-term users (up to 6 Months/ 1 Year regularly) among the coworking space user community.

2.4. THEORY OF PROXIMITY (PROXEMICS)

The theoretical background of the research is based on the theories of American Anthropologist Dr. Edward Twitchell Hall. He was a well-known researcher for developing the concept of proxemics and cultural-social cohesion. Moreover, he explored how people behave and react in cross-cultural events defining personal space to the situation.

Dr. Hall coined the term proxemics in 1963, defining it as "the interrelated observations and theories of humans' use of space as a specialized elaboration of culture." (Hall, 1982). In his foundational work on proxemics, *The Hidden Dimension*, Hall emphasized the impact of proxemic behavior (the use of space) on interpersonal communication. According to Hall, the study of proxemics is valuable in evaluating not only the way people interact with others in daily life but also "the organization of space in houses and buildings, and ultimately the layout of towns." (Hall, 1963) According to Hall's theory, space, distance, and territory are the main three components of the study of proxemics. These components are discussed further below.

2.4.1 Space

Space Proxemics as a manifestation of micro-culture has three aspects: fixed-feature, semi-fixed-feature, and Informal.

2.4.2. Distance

People have specific patterns for delimiting the distance when they interact, and this distance varies according to the nature of social interaction. There are four zones of space called Intimate, Personal, Social, and Public.

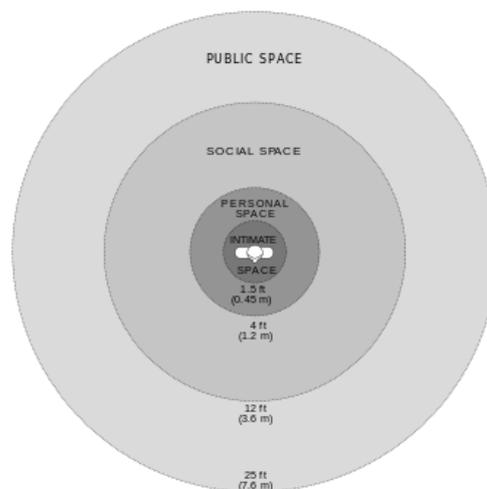


Figure 1: Intimate, Personal, Social, and public distances (Source: <https://www.livescience.com>)

2.4.3. Territory

The territory is the geographic area that indicates ownership. The distinction is carefully made between private property, the territory of an individual, and public property, the group's territory.

2.4.4. Communal interactions in a space

The definition in the dictionary for 'social gathering' is 'a gathering to promote fellowship.' There are two types of gathering places: Socio-fugal spaces and Socio-petal spaces.

3. Research Question

Coworking is a product of Europe and Western cultures where its origins and development. However, being a new formation of human arrangement foreign to their nature, most other regions faced some issues adapting to the concept. It is reflected by the number of research done in the Western world, such as in Eastern and South-Eastern Asian regions.

Hence, the questioned area focuses on identifying the qualities of Sri Lankan coworking culture, which are unique to its placement in providing maximum productivity and efficiency in the environment.

- Identifying the adaptations of the coworking concept to the Sri Lankan context.
- Deciding on the measuring methods optimized for the context.
- Identifying context-related factors that impact the adaptability of a co-worker.
- Producing materials for interior designers to optimize their coworking spaces' interior designs to be more convenient to the community.
- Measuring coworking interior impact on human behaviours.
- Identifying sustainable methods to develop the Sri Lankan coworking community and its standards.

4. Methodology

The main three domains in evaluating the efficiency and productivity in any human process related to one another are physiological, psychological, and social. There are cultural factors upon them reacting and influence all three of them.

Previous researchers such as Lyndon Garret mention this domain system and use it as a guideline for the research. (Garrett, Spreitzer, & Bacevice, 2014) The study was based on four resources in interlinking the three domains. They are:

- Layout drawings of the coworking space
- Frequency maps related to specific functions of coworking
- A questionnaire to the members of the coworking space
- Interviews with the coworking space managers

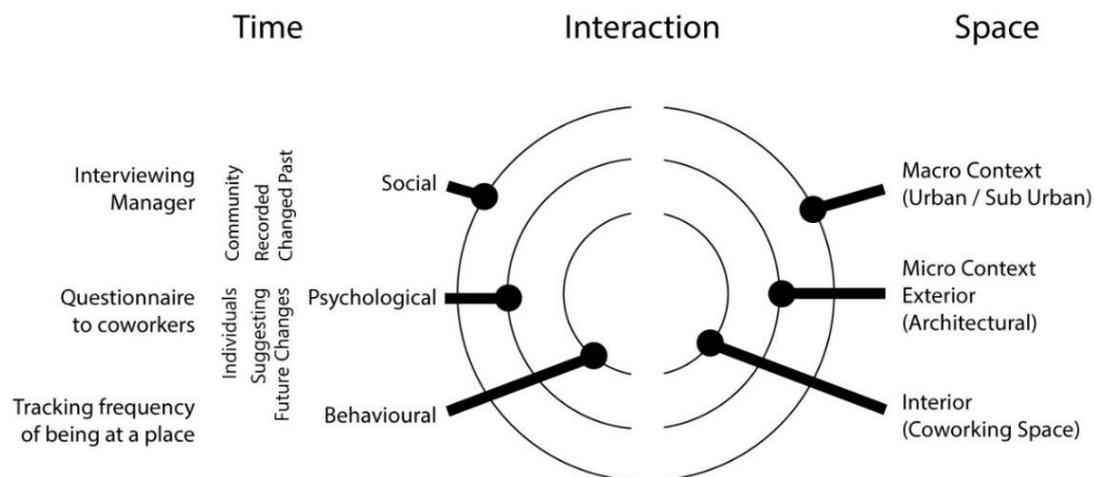


Figure 2: Identifying the Research Context

The other three components that have various factors associated with them and the time were taken as the variables to observe. The Layout defines and interlinks the other three. The interrelatedness of these four is shown in the below image.

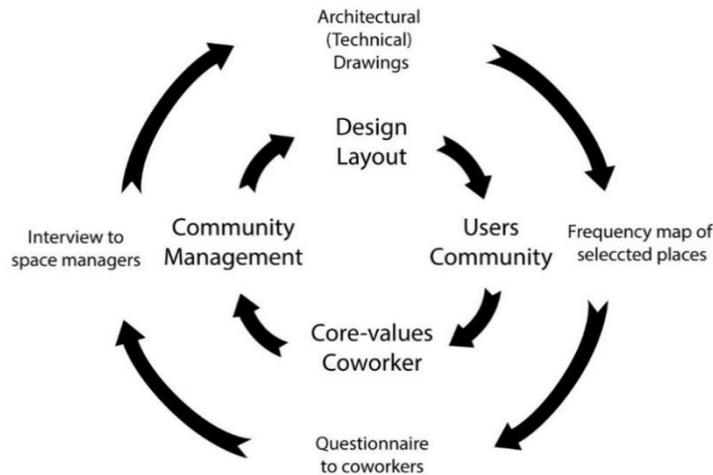


Figure 3: Coworking Process under Four Elements

Also, the below chart shows the three domains, data collecting methods related to each of them, and the traits intended to observe by each part.

Domains	Data Collecting Method	Traits
Layout	Architectural Drawings	Theories
Community	Frequency Map	Behavioral
Coworker	Questionnaire	Psychological
Management	Interview	Social

Table 1: Coworking Process under Four Domains

5. Finding and Analysis

Two coworking environments were selected to cover the diverse ranges of crowd capacities, facilities provided, opening hours, daily monthly charges, and the coworking community's characteristics, such as their expertise and the nature of the business they are involved in.

5.1 LAYOUT ANALYSIS

Layout analysis was conducted by preparing layout maps of space, distance, and territory based on Dr. Hall's Proximity Theory (Proxemics). As an overall comment, it was identified that the findings of both case studies in terms of space, distance, and territory, which helped to understand the Layout domain, are similar. Moreover, it was noted that Dr. Hall's Theory of proximity had been applied in both case studies intentionally or unintentionally, as both coworking places have provided and facilitated productive coworking spaces. However, there were some cases where some of the theories related to Dr. Hall's idea of proximity had not been applied to the layouts. One of the significant findings is that no informal spaces had been included in Co-nnect and Likuid interior layouts, which could have given more exciting content to discuss further.

In both cases, space arrangements in terms of personal and social spaces seemed similar. Also, the atmosphere and layout of meeting rooms that fall into public spaces type in both cases seemed identical in terms of distance variable, which derived from the theory of proximity as both meeting rooms had formal furniture arrangements. However, it would have been more effective if these meeting rooms were designed to consider other distance types that come under the distance variable, as it helps to create a space that goes well with the coworking concept.

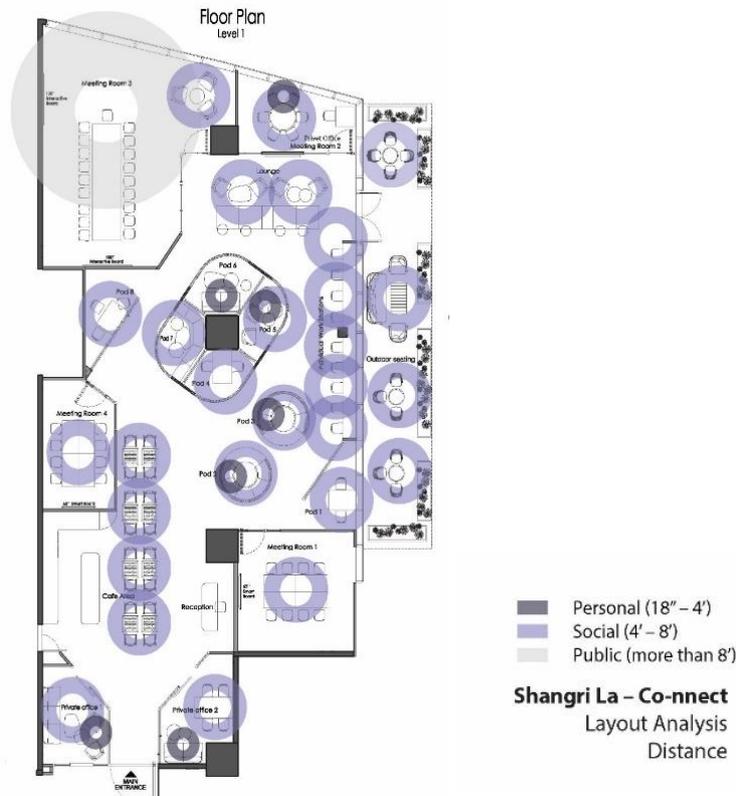


Figure 4: Co-nect - Layout Analysis - Distance, Ground F.

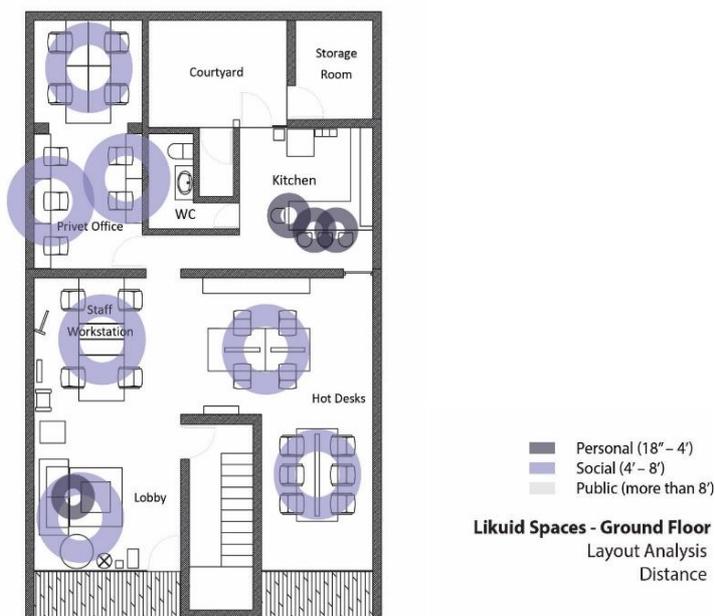


Figure 5: Likuid Spaces - Layout Analysis - Distance, Ground F.

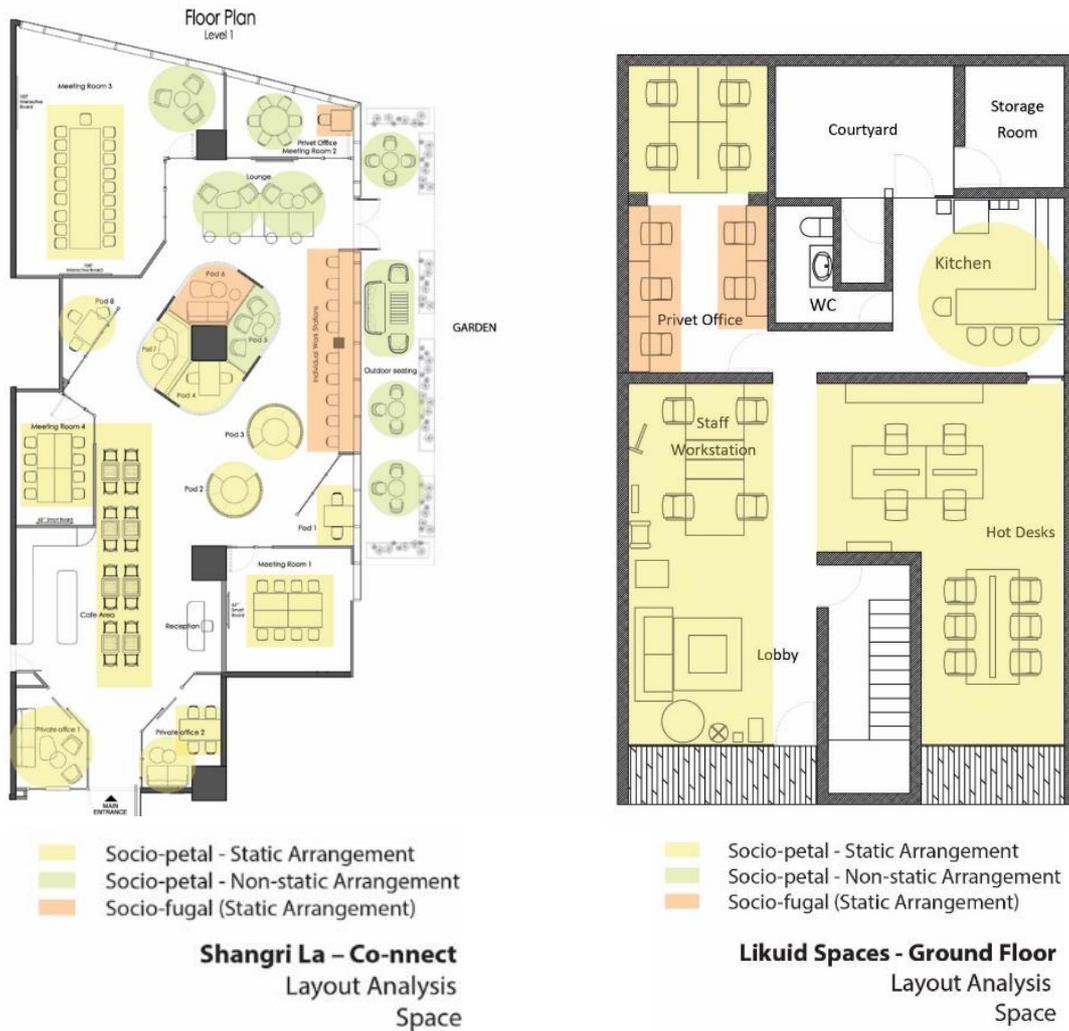


Figure 6: Co-onnect & Likuid Spaces - Layout Analysis - Space. Ground F.

5.2 FREQUENCY MAP

Regarding the frequency maps, it was identified that natural and artificial elements such as natural lighting, relaxing environments, and flexible furniture arrangements impacted co-workers' interactions. The food and personality of the users play a crucial part in social gatherings. Regular coworkers repeatedly restrict their territories by possessing the same spot in both places, even though the coworking concept does not encourage that. Also, it was evident as humans, people unconsciously tend to restrict the areas where they will feel safe, secure, and comfortable even though the interior environment is not encouraging the users to create their territories within the coworking space.

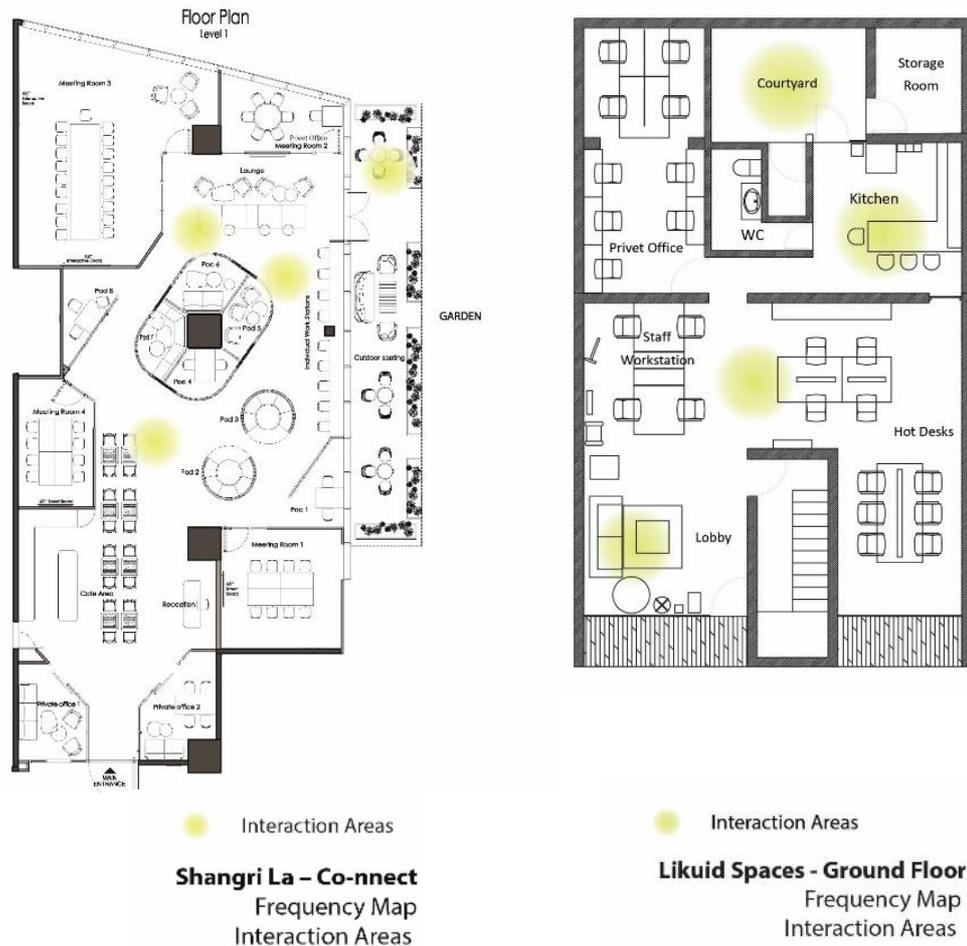


Figure 7: Co-nect & Likuid Spaces - Frequency Map - Interaction Areas, Ground F.

5.3 QUESTIONNAIRE

The questionnaire was generated by considering the five core values of coworking derived from the literature review.

Community - Finding of both cases in respect to community indicated both Co-nect and Likuid has been able to attract various people from various social backgrounds who are willing to go with the coworking concept by providing decent atmospheres.

Ex: Question:

10. Events in coworking space

- None
- Sometimes
- Often

11. Working hours per week

- 00 - 10
- 10 - 20
- 20 - 30
- 30 - 40
- above 40



Figure 8: Questionnaire Analysis on Community (Co-nect)

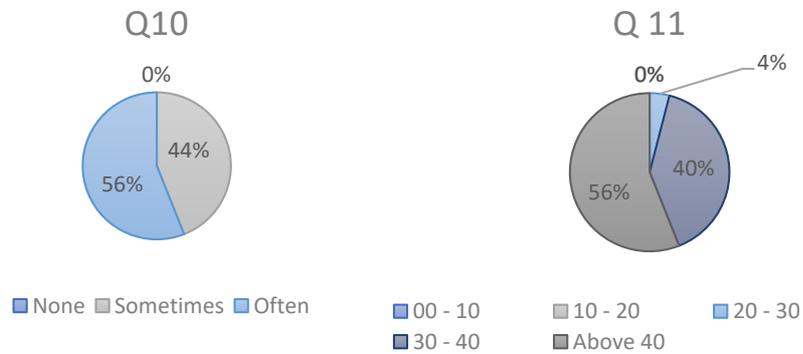


Figure 9: Questionnaire Analysis on Community (Likuid Spaces)

Openness - Results from both cases show that coworking community at both Co-nect and Likuid coworking places are quite open and like to be transparent, expansive, liberal, and inclusive in both moral and economic perspectives.

Collaboration - As per the finding, most of the coworkers who are visiting both cases like to interact and collaborate and grow as a team. Likuid Spaces shows more collaboration compared to Co-nect.

Ex: Question:

17. Interaction with other coworkers (mark only one option)

No interaction 1 2 3 4 5 Frequent interactions

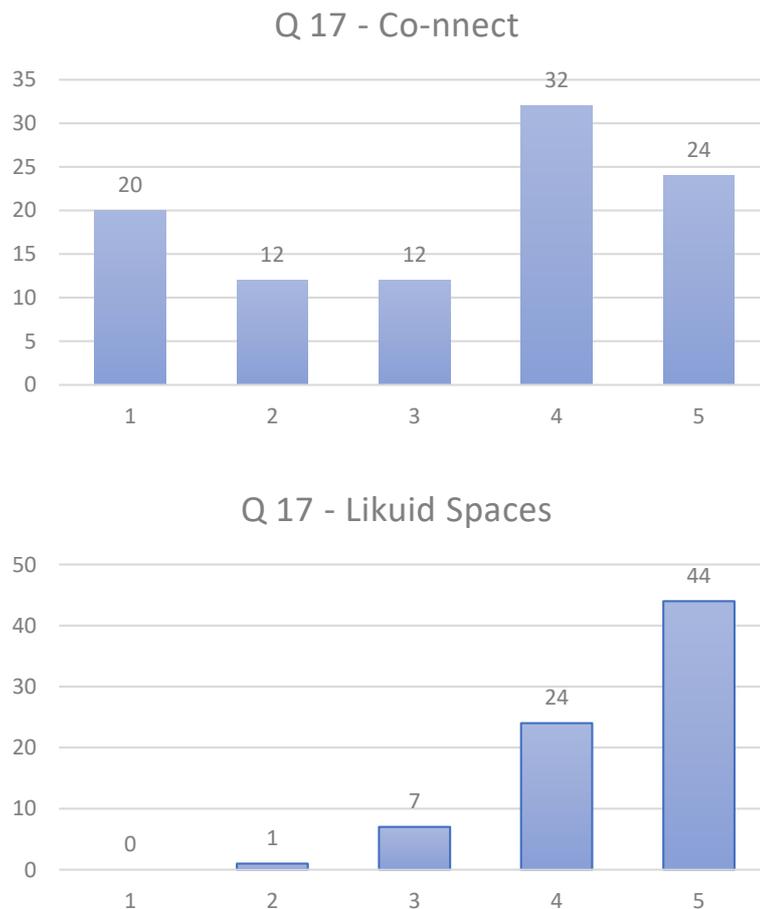


Figure 10: Interaction with other coworkers (Co-nnect & Likuid Spaces)

Accessibility - Co-nnect co-workers had more exposure to foreign coworking spaces. Moreover, the findings showed that most users in both cases prefer to work outside of the home and think coworking places are affordable as they can access the necessary infrastructure for their work.

Sustainability - both cases expressed that co-worker can be encouraged to come to such places by providing clean, flexible, supportive, friendly, and organized coworking spaces.

5.4 MANAGER'S INTERVIEW

Managers' insights on coworking give a general idea of their perceptions and insights on the coworking concept. It was noted that both managers are working as managers at a coworking for the first time in their lives. However, both have other background qualifications to be qualified for this post.

In the case of Co-nnect, it is significant as it described the regular users and users of private offices of Co-nnect started coming back when Co-nnect was re-opened after the 04/21 bomb incident at Shangri-La hotel. Their return to the Co-nnect right after the attack expresses that the regular users have developed a sense of belongingness with space.

Managers identified people tend to gather or work near natural sunlight, and some people tend to work alone, whereas some prefer to collaborate with others. It expressed that the interior environment is not the only factor that impacts human behavior in terms of interactions. Still, personalities and the nature of the business affect exchanges as well.

Further, both managers confirmed that some spaces were changed, and some facilities were introduced as per a few users' requirements.

6. Conclusion

Coworking is a new concept that was started and evolved in western countries. It is a part of the 'sharing economy concept,' which was based on 'sharing underutilized assets' such as spaces, knowledge, and services for monetary or non-monetary benefits.

Collaborative areas are the key in coworking spaces which can bring people together to interact and collaborate. However, in the pilot survey, it was identified that most of the coworking places in Sri Lanka have more fixed rentable spaces, such as private offices, where they can maintain a fixed income mode while having very few collaborative areas.

When the Sri Lankan context was being examined, it was noticed that the Sri Lankan coworking community still has not been fully adapted to this concept. Most of the co-workers are not fully understand the idea of knowledge sharing and collaborating. As it is a gradual process, it will require some time to accept this ideology within society.

The interior should be designed so that it encourages interaction within the space. When it comes to furniture arrangement, it needs to be flexible and comfortable so that the user can form their areas within the coworking space. It is advisable to create clusters within the interior environment considering circulation patterns, Lighting, and interior aesthetics.

This research was limited to two coworking spaces within the Colombo city limits to examine the impact on the interior environment of human behavior. There are a few more coworking spaces with different scales outside and within the city limits, such as Hatch and Business Hub, which can be considered other challenging cases. Therefore, it would be beneficial to examine such places to understand coworking in Sri Lanka.

Further, another important research area found during this research is the 'co-living' concept which is now being practiced at a few places down south and Jaffna, Sri Lanka.

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