Implementation of Environment – Behaviour Studies in Co-living for Millennial Generation

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Abstract. There are differences in working behaviour of Generation X compared to Generation Y which prefer more flexible and collaborative. On the other side, having a property for millennials in one of their challenges due to its expensive price. Therefore, millennials demand a rent living space which provides their needs and compatible with their lifestyle. Co-living is a form of housing that has supporting facilities for inhabitants that can be used sharing with the aim of creating optimal space and efficient resource. This study uses the concept of Environment – Behavior Studies (EBS) approach Research is needed in order to know what kind of living space based on millennial preferences. This research used a survey questionnaire that provides closed-ended questions and open-ended questions. Open-ended answers by respondents are being analyzed and result in two dominant keywords, convenience and privacy. The author interpreted this keyword with several theories. It can be concluded that the design concept is Convenience in Collaborative Life. Occupants (user) still need their personal space to keep their privacy, so private space is needed though they live in a collaborative living place. Also, millennials working behaviour affects their living behaviour. Thus, between each occupant in the same community have their sense of belonging in order that has the same interest.

Keywords: Co-living, Environment – Behaviour Studies, Architecture, Behaviour, Convenience, Collaborative, Privacy, Personal Space

1. Introduction

Gen Y members or Millennial Generation tend to gravitate towards group work, whether it is through face-to-face or virtual project, it can be seen that teamwork as an effective way to organize tasks and initiatives for this generation (Barton & Skiba, 2006; Cole et al., 2002; Howe & Strauss, 2000) [1]. Compared to the preview generation, Millennials tend to postpone important event in their life, like marriage and children, but that doesn’t mean they want to stay single forever [2]. Millennials also tend to rent a place to live rather than buy. 65% of household head who are less than 35 years old prefer to rent a place to live [3]. From the work pattern and living pattern of millennials, it can be seen if they have a common interest. Millennials crave a happy and social environment that can facilitate face-to-
face interaction and meaningful bonds [4]. The lines between work life and personal life are blurry so there is a sense of belonging to a community by having the same interest [4]. Based on data from Central Bureau of Statistics (BPS) Susenas March 2017, millennial home ownership status for DKI Jakarta Province residents is more than 60% with ‘lease and contract’ status [5]. This data proves that most of the millennials incapable yet of owning residential property that belongs to themselves. Millennials are considered as cost-conscious consumers [4] thus they know what value their money is used for. The sharing economy is an innovative solution for millennials. Co-living promotes sharing space and cost optimisation [4].

Co-living is a form of housing that has supporting facilities for inhabitants that can be used sharing with the aim of creating optimal space and efficient resource. This living space can use a rental system in short term and long term. On a practical level, the expenses are shared between all the residents, which can make it a more economical choice for from [6].

**Problem**

- What kind of a co-living that fits millennial behaviour?

The scope of this project is designed to answer the problem of alternative housing that can be affordable for its occupants, co-living with Environmental – Behaviour Studies approach. EBS can be applied into co-living by includes the systematic inspection of relationships between the built-environment and human behavior and their application in the design process [7].

2. **Research Methodology**

   - **METHOD OF STUDY**

     Based on the theory and approach used, Environment – Behaviour Studies (EBS), this research uses qualitative research method. Qualitative research is a research that focuses on many methods by involving a natural interpretive approach to the subject [8]. Researchers of qualitative research study things in a natural setting, trying to understand, or interpret a phenomenon in terms of the meaning people bring to them [8].

   - **QUESTIONNAIRE SURVEY**

     Survey research is defined as “the collection of information from a sample of individuals through their responses to questions” (Check & Schutt, 2012, p.160) [9]. This research allows for a variety of methods to recruit participants, collect data, and utilize various methods of instrumentation [9]. The purpose of this questionnaire is to find out what kind co-living preferences that suits millennials and spatial aspects that needed to support millennials activities.

3. **Literature Review**

   3.1 **Co-living**

   Co-living is a residential structure that accommodates three of more biologically unrelated people (Bothell, 2015; Tummers, 2015) [10]. There are four main characteristics in co-living, which are having social contact, extensive common facilities, resident involvement, and collaborative living practices (McCaman, Durrett, 1994) [11]. Co-living aims to encourage the sense of community by providing both common and private living areas in an interdependend way of sociability and network [11]. The history of cohousing has been started since early modern history 1500 A.D. [12]. The publication of the *Grand Domestic Revolution* in 1981 and the participation of Dolores Hayden in the conference on Housing and Building on Women’s Conditions in Denmark, at the beginning of
the 1980s, had great impact on the New Everyday Life-approach and its expansion within cohousing in several countries [12].

Author includes the results of a co-living case study by Osborn regarding the facilities contained in several co-living [13] because there is no guideline of co-living yet:

1. **Common Space**: Communal Lounge; Communal Kitchen; Workspace; Fitness Area; Bathroom; Media Room; Game Room; Laundry; Outdoor Amenity; Community Manager
2. **Private Space**: Bedroom; Bathroom; Kitchenette; Workspace

### 3.2 Millennial Generation

Millennial generation is a generation that born between 1980 to 2000 [2] or 1981 to 1996 [14]. Compared to the preview generation, Millennials tend to postpone important event in their life, like marriage and children, but that doesn’t mean they want to stay single forever [2]. Millennials also tend to rent a place to live rather than buy. 65% of household head who are less than 35 years old prefer to rent a place to live [3]. From the work pattern and living pattern of millennials, it can be seen if they have a common interest. Millennials crave a happy and social environment that can facilitate face-to-face interaction and meaningful bonds [4]. The lines between work life and personal life are blurry so there is a sense of belonging to a community by having the same interest [4]. With today’s ‘sharing economy’, goods and service can be shared. Access is a top priority over ownership for many millennials [15]. For example, owning a car is not at the top of the to-do-list for them [16]. Investing in unique life experiences is a millennial mindset where this generation values experience more than just material goods [4].

Gen Y members or Millennial Generation tend to gravitate towards group work, whether it is through face-to-face or virtual project, it can be seen that teamwork as an effective way to organize tasks and initiatives for this generation (Barton & Skiba, 2006; Cole et al., 2002; Howe & Strauss, 2000) [1]. Based on these quotes, it can be concluded that the younger generation lifestyle includes type of collaborative work, such as freelance, remote, or project based. Millennials tend to work flexibly and collaboratively.

### 3.3 Environment – Behaviour Studies (EBS)

EBS (Environment-Behaviour Studies) is a multidisciplinary field that advocates a greater involvement of users and a more detailed consideration of user aspects in the design process [7]. In the field of architecture, EBS includes the systematic inspection of relationships between the built-environment and human behavior and their application in the design process. There are few concepts in EBS that chosen and discussed in this research:

a. **Behaviour Setting**

   Behavior setting contains elements of a group of people who carry out an activity, or behaviour of that group, the place where the activity is carried out, and the specific time during the activity [17].

b. **Territory**

   Territorial aspect is divided into three main parts (Altman, 1975) [17]:
   - **Primary territory**: an area that is owned, used exclusively, recognize by others, controlled permanently, and becomes a major part of the daily life of its inhabitants.
   - **Secondary territory**: an area that is not used exclusively by a person or group, has a relatively wide coverage area, controlled periodically by the group that demands it.
   - **Public territory**: an area that can be entered by anyone, but must comply with the norms and rules that apply in that area

c. **Personal Space**

   Personal Space is a mechanism used to assist in the regulation of privacy where it involves a combination of distance and angle of orientation from others [18]. However, personal space is a dynamic and adaptive concept, depending on a person’s environmental and
psychological situations [17]. Therefore, environmental designers have been intuitively sensitive to personal space mechanisms in furniture design, layout of office and living-room areas, and so on [18].

d. Privacy

Privacy is an approached by environmental psychological as a changing self/other boundary regulation process in which a person or a group sometimes wants to be separated from others and sometimes wants to be in contact with other (Davis & Palladino, 1997) [18].

4. Result and discussion

4.1 Respondent Attributes

The first section of this form refers to the respondent attributes. Based on questionnaire respondents, there were 60 respondents as of March 18, 2020. Most of the respondents are already working, and some are still pursuing higher education with student status. It can be concluded that the millennial generation is currently entering and being in a productive age. Most of the respondents were commuters. As knows, commuters only move places to work without settling in the destination. Therefore, there is a trade-off in the form of time sacrificed on trips to work. Based on statistical data, 34.6% of commuters take an average travel time of 30 minutes to 1 hour to reach their workplace (Badan Pusat Statistik, 2019) [19]. This condition is quite tiring and wastes time on the journey for commuters (CoHive.space) [20].

![Figure 1. Diagram of Respondents Dwelling](image)

Most of respondents currently live in their own homes (could be houses owned by them, rental houses, houses owned by their parents, etc.) with a percentage of 56.7% - 34 respondents. Respondents who live in boarding house / indekost are 30% - 18 respondents. Respondents who live in apartment are 11.7% - 7 respondents.

Residential satisfaction level by respondents mostly answered ‘satisfied’ with a percentage 76.7% - 46 respondents. The rest respondents ‘not satisfied’ and it can be seen under the table below:
Table 1. Respondents answers about their unsatisfaction of their dwelling

| Tempat Tinggal | Alasan Tidak puas |
|----------------|-------------------|
| Rumah          | Tidak bebas dan flexible |
| Rumah          | Tidak, karena banjir |
| Apartemen      | Tidak ada dapur; gym dan pool berbayar |
| Apartemen      | Kurang luas |
| Rumah          | Kurang, karena setelah punya keluarga, 2 kamar dirasa msh blm cukup |
| Kos-kosan      | Bukan rumah sendiri, tidak ada tamannya |
| Rumah          | Jauh dari kantor |
| Rumah          | Masih kontrak |
| Rumah          | Bangunan rumah cepat rusak |
| Kos-kosan      | Karena jelek tempat tinggalnya |
| Kos-kosan      | Fasilitas minim. Tempatnya strategis tapi |
| Apartemen      | Terlalu mahal |
| Rumah          | Terdistraksi pekerjaan dinamah saat ingin mengerjakan kepentingan kampus/kantor |

From these ‘not satisfied’ reason, it can be concluded:
- **House**: far from home; cannot be flexible
- **Apartment**: Paid facilities, expensive, too small
- **Boarding House**: Lack of facilities

It shows that mass residential such as apartment or boarding house are not providing facilities for its residents. These facilities ineffective for residents need and activities, also they pay these facilities excluded of the fee rent. For houses, commonly for people is far from home and cannot be flexible due to distraction at their home.

4.2 Dwelling Attributes

This second section refers to the respondent’s convenience and needs in co-living. This section contains questions such as comfort limit of sharing facilities and what facilities can be considered to fulfil respondent daily needs if they were being offered to live in the co-living.

- **Bedroom**

The comfort limit in the Bedroom needs to be considered because this space is a privacy space for its residents. Bedroom grouped into the primary territory. The concept of territory is not only a demand for an area to meet physical needs, but also for emotional needs [17].

![Figure 2. Diagram of the comfort limit in sharing Bedroom](image)

Most of respondents did not want to share bedroom with other residents with a percentage of 70% - 42 respondents. Some respondents want to share bedroom with one occupant with a percentage of 20% - 12 respondents and share bedroom with 2 to 3 occupants with percentage of 10% - 6 respondents.
Most respondents did not want to share bathroom facilities. Therefore, bathroom grouped into the primary territory, thus it become a Private Unit for residents. Private Unit consist of a bedroom and a bathroom.

For Kitchen and Dining Area facilities, most respondents want to share with a maximum comfort limit of 1 to 5 people with a percentage of 73.3% - 44 respondents.

For Laundry facilities, most respondents want to share with a maximum comfort limit of 1 to 5 people with a percentage of 63.3% - 38 respondents. The rest of respondents did want to share laundry facilities with a percentage of 20% - 12 respondents.

Kitchen, Dining, and Laundry Area grouped into the secondary territory where these three spaces will become one shared living area cluster that covers 5 residents or 5 private units.
Supporting Facilities

Supporting facilities are needed to meet the needs of a lifestyle that suits the millennials. Based on precedents reviewed by the author, Old Oak by The Collective, there is an event program for co-living residents to bond between residents. It can become community forming by shared interest between residents.

a. Respondents Interest in Participating in the Co-living Program

As many as 80% (48 respondents) are interested in participating in co-living programs, either by courses, workshops, parties, and others. Therefore, some spaces area needed that can form interactions between residents, could be Workshop Area, Multifunction Room, and Communal Rooftop.

b. Lounge for Co-living Residents

The following is the communal lounge that is expected by respondents, which is dominated by the number of sofas and not too noisy.

Figure 6. Chart of comfort in communal lounge

This data shows residents want a quite relaxing space. This room can be made with the theme ‘Cozy Corner’ by placing the position of the room in a corner or in an area where there are not so many sources of noise.

c. Spaces of Supporting Facilities

Respondents can choose many options for supporting facilities. Based on the close-ended answer above, the top 3 answers are Coworking Space – 75%; Green Open Space – 71.7%; and Sports Facilities – 68.3%. There is an option of ‘bicycle parking’ included by the author with the
intention that residents can go to their place of activity around the Mega Kuningan area by using a bicycle.

- Location Consideration

In this question, author asks respondents consideration in choosing a co-living location. Respondents can choose more than one option. In the close-ended answer, most respondents want co-living with easy transportation access – 86.7%; co-living that close to activity places – 68.3%; co-living that in the downtown – 26.7%.

Based on site location that observed, co-living in the Mega Kuningan District does not provide many public transportations, such as Commuter Line or MRT (more than 1 km). There are only TransJakarta bus feeder stop inside the Mega Kuningan District and corridor stop on Jalan Gatot Subroto. However, this location is very close to the business centre so it can be assumed that there are many local and foreign workers who need rental housing with affordable price that apartments. Also, author already provide bicycle parking so residents can park their bike in the co-living.

4.3 Respondents Suggestion // Open-Ended Answers

| USER | OPEN-ENDED ANSWERS |
|------|---------------------|
| 1    | Hemat saya, pada dasarnya coliving atau tidak sebenarnya tidak menjadi masalah untuk hunian bagi anak muda (gen. Milenial). Yang sekitarnya menjadi konsen utama adalah bagaimana hunian dilap dengan harga terjangkau dan nyaman untuk ditempat. Kalu saya pribadi tidak menjadi masalah letak coliving atau apapun tipe hunian tidak di pusat perkotaan, asal yang terpenting didukung oleh sistem transportasi yang baik (aman dan nyaman). Apabila konsep Coliving terlalu membaur (fasilitas kamar tidur bersama) makan ruang privasi seseorang akan berkurang atau hilang. Karena kalau saya pribadi apabila plg ke rumah ingin mendapatkan suasana yang lebih santai dan tenang karena seharian sudah padat dengan pekerjaan (plus kemacetan) |
| 2    | Dijaga kebersihan dan kenyamanannya |
| 3    | Promosi hunian coliving |
| 4    | Kenyamanan yang berkualitas |
| 5    | memperbanyak ruang hijauanya |
| 6    | Yang penting bersih |
| 7    | Suasana harus senyaman mungkin |
| 8    | Harga terjangkau |
| 9    | Siraman rohani bersama |
| 10   | Kebersihan coliving perlu ditingkatkan, ada ruang terbuka untuk sekedar duduk dan bersantai |
| 11   | Cukup mudah utk bernobilitas, tidak bising, bebas polusi, nyaman utk keluarga, aman , terjangkau dan punya banyak fasilitas spt sport center, coworking space, internet, food center, & convenient store. |
| 12   | Desain tempat tinggal dengan suatu pembatas sehingga privasi penghuni dapat selalu terjaga |
| 13   | Nyaman |
| 14   | well ventilated, less cramped |
Dibuat rules Coliving untuk kenyamanan bersama, misalkan etika membawa tamu, mengadakan party/arisans, tetapi tidak menginap, jadwal bersih dill.

Harus ada seleksi sebelum memulai coliving, entah cek data diri sampai kondisi kesehatan. Hanya sebentar bentuk antisipasi agar tidak terjadi hal-hal yang tidak diinginkan.

Jangan terlalu banyak orang dalam 1 coliving

Privacy Oriented

Desain interior, kerindangan (ada tanaman tanaman hijau), privacy

Persiapan orang2 yang tertutup, yang gasuka keberadaan orang lain. Kira2 gimana caranya bikin tempat yg coliving tapi tetep nyaman buat mereka

ada pet area (untuk anjing)

Murah ya guis

Selalu merawat dengan baik fasilitas yang sudah ada maupun yang akan disediakan

ruang terbuka hijau is a must!!!!!!!!!

Selama semua penghuni taat peraturan bersama

Management Coliving membuat peraturan bagi para penghuni, seperti membawa teman ke kamar diperbolehkan, menginap atau dalam 1 kamar dapat disi 2 penghuni. Kemudian security system yang baik, adanya pelayanan kesehatan yang baik dan memadai untuk seluruh penghuni agar tercipta lingkungan coliving yang sehat.

The table above is an open-ended answer that filled out by respondents in order to improve the co-living quality of user convenience. Author determines some keywords that appear in the open-ended answer into one excel page.

Tabel 3. Keywords of Respondents Suggestions

| Hunian | Mobilitas | banyak |
|---------|-----------|--------|
| Interior | Biarng | Privasi |
| Harga Tarif | Paket | Disain |
| Kenyamanan | Kamaran | Interior |
| Lokasi | Keluarga | Kerindangan |
| Tipe | Kamaran | Ruang Hijau |
| Pusat Kota | Harga Tarif | Privasi |
| Sistem Transportasi | Fasilitas | Persempitbangun |
| Kemanaan | Pusat | Orang |
| Konsip | Coworking Space | Tertutup |
| Member | Internet | Kamaran |
| Bersama | Foodcenter | Pet |
| Fasilitas | Convenient Store | Murah |
| Privasi | Design | Memanat |
| Susana | Hunian | Fasilitas |
| santai | Pembatas | Ruang Hijau |
| Tenang | Privasi | Penghuni |
| Perkerjaan | Kamaran | Tast |
| Kencanakan | Ventilasi | Peraturan |
| Keliburan | Less cramped | Manajemen |
| Kamaran | Peraturan | Peraturan |
| Promosi | Kamaran | Tamu |
| Kenyamanan | Bemana | Kamar |
| Berkualitas | Etika | Mengnap |
| Ruang Hijau | Tamu | Kenyamanan |
| Kesiburan | Acara | Sistem |
| Harga Tarif | Menginap | Pelayanan |
| Siraman Roani | Kesiburan | Kesehatan |
| Kesiburan | Seksi | Memadai |
| Ruang Hijau | Data diet | Lingkungan |
| Deduk | Kesehatan | Sehat |
| Santai | Antisipasi | |
| Mudah | Jangan | |

Based on the answers above, the author uses coding with WordCloud Generator to find out what keywords appear, and which are emphasized. Author uses two WordCloud Generator tools from different pages.

Following are the results of analysis using the WordCloud Generator by MonkeyLearn:
Following are the results of analysis using the WordCloud Generator by JasonDavies:

Based on these answers, an outline of the aspects that can be explored for users in co-living are:

- Convenience
- Privacy

These keywords are obtained based on respondents’ answers to improve the quality of co-living, so it helps to consider in designing co-living.

5. Concluding remarks

From the results of the survey questionnaire and several theories, it can be concluded that the design concept is Convenience in Collaborative Life. This concept is derived from a combination of co-living characteristics studies [11] and EBS. Convenience means human nature (user) can be flexible as when they want to mingle, but they can also have their own privacy. This characteristic is obtained from a study, privacy is an approach by environment psychological as a process of self-changing/other boundary regulation in which a person or a group sometimes wants to be separated from others and sometimes wants to be in contact with others (David & Palladino, 1997) [18]. Therefore, humans use personal space mechanisms to assist in privacy regulation which involves a combination of distance and angle of orientation from other people [18]. Flexibility can be found in co-living where co-living can save millennials from the hassle of daily housework due to the plug-and-play work behaviour [4]. Thus, millennial work behaviour also affects the living behaviour.

This study can be poured into the design by making a spatial layout and a space programming according to millennials preferences. From the results of the research through survey questionnaire, theoretical basis studies, and its analysis, it can be seen that co-living is a suitable answer according to millennials preferences.
1. Most of millennials do not prioritize ownership because of the current sharing economy. Apart from the high price of land, millennials know what their money is for, can be for personal pleasure or their other priority.

2. Millennials still want to maintain their privacy even though they have a tendency collaborative behaviour. It because of their emotional condition or mood who want to tighten their personal space by maintaining their privacy. They will mingle and have fun again when they want to loosen their personal space. Therefore, human mood can be flexible too.

3. Living behaviour and working behaviour of millennial as if become one caused by its blurry boundaries between them. Those flexible and collaborative patterns become the same interest between millennials. Thus, millennials are suitable for living collaboratively.

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