EMARA: Indonesian Journal of Architecture

Vol 4 No 2 - December 2018

ISSN 2460-7878, 2477-5975 (e)

Design Parameters of *Pesantren*'s Dormitory Based on Student's Preference and Adaptation

Mimin Aminah Yusuf, Arina Hayati, Muhammad Faqih

Institut Teknologi Sepuluh Nopember Surabaya , East Java, Indonesia

miminaminahyusuf@gmail.com, arina.hayati@gmail.com, faqih@arch.its.ac.id

doi.org/10.29080/eija.v4i2.395

Abstract: *Currently, the development of pesantren in Indonesia is very rapid, while there is still no concept that is used as a reference in designing of the dormitory building. There are several standards or references used in dormitories but currently only found for campus dormitories. In addition, there are some problems in pesantren dormitory such as infrastructure that is less supportive and very high occupancy density, therefore students had to adapt. This study aims to formulate the parameters used in designing pesantren based on preferences and adaptation. Preference is included because there is a relationship between preference and adaptation. The method used is qualitative by comparing from some works of literature. The results consist of the thread of thought, determining of pesantren and variable, the indicator used. There is five thread that used to the formulated design concept, among others existing, typology, preference, adaptation and proposal design. Variable and indicators of activity, facility and environmental scope can be assessed on student preference and adaptation in any contexts and type of pesantren. Further, the upcoming result of the parameter can be set as the underlying consideration for the designing of pesantren dormitory.*

Keywords: adaptation, dormitory, pesantren, preference, Indonesia

1. INTRODUCTION

Early construction of dormitories on several campuses was phenomenal in 1950 to 1960 Corbett in Clemons, et al (2005). In the following years, there were several studies on dormitories. Previous research could be categorized into four parts according to the period (Table 1). Among others 1960-1980, 1981-2000, 2001-2010, and 2011-present. These studies exist on all continents except in Australia, which has not been found in research on the dormitory. In dormitory research found in 1960-1980 and 1981-2000, all studies found were from America. Then in the following period, it was found in dormitory research in Asia, such as research conducted by Kaya and Erkip (2001); Irfani (2004); Wonombong (2005); Alkandari (2007); Cheng, et al (2008); Hidayat (2009); Li, et al (2010); Sayu, et al (2011); Muslim, et al (2012); Setyarini (2012); Handono, et al (2013); Khajehzadeh & Vale (2014); Winata (2014); Bakar (2014); Park (2016); Ning, et al (2016); Wang, et al (2016); Ning and Chang (2016); and Wulandari (2016).

Researches found in Europe were Oppewal, et al (2005) and Clemons, et al (2005). In Africa there are studies including research conducted by Amole (2005); Amole (2007); Amole (2009a); Amole (2009b); Adewunmi, et al (2010); Sawyer and Yusof (2013); and Ajayi, et al (2015). Research on aspects of environmental behavior study such as privacy, territory and personalization was examined by Heilweil (1973); Khajehzadeh, et al (2014); and Clemons, et al (2004). The aspects that are considered are the effects on density, sense of place, sense of self, adaptation, and share space. Preference research found in previous studies focuses on preference of learning place (Sommer, 1970); distance to educational facilities, prices, building size (University of Wisconsin Survey Research Laboratory, 1971); window preference on scenery (Tennesen and Cimprich, 1995); preference of room members (Rowland, 1998); sharing space, display of buildings (Oppewal, et al, 2005); room type based on occupants (Alkandari, 2007); thermal (Cheng, et al, 2008 and Li, et al, 2010); and preferences for *pesantren* selection (Bakar, 2014).

Several studies of post occupancy evaluation were carried out by Alfert (1966); Null (1980); Amole (2007); Amole (2009a); Amole (2009b); Adewunmi, et al (2010); Muslim, et al (2012); Sawyer and Yusof (2013); Khajehzadeh & Vale (2014); Ajayi, et al (2015); and Ning and Chang (2016). In addition, because the dormitory was a residence that was shared with many people, it was very density. This issue began to be investigated in the early to the end period, including Bickman et al. (1973); Baum, et. al (1975); Baum & Vallins (1979); Mandel, et al (1980); Epstein (1981); Walden, et al (1981); Mullen and Felleman (1990); and Kaya and Erkip (2001). The aspect examined in these studies is the influence of density and crowding on corridors, dormitory shape, room size, trippling on room members, building height and windows.

Table 1. Gap of Knowledge

Period	Researcher	EBS research in dormitory	Preference in Dormitory		Adaptation in dormitory	
			Physiology (Phy)	Psychology (Psy)	Phy	Psy
1960-1980	Alfert (1966)				√	√
	Centra (1967)	√				
	Sommer (1970)	√	√	√		
	University of Wisconsin Survey Research Laboratory (1971)		√			
	Heilweil (1973)	√				
	Bickman, dkk (1973)	√				
	Bennett (1974)	√		√		
	Baum, dkk (1975)	√				
	Baum & Vallins (1979)	√				
	Null (1980)	√			√	√
	Mandel, dkk (1980)	√				
1981-2000	Epstein (1981)	√				√
	Deasy dan Lasswell (1985)	√				
	Mullen dan Felleman (1990)	√				
	Tennesen dan Cimprich (1995)	√	√	√		
	Rowland (1998)			√		
2001-2010	Kaya dan Erkip (2001)	√				
	Irfani (2004)					√
	Wonombong (2005)					√
	Oppewal, dkk (2005)		√	√		
	Amole (2005)	√			√	√
	Clemons, dkk (2005)	√			√	√
	Amole (2007)				√	√
	Alkandari (2007)	√			√	
	Cheng, dkk (2008)		√			
	Amole (2009a)				√	
	Amole (2009b)				√	
	Hidayat (2009)					√
	Li, dkk (2010)		√			
	Adewunmi, dkk (2010)				√	
2011-2018	Sayu, dkk (2011)					√
	Muslim, dkk (2012)	√			√	√
	Setyarini (2012)					√
	Handono, dkk (2013)					√
	Sawyer & Yusof (2013)				√	
	Khajehzadeh & Vale (2014)	√			√	√
	Winata (2014)					√
	Bakar (2014)			√		
	Ajayi, dkk (2015)				√	
	Ning, dkk (2016)				√	
	Wang, dkk (2016)				√	
	Ning dan Chang (2016)	√			√	√
	Wulandari (2016)	√				
	Yusuf, et.al (2018)	√	√	√	√	√

Source: Analysis, 2018

There are several studies on adaptation in *pesantren*, among others in aspects of adaptation to activities (Irfani, 2004); adaptation to regulation (Wonombong, 2005); differences in adaptation of male and female students in traditional and modern *pesantren* (Hidayat, 2009), social adaptation (Sayu, et al, 2011 and Handono, 2013); and the relationship of emotional intelligence adaptation (Setyarini, 2012).

While adaptation research in dormitory about physiological adaptation was investigated by Ning, et al (2016) and Wang, et al (2016). In addition Amole (2005) examines adaptation in dormitory rooms, about differences in men and women in adapting and their effects on length of stay

In previous studies, the majority of research was conducted in dormitories on campus. While research on *pesantren* dormitory has not been much researched, especially on the influence of dormitory architecture on behavior (see table 1). Whereas the construction of *pesantren* dormitories, especially in Indonesia, already existed earlier than the dormitories on campus. *Pesantren* began to stand in Indonesia around 200-300 years ago (Ministry of Religion RI, 1984/1985), while dormitories on campus were established starting in late 1950. Besides that *pesantren* in Indonesia has very rapid development (Republika.co.id, 2017).

As far as the research found, there was still no research that comprehensively discusses relationship preferences and adaptations in dormitories, especially dormitories in *pesantren*, whereas preferences and adaptation have interrelated relationships. The design of *pesantren* dormitory by using preference and adaptation is very important. This is because student do adaptation which is caused by the lack of infrastructure, (Mu'in, et al, 2006), have minimum of comfort level and very high occupancy density (Bosworth, et al., 1995). Besides that, there is still no concept of dormitory design which is used as a reference for *pesantren* (Wahid, 2001).

Pesantren in Indonesia

Pesantren is an Islamic education institution that grows and is recognized by the surrounding community with a dormitory system. The students receive religious education through a recitation system that is fully under the sovereignty of leadership of a person or several kiai (Arifin, 2010). There are five forming elements in *pesantren* among other *kiai*, mosque, dormitory, student, and religion book/*kitab kuning* (Dhofier, 1994).

Pesantren is a unique and interesting life form. Not only because the education model, but also includes the behavior of life in it. Because of that, Wahid (2001) states that *pesantren* is a subculture of community life in Indonesia. The subculture is a group of people who share the same way of life, outlook on life and values that are different from their prime culture.

According to Wahid (2001) *pesantren* is said to be a subculture because it has the following aspects:

- The existence of *pesantren* as a place for life that still follows the pattern of public life in Indonesia
- There are facilities that support the life of *pesantren*.
- There is a forming of value system in *pesantren*, which is complemented by its symbols.
- Have an appeal to the local community, thus to consider *pesantren* as one of the ideal references in determining the attitude of life.
- *Pesantren* has relationships with local communities that influence each other and will form new values that are universally accepted by both parties.

Typology of *pesantren* proposed by education system according to Ministry of Religious Affairs (Miftahudin, 2011); are type A (student settled in dormitory, the educational system used is still classical, not holding formal education, and does not have standard curriculum); type B (student settled in dormitory, the educational system is integrated formal school, clearly programmed curriculum); and type C (just as a dormitory for student. Students study in formal schools located outside *pesantren* and used hidden curriculum/ material study from *kiai*). Other than that, there are two typologies of *pesantren* by organization, among other organization affiliation and non-affiliated organization (private or family ownership)

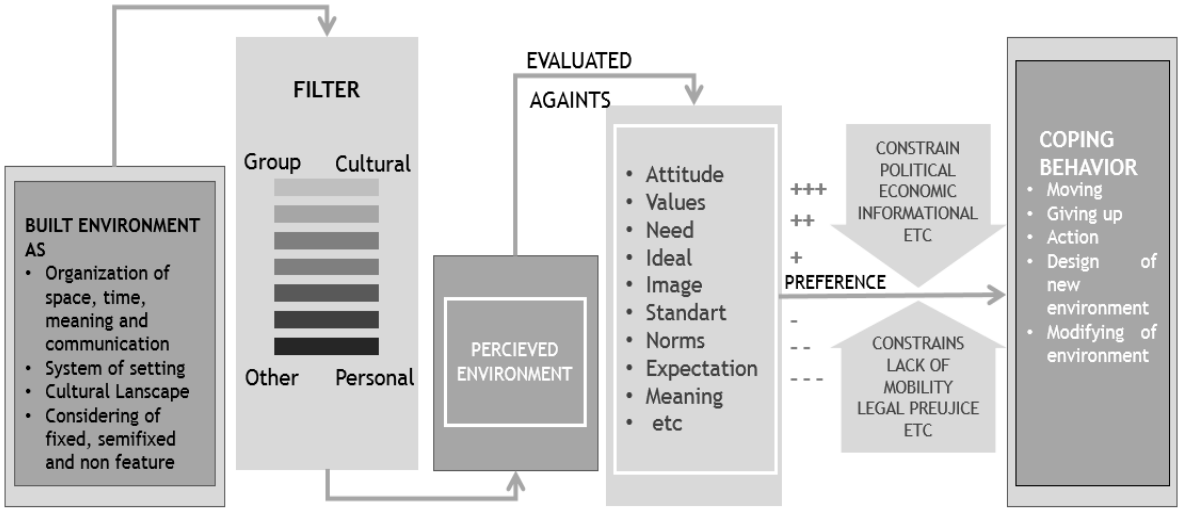


Figure 1. Human evaluation process (Source: Rapoport, 2005)

Human evaluation process to the environment

Rapoport (2005) explains that the built environment is a planned environment which has an organization (both from space, time, communication and the meaning of the space itself), system settings, culture and physical fixes fix, semi fix and non-feature (see Fig.1). Humans filter the environment through their personal experience and culture gained before, and therefore the perception of humans in understanding the new environment. There are two aspects to consider in the human process of evaluating the environment. Among them are preference and adaptation. Here is an explanation of each aspect.

a) Preference in architecture

Preference is choosing the object based on human desire (Rapoport, 2005). Preferences are closely related to perceptions of their occupancy (Rapoport, 2005), behavioral, responses and decision-making on multiple options (Triyuli, 2005). Perception has a very important role in the mindset of humans in choosing preference dwelling because it is obtained from the results of meaning to previous occupancy (Arias, 1993). Furthermore, Arias (1993) stated that there are three mechanism in preference (see Fig. 2).

1) Residential setting analysis
   This stage is the identification of the need on an object to be designed. Aspects to consider are demographics, psychographic and physical design attributes (tool and furniture, etc.).
2) Design Impact Analysis
   This stage is organizing space and making alternative design/ typology.
3) Preference Analysis.
   After passing the two processes above then the typology will be selected. The choice of typology will be influenced by the image, norm, standard, expectation, meaning, etc. that one gets to the object.

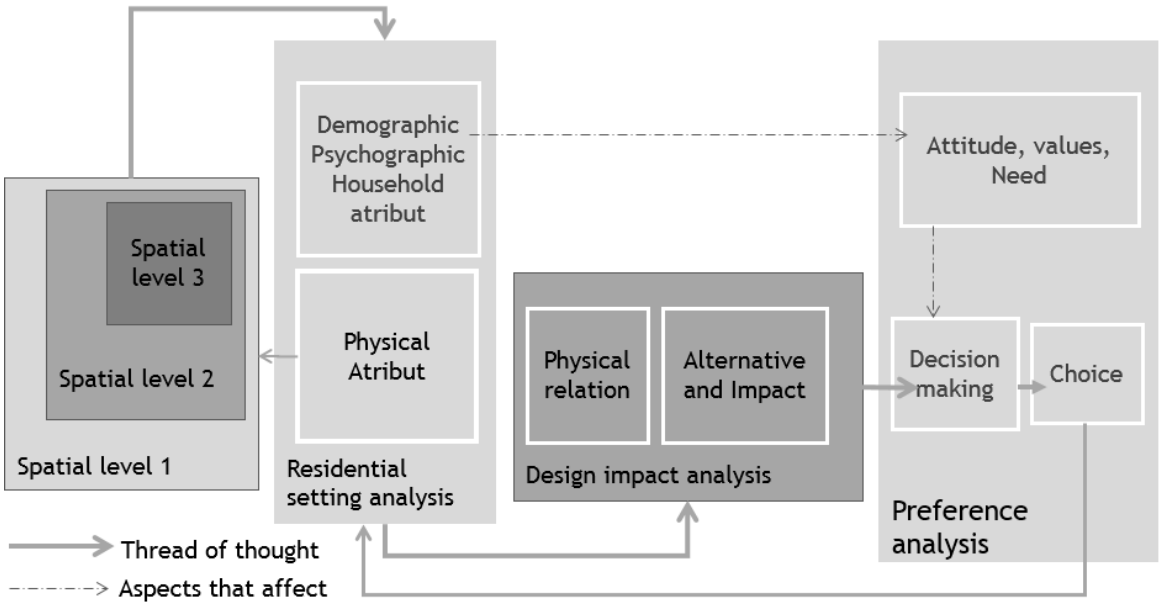


Figure 2. Mechanism of preference (Source:Arias, 1993)

b) Adaptation in architecture

After humans formulate a preference for their environment, if the environment can not fulfill human preference, the effort made to meet human needs is by adaptation. According to Rapoport (2005) the efforts made by humans to adapt to their environment are (a) modifying the environment; (b) design new environment; (c) changing behavior; (d) action; (e) giving up; and (f) moving.

While Berry (1980) said that adaptation is done by adaptation (a) by reaction (changing behavior to reduce conflict to environment); (b) by adjustment (changing the environment to appropriate the desired environmental conditions); and (c) by withdrawal (letting and moving to environment deemed appropriate to the desired one). According to Rapoport (2005) and Berry (1980) there are 4 types of adaptation, among others are

- By reaction (action and changing behavior)
- By adjustment (modifying or design environment)
- By withdrawal (move)
- By giving up (surrender)

Dormitory in architectural design

a) Activity and facility

According to Chiara and Callender (1987), the need of dormitory space is based on activity needs.

Therefore discussed about activities in the dormitory first. According to Chiara and Callender (1987), domestic activities in the dormitory include learning, sleeping, socializing, dressing, bathing and eating. While Bonny (2014) classifies the types of activities that occur in dormitories that are grouped into 8, including:

- Personal or domestic activity, is an activity carried out privately by each dormitory resident. Like the activity of sleeping, eating, and bathing.
- Educative activity, is an activity carried out by residents and learning things which is to improve academic abilities such as self-study or group.
- Communicative activity, is an activity carried out by residents in communicating with visitors and all boarders.
- Recreative activity, is an activity carried out by fellow dormitory residents to strengthen relationships between residents, in addition to refreshing the fatigue of activities in the dormitory.
- Management activity, is an activity that supports student administration activities.
- Support activity, is an activity that supports all the activities of the boarders.
- Service activity, is an activity that can support all student activities that occur in the dormitory. For example cleaning the dormitory by cleaning service, repairing damage to facilities by the repairman, and so forth.
- Sport activity, is an activity to maintain a healthy body.

From the concept of dormitory activities, domestic activities referred by Chiara and Callender (1987) can be included in personal/ domestic activities expressed by Bonny (2014), except for socialization activities. Socialization activities are included in communicative activities in Bonny's theory (2014). Activities that are used as variables in this study are personal/ domestic, educative, communicative/ socialization,recreation, management, support, service, sports activities. From the need of activities mentioned above, the facilities needed are domestic, communicative, educative, recreative, management, support services, and sport facilities.

b) Typology of architectural element

According to Amole (2009a) typology in architecture is the classification of architectural elements which refers to form and organization of space based on certain physical characteristics. Typology is an important aspect in designing a building. According to Amole (2009b), typology in the dormitory is divided into four environmental scope, including a hall (dormitory environment scope), a block (dormitory building scope), a floor and bedroom scope. The following is the explanation each scope.

(1) Dormitory environment scope

This scope consists of several aspects including the dormitory building, and several facilities that complete it. In this case, it consists of the mass of facilities, including minimarkets, canteens, campuses/ schools, and so on. To organize, distance between facilities must be known. A comparison scale is used. According to Widyasari (2017) there are five comparative scales including (a) very far: 120 -> 75 minutes; (b) far: 105 -> 75 minutes; (c) medium: 75 -> 45 minutes; (s) near: 45 -> 15 minutes; and (e) very near: 15-20 minutes.

(2) Block/ building scope

The aspects discussed in this scope are the height of dormitory, size of building, type of occupant, vertical circulation and several share facilities. The following is a description of each aspect.

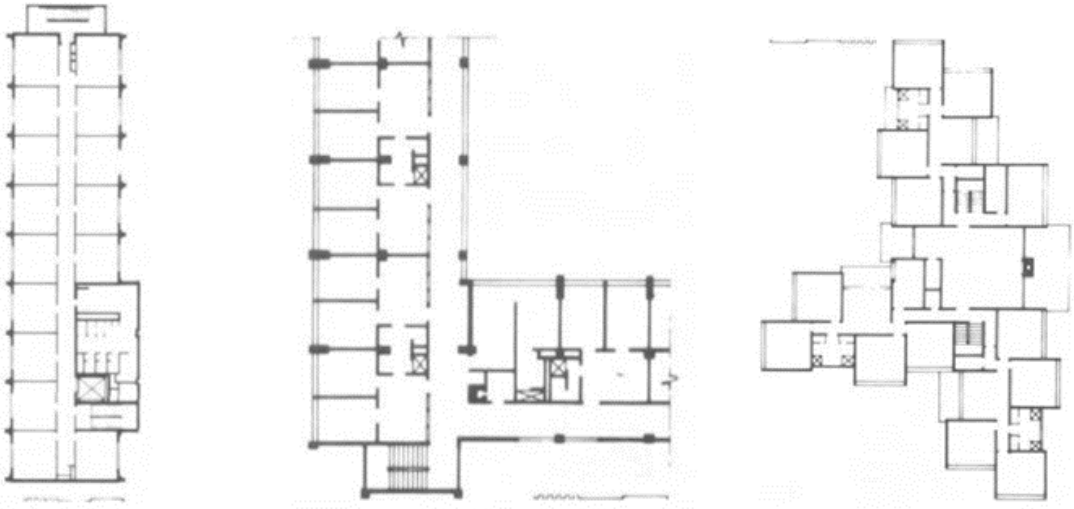
- The height of dormitory building
  According to Lieberman (1976), there are four types of dormitories, including: maisonette/ 1-4 floors; low rise/ 4-6 floors; medium rise/ 6-9 floors; high rise/ more 9 floors.
- Size of building
  According to Neufert (1989), the size of dormitory is divided into four, namely: small dormitory can accommodate 30-50 beds; medium dormitory is holding 40-100 beds; large dormitory accommodate 100-125 beds; and very large dormitory accommodating 250-600 beds.
- Type of occupant
  Type of occupants of the sexes Widiastuti in Nathania (2016) are as follows: women student housing, man student housing and co-educational housing.
- Vertical circulation
  According to Neufert (1989), there are three types of vertical circulation in buildings. Among them are stairs, elevators and escalators. The use of stairs can be done for a maximum of four floors, the rest is used an elevator.
- Shared facility
  Share facilities in the dormitory according to Amole (2009b) include library, management and service room.

(3) Floor scope

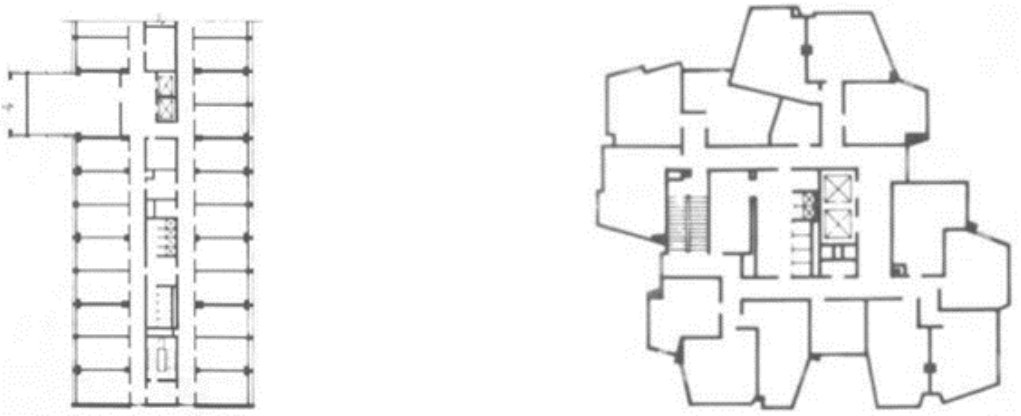
Within the scope of floor scope, there are several aspects, including horizontal circulation (corridors), and shared facilities (bathrooms and kitchens). The following is an explanation of each aspect:

- Corridors
  According to Chiara and Callender (1987) corridors based on the floor plan are divided into five, including (a) The double-loaded corridor, (b) The gallery plan; (c) vertical houses; (d) The extended core plan; and (e) Point tower plan.

- Shared facility
  Shared facility according to Amole (2009b) in floor scope of the dormitory building is kitchen, bathroom and laundry room. This facility is a very urgent facility thus the placement must be close to the student's residential room. Hence, these spaces are placed on the scale per floor of the building.



(a) double loaded corridor (b) The gallery plan (c) Vertical houses



(d) The extended core plan (e) Point tower plan

Figure 3. Type of corridors (Source: Chiarra and Callender, 1987)

(4) Bedroom Scope

According to Chiara dan Callender (1987) in designing dormitory bedroom, there are several aspects that must be considered include:

- Bedroom Dimension
  Something to consider in determining the dimensions of space include (a) the size of the furniture, (b) use space of furniture and (c) the combination of some furniture.
- Bedroom size and shape
  The bedroom size and shape is an aspect that is very influential in two aspects of bedroom design (arrangement of furniture and space division). There are several typologies of Bedroom based on use space. Use space is movement space of furniture (Chiara and Callender, 1987).

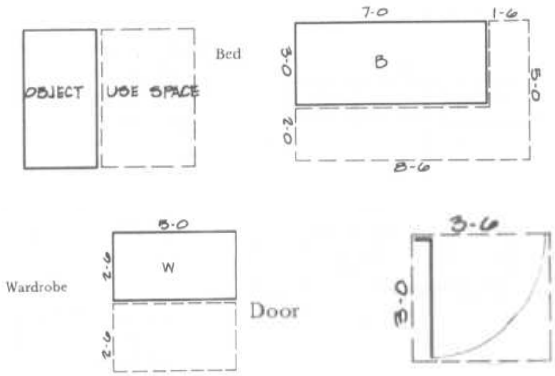


Figure 4. The use space (Source: Chiara and Callender, 1987)

The bedroom typology among others (a) Minimum type (Minimum types have access to the required furniture, but use space is overlapping); (b) Optimum type (There is no overlap in furniture spaces); (c) Generous (There is a limit of furniture for each space).

Figure 5. Bedroom typology based on use space (Source: Chiara and Callender, 1987)

- Number of occupants
  There are several types of bedrooms based on the number of occupants. That are single bedrooms, split double bedrooms, double bedroom, triple bedroom, four-student bedroom, suite, apartment.

2. RESEARCH METHOD

To formulate a dormitory design concept in a *pesantren*, indicators are needed. The method used is qualitative by comparing and formulating literature. The literature includes aspect, element and variable in (a) *pesantren* in Indonesia; (b) human evaluation process on its environment; and (c) dormitory in architectural design.

3. RESULT AND DISCUSSION

This discussion will be described the thread of thought, variables and indicators used and the selection of *pesantren*. The following is an explanation of each aspects.

3.1. The thread of thought

Based on synthesis of theory that have been discussed, it can be understood that preference and adaptation are psychological aspects that are interrelated. There are five mechanisms used to explore preferences and adaptations in formulating design concepts/ proposals for *pesantren*. These five mechanisms are characteristic of existing condition, typology, preference, adaptation and design proposal (see figure 6).

The context of existing condition in this study is the type of *pesantren* that will be designed. The spatial level is the typology expressed by Amole (2009b), which there are four scopes of dormitory environment. The need of activities and facilities in certain *pesantren* is used to explore typologies. The aspect observed in typology is the organization and typology of dormitory facilities in many *pesantren*s that are same type and characteristics.

Preference is the next mechanism, in which preference consideration is used to explore the motivations and needs desired by students. Preference is influenced by student experience regarding an pesantren dormitory (meaning, image, ideal, standard, etc). Evaluation is the determination of the level of suitability between student preferences with the dormitory conditions currently occupied. If the level of suitability of preference is high then adaptation is low, and vice versa.

Adaptations focus on the efforts made by student in dealing with unwanted environmental conditions or those that are not in accordance with their preferences. Students efforts to adapt to their dormitory are intended that students have endurance and can improve their quality of life. Student adaptation indicates that students have a need for their environment. Student need for will be used to formulate design concept proposals for dormitories.

3.2. Determining the *pesantren*

The *pesantren* used for the study was determined by purposive sampling. This is intended to be able to control the variables determining the *pesantren* so that the results of the research are not biased. Location is not taken into consideration because the parameters that become references are the *pesantren* subculture. In determining the *pesantren* used as a study, *pesantrens* must be chosen which have the same specific types and characteristics.

In addition, the selection of *pesantren* based on the range of educational fee is important to determine. This is intended to control students' preferences, because santri chooses facilities based on values of space rather than values of price. In choosing typology, students do not consider prices because they are the responsibility of their parents

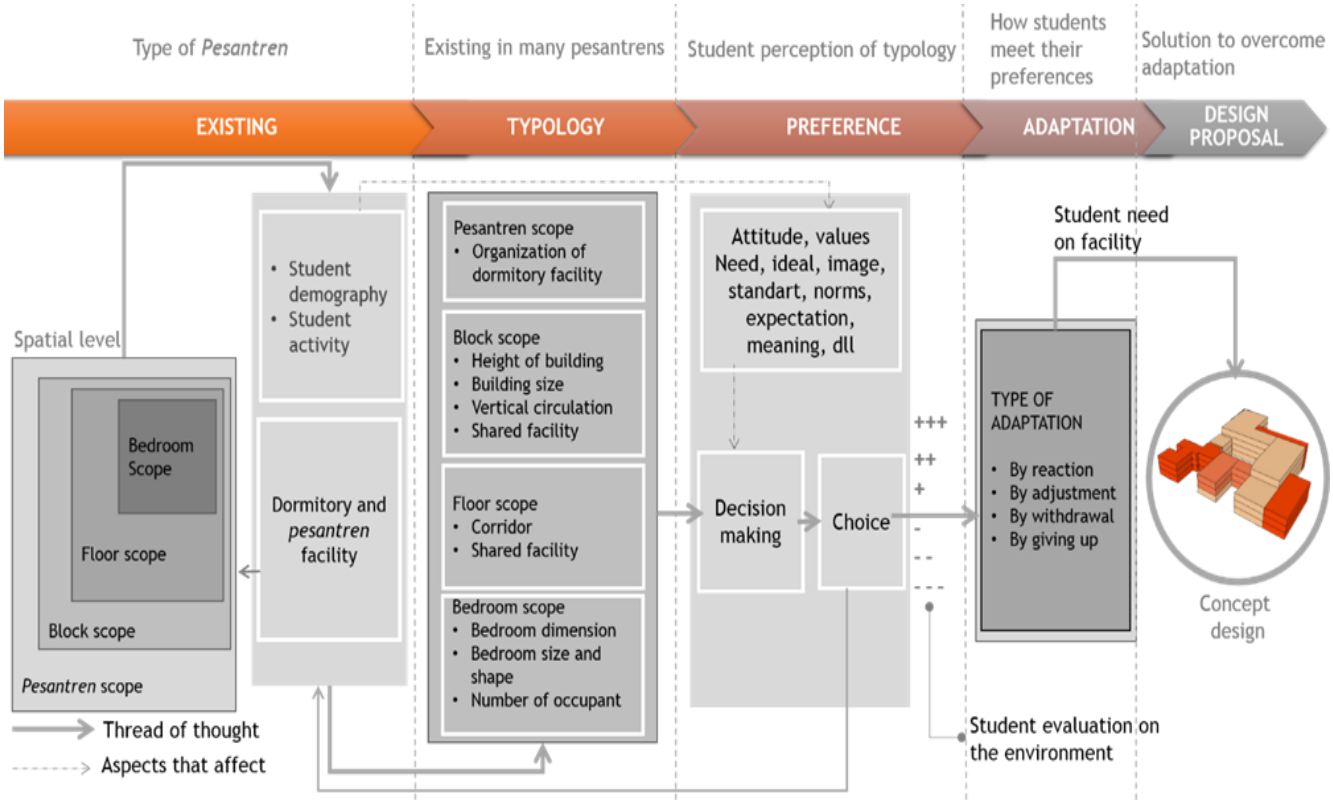


Figure 6. The development of preference and adaptation theory in the context of *pesantren* (Source: developed from Arias, 1993; Berry,1980 and Rapoport, 2005

3.3. Determining the *pesantren*

The *pesantren* used for the study was determined by purposive sampling. This is intended to be able to control the variables determining the *pesantren* so that the results of the research are not biased. Location is not taken into consideration because the parameters that become references are the *pesantren* subculture. In determining the *pesantren* used as a study, *pesantrens* must be chosen which have the same specific types and characteristics.

In addition, the selection of *pesantren* based on the range of educational fee is important to determine. This is intended to control students' preferences, because santri chooses facilities based on values of space rather than values of price. In choosing typology, students do not consider prices because they are the responsibility of their parents.

3.4. The variable and indicator of designing *pesantren* dormitory

The variables and indicators observed are activity, facility in dormitory and four environmental scope in dormitory. Every scope of environmental have shared facilities, thus it will be clasified in one discussion based on type, location and service scale. The following table 2 is the variables and indicators that used.

Table 2. The variables and indicators

Variable	Sub-variable	Indikator	Source
Activity in dormitory	Personal/ domestic	• Eat • Sleep • Take a bath • Etc	Chiara and Kopplemen (1987) Bonny (2014)
	Communicative	• Telling stories with a friend • Discussion	
	Educative	• Private learning • Group or self-study	
	Recreative	• Communal activities between students	
	Management	• Administration	
	Support	-	
	Service	-	
	Sport	• Gymnastics • Badminton, etc	
Facility in dormitory	-	• Domestic facility • Communicative facility • Educative facility • Recreative facility • Management facility • Support facility • Service facility • Sport facility	Bonny (2014) Chiara and Callender (1987)
Pesantren scope	Distance between *pesantren* facilities	• Very far • Far • Normal • Near • Very near	Widyasari (2017)
Block/ Dormitory building scope	The height of building	• Maisonette • Medium • Low rise • Rise • High rise	Lieberman (1976)
	The size of building	• Small dorm • Medium dorm • Big dorm • Very big dorm	Neufert (1989)
	Type of occupant	• Man student housing • Woman student housing • Co-educatinal housing	Widiastuti in Nathania (2016)
	Vertical circulation	• Stair • Elevator • Escalator	Neufert (1989)
Floor scope	Corridors	• The double-loaded corridor • The gallery plan • Vertical Houses • The extended core plan • Point tower plan	Chiara dan Callender (1987)
Bedroom scope	Dimension of bedroom	• Size of furniture • use space • combination of furniture	Chiara dan Callender (1987)
	Bedroom Size and shape	• Minimum • Optimum • Generous	Chiara dan Callender (1987)
	Number of occupants	• Single room • Split double rooms • Double room • Triple room • Four-student room • Suite • Apartemen	Chiara dan Callender (1987)
Shared facility	Type of shared facility	• Kitchen • Bathroom • Laundry • Library • Service • Management	Amole (2009b)
	Location	Facility organization	
	Service scale		

Source: analysis, 2018

4. CONCLUSION

Designing *pesantren* dormitory based on preference and adaptation is very important. This is because to improve the quality of life of students in *pesantren*. The stages in designing a dormitory in a *pesantren* are identifying the characteristics of the type of pesantren that will be designed. Then look for typologies from several similar *pesantren*. After the typology is known, it can be examine through a questionnaire to students what typology are more desirable. The results of the preferences are evaluated with the current dormitory conditions therefore the level of satisfaction of students is known. After the level of satisfaction is known it can be explored how adaptation is. Adaptation is identified, then the student need of dormitory room is known. Thus, it can be used to designing dormitory in *pesantren*.

In the selection of *pesantren* that will be formulated the design concept, the characteristics and type of *pesantren* must be determined first. In addition, the cost of the education fee must also be equated. Education fee is an important consideration because to control students' preferences therefore they do not choose based on the value of money but on the value of space, so that the design results are not biased. Variable and indicators that used are activity, facility, *pesantren* scope, dormitory building scope, floor scope, bedroom scope and shared facilities.

5. REFERENCE

Adewunmi, Y., Omirin, M., dan Famuyiwa, F. (2010). Post-occupancy evaluation of postgraduate hostel facilities. Emerald Group Publishing Limited. Volume. 29 No. 3/4. Pp 149-168.

Ajayi, M., Nwosu, A., dan Ajani, Y. (2015). Students' Satisfaction With Hostel Facilities In Federal University of Technology, Akure, Nigeria. European Scientific Journal. December 2015 edition volume.11, No.34. ISSN: 1857– 7881

Alfert, Elizabeth. (1966). Housing Selection, Need Satisfaction and Dropout from Collage. Psychological Reports. Volume 19. Pp 183-186.

Amole, Dolapo. (2005). Coping Strategies for Living in Student Residential Facilities In Nigeria. Environment and Behavior. Volume. 37 No. 2, March 2005. Pp 201-219. Sage Publications. DOI: 10.1177/0013916504267642

Amole, Dolapo. (2007). A Study of the Quality of Student Residential Facilities in Nigeria. Planning for Higher Education. Volume 35 no. 4. Pp 40-50

Amole, Dolapo. (2009a). Residential Satisfaction in Student's Housing. Journal of Environmental Psychology. Volume 29. Pp 76–85.

Amole, Dolapo. (2009b) Residential Satisfaction and Levels of Environment in Students' Residences. Environment and Behavior. Volume 41 Number 6 November 2009. pp 866-87. Sage Publications. DOI: 10.1177/0013916508322175

Anhari, Masjkur. (2007). Integrasi Sekolah ke Dalam Sistem Pendidikan Pesantren (Tinjauan Filosofis dalam Perspektif Islam). Diantama. Surabaya.

Arias, Ernesto. (1993). The Meaning and Use of Housing. Averbury. England.

Bakar, Abu. (2014). Preferensi Wali Santri Dalam Memilih Pendidikan Tingkat Dasar. Kodifikasia. Vol.8 No.1

Baum, A., Harpin, R.E., dan Valins, S. (1975). The Role of Group Phenomena in The Experience Of Crowding. Environment and Behavior. Volume 7 No.2. Juni 1975. Pp 185-198. Sage Publications, Inc.

Baum, A., dan Valins, S. (1979). Architectural Mediation of Residential Density and Control: Crowding and The Regulation of Social Contact. Advances in Experimental Social Psycology. Volume 12. Pp 132-172.

Bennet, D. C. (1974). Interracial Ratios And Proximity In Dormitories Attitudes Of University Students. Environment and Behavior, Volume. 6 No. 2, June 1974. Sage Publications, Inc.

Berry, J.W. (1980). Cultural Ecology and Individual Behavior. In Altman, I., Rapoport, A., dan Wohlwhill, J.F. (Eds). Human Behavior and Environment (advances in theory and research). Volume 4. Environment and culture. Plenum Press. New York

Bickman, L., Teger, A., Gabriele, T. (1973). Dormitory Density and Helping Behavior. Environment and Behavior. Volume 5 No.4. December 1973. Pp 465-490. Sage Publications, Inc.

Bonny, Okto. (2014). Redesain Asrama Mahasantri di Jakarta Barat. Skripsi. Jurusan Arsitektur. Universitas Diponegoro. Semarang.

Bosworth, C.E., dkk. (1995). The Encyclopedia of Islam. New Edition. E.J. Brill, Leidn

Centra, J.A. (1967). Student Perceptions of Residence Hall Environments: Living-Learning vs. Conventional Units. Personnel and Guidance Association Convention. Dallas, Texas.

Cheng, M.J., Hwang, R.L., dan Lin, T.P. (2008). Field Experiments on Thermal Comfort Requirements for Campus Dormitories in Taiwan. Indoor Built Environment. Volume 17 no.3. Pp 191–202

Chiara, Joseph De dan John Callender. (1983). Time Saver Standar for Building Types 2nd Edition. McGraw-Hill Book Company. New York.

Clemons, S.A., Banning, J.H., dan McKelfresh, D.A. (2005). The Importance of Sense of Place and Sense of Self in Residence Hall Room Design.

Journal of The First-Year Experience & Students in Transition, Number 2 / 2005, pp. 73-86(14)

Cozby, Paul C. (1973). Effect of Density, Activity, and Personality on Environmental Preferences. Journal of Research In Personality 7, pp. 45-60.

Departemen Agama RI, Norma dan Data Pondok Pesantren Seluruh Indonesia, 1984/1985.

Epstein, Y.M. (1981). Crowding Stress and Human Behavior. Journal of Social Issues. Volume 37 No.1. Pp 126-144

Handono, OT., Khoiruddin Bashori, (2013), Hubungan Antara Penyesuaian Diri Dan Dukungan Sosial Terhadap Stres Lingkungan Pada Santri Baru. EMPATHY, Jurnal Fakultas Psikologi Vol. 1, No 2. Hal 79-89.

Heilweil, Martin. (1973). The Influence of Dormitory Architeture on Residnt Behavior. Environment and Behavior. Volume 5 No. 4. Desember 1973. Pp 377-412

Hidayat, D.A.J. (2009). Perbedaan Penyesuaian Diri Santri Di Pondok Pesantren Tradisional Dan Modern. Skripsi. Univerversitas Muhammadiyah Surakarta.

High, T., dan Sundstrom, E. (1977). Room Flexibility and Space Use in a Dormitory. Environment and Behavior. Volume 9 No. 1, Pp: 81-90

Holahan, C.J. (1982). Environmental Psycology. Random House, New York.

Hurlock, (1996). Psikologi perkembangan: Suatu pendekatan sepanjang rentang kehidupan. Erlangga, Jakarta.

Irfani, Rahmat. (2004). Penyesuaian diri santri pondok pesantren terhadap kegiatan pesantren. Skripsi. Jurusan Psikologi. UIN Syarif Hidayatullah. Jakarta

Kaya, Naz dan Erkip, Feyzan. (2001). Satisfaction in A Dormitory Building The Effects Of Floor Height On The Perception Of Room Size And Crowding. Environment and Behavior. Volume. 33 No. 1, January 2001. Pp 35-53

Khajehzadeh, Iman and Vale, Brenda. (2014) Share space in a student room. International Conference of the architectural science association. Pp. 163-174. The Architectural Science Association & Genova University Press

Li, Baizhan, Tan, M., Liu, H., Ma, X., Zhang, W. (2010). Occupant's Perception and Preference of Thermal Environment in Free-running Buildings in China. Indoor and Built Environment. URL: http://journals.sagepub.com/doi/abs/10.1177/1420326X10377545

Lieberman, Paul. M. (1976). Personal Remembrance. SB

Mandel, D.R., Baron, R.M., dan Fisher, J.D. (1980). Room Utilization and Dimensions of Density (Effect of Height and View). Environment and Behavior. Volume 12 No. 3 September 1980. Sage Publication Inc.

Mandel, D.R., Baron, R.M., dan Fisher, J.D. (1980). Room Utilization and Dimensions of Density (Effect of Height and View). Environment and Behavior. Volume 12 No. 3 September 1980. Sage Publication Inc.

Mullen, B dan Felleman, V. (1990). Tripling in the Dorms: A Meta-Analytic Integration. Basic and Applied Social Psychology. Volume 11(1). Pp 33-43. Lawrence Erlbaum Associates, Inc.

Muslim, M.H., Karim, H.A., dan Abdullah, I.C. (2012). Satisfaction of Students' Living Environment between on- Campus and Off-Campus Settings: A conceptual overview. Procedia - Social and Behavioral Sciences. Volume 68. pp 601 – 614

Mu'in, Abdul, dkk. (2007). Survey Tipologi Pondok Pesantren Dalam Pemenuhan Pelayanan Pendidikan Keagamaan Bagi Masyarakat. Badan Litbang dan Diklat Kementrian Agama RI. URL: https://balitbangdiklat.kemenag.go.id/posting/read/858-postingreadsurvey-tipologi-pondok-pesantren-dalam-pemenuhan-pelayanan-pendidikan-keagamaan-bagi-masyarakat

Neufert, Ernst, Peter Neufert. (1989). Architects Data 3rd Edition. Blackwell Publishing, UK.

Ning, Y., dan Chen, J. (2016). Improving Residential Satisfaction of University Dormitories through Post-Occupancy Evaluation in China: A Socio-Technical System Approach. Sustainability. Volume 8. Pp 1-17

Ning, H., Wang, Z., Zhang, X., Ji, Y. (2016). Adaptive thermal comfort in university dormitories in the severe cold area of China. Building and Environment, Volume 99, April 2016, hal 161-169

Null, R.L. (1980). University Residence Hall Suites: A Progression of Approaches to Evaluation Research. Housing and Society. Vol 7 No.1. Pp 67-76.

Oppewal, H., Poria, Y., Ravenscroft, N., Speller, G. (2005) Student Preferences for University Accommodation: an Application of the Stated Preference Approach. Housing, Space and Quality of Life, Ricardo Garcia-Mira, David L.Uzzell, J. Eulogio Real and Jose Romay (Eds), Ashgate publishers, Gower House, Aldershot, Hampshire, UK, pp 113-124.

Rapoport, Amos (2005) Culture, Architecture and Design. Lock Science Publishing Company. Chicago

Rowland, Mary R.A. (1998). Using A Roommate Preference Survey For Students Living On An Engineering Dorm Floor. FIE Conference

Sahlins, M.D. (1968). Culture and Environment: The Study of Cultural Ecology, dalam Manners, R.A. and Kaplan, D. (eds.), Theory in Anthropology: A

Source Book, pp 367-73. Aldine.Chicago.

Sayu, Jane A., M. Yusuf Ibrahim, Gusti Budjang. (2013). Adaptasi Sosial Santri Kelas X Pada Boarding School SMA Taruna Bumi Khatulistiwa. UNTAN, Pontianak.

Sawyer, P.T., dan Yusof, N.A. (2013). Student satisfaction with hostel facilities in Nigerian polytechnics. Journal of Facilities Management. Volume. 11 No. 4. 2013. Pp. 306-322

Setyarini, Elizabeth ari. (2012). Hubungan Komponen Dasar Kecerdasan Emosional Dengan Proses Adaptasi Mahasantri Tinggal Di Asrama Stikes Santo Barromeus Kota Baru Parahyangan. Prosiding SNaPP2012: Sosial, Ekonomi dan Humaniora.

Tennessen, C.M. dan Cimprich, B. (1995). Views To Nature: Effects On Attention. Journal of Envimnmental Psychology. Volume 15. Pp 77-85. Academic Press Limited.

Triyuli, Wienty. 2010. Identifikasi preferensi rumah bagi masyarakat berpenghasilan rendah di kota palembang berdasarkan metode hierarchial cluster dan discriminat analysis. Seminar nasional Metodologi riset dalam Arsitektur

Vershinina, Inna. dkk. (2016). Foreign students in the Soviet Union and Modern Russia: problems of adaptation and communication. Procedia - Sosial and Behavioral Sciences 236. Hal 295 – 300.

Wahid, Abdurrahman. (2001). Menggerakkan Tradisi, esai-esai pesantren. LkiS: Yogyakarta

Wang, Z., Zhang, X., Ning, H., Ji, Y. (2016). Human Thermal Adaptation in University Classrooms and Dormitories in Chinese Severe Cold Area in Winter. Procedia Engineering, Volume 146, 2016, Hal 24-31

Widyasari, Arlita. (2017). Konsep Rumah Susun Berkelanjutan di Kawasan Industri (Studi Kasus: Rungkut Surabaya). Tesis. Departement of Architecture. Fakultas Teknik Sipil dan Perencanaan. Institut Teknologi Sepuluh Nopember. Surabaya

Winata, Andi. (2014). Adaptasi Sosial Mahasantri Rantau Dalam Mencapai Prestasi Akdemik. Skripsi. Jurusan Ilmu Kesejahteraan Sosial, Universitas Bengkulu, Bengkulu.

Wonombong, Deby Ifke. (2005). Tingkat Kesulitan Penyesuaian Diri Para Siswi Terhadap Tata Tertib Akademi di Asrama Puteri Santa Maria Yogyakarta Tahun Ajaran 2004/2005. Skripsi. Universitas Sanata Dharma. Yogyakarta.

Wulandari, Ratri. 2016. Analisa Kaitan Desain Asrama Dengan Perilaku Penghuni Melalui Studi Analisa Konten Penelitian Sejenis. Jurnal Idealog, Ide dan Dialog Indonesia Jurnal Desain Interior & Desain Produk Vol.1 No.3, September 2016

https://www.republika.co.id/berita/dunia-islam/islamnusantara/17/11/30/ p088lk396-pertumbuhan-pesantren-di-indonesia-dinilai-menakjubkan. Diakses pada 30 juni 2018 pukul 09.00