CHAPTER II
LITERATURE REVIEW

Understanding the effect of pesantren to the structure and identity of its surrounding environment is a research that needs several major theories and references. The first thing to comprehend is what pesantren actually is; the history, the culture, the subjects. Understanding pesantren in its entirety is a very important base to appreciate how it is very likely for a small pesantren to change the structure and identity of the village it resides on.

The first major theory to discuss the structure of a pesantren area is the theory of structure of a pesantren. Structure of an urban environment may consist of its layout (Trancik, 1986), hierarchy (Ching, 1943), and also its pattern (Kostof, 1991). Second major theory is the identity of the pesantren area. According to Relph (1976), the identity of a place may consist of three elements; the physical appearance (Moersidetc, 2002; Othman, 1983), the observable activities (Laurens, 2004; Lang, 1974; Mas’ud, 2002), and the meaning (Rapoport, 1969, 2001; Madanipour, 1997). Supporting theories include those of human dimension in an urban environment; the understanding of perception, the mental image of an environment, and human cognition to its spatial dimension.

2.1. General Introduction on Pesantren and Its Culture

In the history, pesantren was built by Islam leaders as a facility for religious propaganda (Mas’ud, 2002). With the existence of pesantren, the
spread of Islam was easier because the religious leaders could mingle incredibly well to the society. The diffusion of Islam leaders and the society is how two cultures eventually diffused—the Islam culture and the local culture—into one unique pesantren culture.

_Pesantren_ is a sub-culture with its own uniqueness, with a monarchy system that is highly independent of other dealings outside of _pesantren_. Several factors that make a _pesantren_ a unique sub-culture are: the leadership pattern inside, which is entirely on the outer side of the local village’s leadership system, the universal literature that is continuously nurtured for centuries, and its own value system separated from what the public follow. Even though they are separated from the secular system, _pesantren_ has the ability to melt, mingle, and even influence cultures that exist around it.

Islam as a religion, seen from the architecture and urbanism side, has guidance and demands that have to be fulfilled in the process of planning buildings and or cities; for example, the demand to protect women's privacy, and the guidance in utilizing nature to its best potential. In that kind of Islam culture, the existence of _pesantren_ in an area can certainly influence the physical shape of a built environment in that area, be it in the scale of micro architecture of macro urban design.

The history of _pesantren_ and its function as a room for Islam propaganda in Indonesia demands certain compromises and changes in the delivery of the propaganda. The era of Islam monarchy in Indonesia came far after Hindu and Buddha. Religious leaders in the early years were forced to
fuse and become one with the society residing in their propaganda range. This is why the culture of Islam and pesantren in Indonesia is very different with the culture of pesantren in Middle East, or in countries where Islam originated.

Islam in Indonesia, especially in Java, is a religion that came in a middle of very traditional and animistic-dynamistic society with Kejawen culture. WaliSongo (literally nine saint; the nine leaders of Islam) during that time could not easily spread Islam to the society. With a few changes here and there, as long as they don’t deviate from the right sharia, Islam was taught and delivered gradually to also stay within the boundaries of traditional culture of Indonesians. The flexibility of Islam leaders in spreading their teachings is one of the factors of the rapid increase in Islam believers.

This flexibility is also the main value brought into the pesantren culture. Kyai (the religious leader) in most pesantren in Indonesia implement the same way and technique in their efforts of introducing Islam to a wider audience. They mingle with local citizens to embrace as much follower as possible. The penetration of Islam to the culture of Java or other secular culture is never through an instant and aggressive process. All are done gradually and considerately with diplomacy, so that no party or side are offended or feeling like their rights of practicing culture is violated.

In the relationship with society outside of pesantren, Kyai is also a role model. Aside of leading the pesantren as an institution, Kyai also become role model for people living around the pesantren complex. This is strongly correlated with the attitude and the behavior of Kyai as an Islam
religious leader who is flexible and charming when associating with the public. The society surrounding *pesantren* feels protected by the *Kyai*. Whatever the *Kyai* does or says, public will happily follow. The impact of the *Kyai*’s teachings is not a generic thing that can easily be generalized. The scale of the impact of social teaching of a *Kyai* in a *pesantren* is heavily dependent upon the scale of *pesantren*’s propaganda.

Areas around *pesantren* with smaller propaganda scale may only be affected by the influence of *Kyai* in a small radius. But in large *pesantren* complexes with regional or even national propaganda scale, the influence of *Kyai* is very significant. This may also be influenced by the age of the *pesantren* and how active the *Kyai* is in social interaction within the area. The older a *pesantren* is, for instance *pesantren* initiated during the period of invasions or early independence era, the more sacred the image of that *pesantren* in the eyes of the society.

For Indonesian society with Islam as the majority religion, and as a country that is culturally very tight bound with *pesantren*, *Kyai* is a role model (Mas’ud, 2002). Public living near *pesantren* will tend to adjust their lifestyle to the lifestyle of *pesantren*. Even though authoritatively *Kyai* is not an official leader, but the public still come to *Kyai* for advices regarding religious practices or just trivial daily routines. This, automatically, helps *Kyai* to introduce the concept of Islam or other teachings of religion that they practice to a wider audience and really plant it deeply within their daily routine. Public follows whatever *Kyai* says and does, from the way *Kyai* practices religion, the way *Kyai* socializes, even the politic that *Kyai* does.
The traditional pesantren culture, or salafiyahpesantren, is a culture that puts forum discussion in a very high place. The social interaction and the interest of a larger group of people are viewed very respectively in a pesantren. With the spread of similar concept to the public, neighborhood near pesantren tend to create active public places, correlated with the public activities that they do together. Mosques or mushallas built near pesantren not only function as the place for public religious practices, but also as a space for public discussion in a smaller scope. The larger the mosque, the larger scale of public interests represented by the group is.

2.1.1. Subjects of a Pesantren culture

Pesantren culture, however homogenous it may seem, is a home for subjects with many different backgrounds and roles. In general, the subjects in pesantren culture can be divided into three categorizations:

2.1.1.1. Santri

Santri in Sanskrit means “people who study the holy book”. This applies mainly because in the old years, pesantren were merely a place to study and review Qur’an. Pesantren serve as the basic source of Islamic religious education for people. As the pesantren grew and more santri came to pesantren to study, the curriculum was added with a study of kitabkuning (yellow manuscript). Yellow manuscripts are books written entirely in native Arabic by scientist and famous Islamic leaders and theology experts. They are called so literally because these manuscripts are always written in yellow papers. Santri read, recite, and translate these manuscripts to gain a stronger sense of Islam as a religion and also to learn Arabic.
In the olden days, santri are usually people who live near the location of pesantren. They either volunteer to study Islam or persuaded by the Kyai to stay in the pesantren and study. As time goes by and pesantren grow bigger, the radius of area that santri come from expands. If the pesantren succeeds in developing itself and creating a bigger name, santri from all over the country will come no matter how far their hometowns are. The culture of pesantren is that apparent for some people to actually send their children away for years without meeting them, because they believe that becoming a santri will educate their children to be better.

2.1.1.2. Kyai

Kyai are the religious leaders or the leader of the pesantren. In a wider sense, someone who leads a pesantren is called a Kyai by not only the santri but also by the general public. Kyai is a prestigious title and it must be earned.

More than a mere "leader", Kyai is a role model for hundreds or even thousands of people. A Kyai’s behaviors and conducts are all under a strict watch from his santri and followers, and they tend to mimic and try to implement every aspect of the Kyai’s life into their own.

2.1.1.3. Abangan

Abangan are the commoners (non-santri) who settle down and live in the area around the pesantren complex. Abangan are also the formal society of the particular area. The term abangan is also widely used to describe Javanese society who practices the “kejawen” belief system.
The main character of *abangan* community is that they are more inclined to the traditional Javanese tradition, as much as that tradition may trespass any religion teaching. In the case of a *pesantren* complex, no matter how much they believe and practice Javanese tradition, they still have high respect for the *Kyai* and the *santri* in the *pesantren* and voluntarily involve themselves in many social or religious events conducted by both the *pesantren* and the citizens. On top of that, the *abangan* community, consciously or not, are slowly adjusting their lifestyle and adapting the lifestyle led by the *Kyai* to their own lives, with a few changes and different proportions. This is due to the fact that they have been living in the area for a very long time.

2.1.2. Cultures of *Pesantren*

Considering the unique cultural nature of *pesantren* and its apparent role as both educational and socio-cultural institution, there are several main characteristics of *pesantren* according to Mas'ud (2002):

2.1.2.1. Modeling

One of the most followed teachings in Islam is *uswatunkhasah* (literally means “*a good behavior pattern*”). The basic teaching is not only to pray or to worship God, but as it is in other religion, respectable overall behavior is expected from every Muslim. Modeling in the world of *pesantren* can be described as *tasyabbu*, which means mimicking or trying to be as similar as possible with a certain role model. This concept is largely socialized in the world of Muslims.
Prophet Muhammad is a leader and a universal role model for all Muslims in the world, but for santri in pesantren in Java, the leadership of Prophet Muhammad is translated and inherited by Walisongo. One of the examples is when SunanKalijaga insisted on building Demak Mosque prior to building the Kingdom of Demak. This is similar to the event in which Prophet Muhammad insisted on building Quba Mosque prior to making Madinah a holy city for Muslims. Mosque for Muslims is the symbol and the embodiment of the afterlife, which takes precedent over the worldly necessities. Hence, it is understandable that almost all Islamic leaders in Java justify SunanKalijaga’s decisions regarding the development of Demak Mosque as a part of modeling after Prophet Muhammad; modeling par excellence. (Mas’ud, 2002)

The most important thing about the modeling culture is that it is on par with the traditional Javanese culture. Javanese culture is heavy on paternalism and patron-client relation, which is similar to the modeling culture that centers on Prophet Muhammad, Walisongo, and the Kyai in pesantren.

2.1.2.2. Cultural Resistance

Cultural resistance is one of the logical aftermaths of modeling. The role models of santri, such as Walisongo and their respective Kyai, are people with rooted cultural background. They had to understand Javanese and Islamic culture deeply before they started spreading the teaching of Islam. Acculturation of Islam and Javanese culture is one of the evidence that pesantren has a strong sense of cultural resistance.
Another evidence is on the fact that Kyai in *pesantren* teach *kitabkuning* that were written by Kyai or religious leaders in the past and are passed on from generation to generation. The contents of these holy books generally offer sustainability in tradition by maintaining religious sciences from the classic to medieval period. Materials that are taught in *pesantren* contain more than the basic sharia law, but also on how to implement them to the daily life from one age to another. Religion is no longer an abstract faith but it is translated and interpreted in the way of life of the people, crafting it into a form of culture. This is why the cultures that grow in and around *pesantren* last for a long time.

2.1.2.3. The Culture of Learning

The culture of learning in *pesantren* is very high. This happens following the history of Islam itself. It was said that the first order given to Prophet Muhammad, peace be upon him, was *iqra*; to read. *Santri* in *pesantren* spend majority of their time studying. They are only given 4 to 5 hours of sleep every night and spend the rest of the day studying, whether in day school or in madrasa. They usually wake up at dawn to do *subuh* prayer, continue with mass congregation, than those who enroll in public school will momentarily leave *pesantren* at 7. Those who don’t enroll in public school will continue their day studying *kitabkuning*. Around 3 they usually have mandatory madrasa to study *fiqh* or Arabic language until sunset. They will pray *maghrib* and read Qur’an together until 7. Then they have another mass congregation until 7, followed with independent study time until midnight.
In many pesantren, santri are required not only to speak Javanese or Indonesian, but also Arabic and English. The academic culture in pesantren is one of the most competitive and most challenging systems in Indonesian education field. Santri are drilled with religious and secular knowledge on daily basis and they are expected to excel at both of them. Graduates of pesantren are expected, both by the institutions and their respective parents, to have brilliant common sense knowledge, and to also understand and apply the intricacies of Islamic sharia law in their daily life; in short, to be a better, more knowledgeable individuals (Outhman, 2002.)

2.2. Islamic Architecture and Planning

Islam as a religion has laid out several guidelines in both Qur’an and Hadist regarding building science and planning in real life. These guidelines are researched and reviewed by several academics to formulate the basic terms of Islamic Architecture and Planning.

2.2.1. Islamic Architecture

Islamic architecture inspired from Persian/Iranian architecture, especially from the Parthians of ancient Iran, encompasses a wide range of both secular and religious styles from the foundation of Islam to the present day, influencing the design and construction of buildings and structures in Islamic culture.

Adding to the already defined styling of Islamic Architecture, the main feature of an Islamic building is the sharia that must be followed. There are very clear guidelines in Al-Qur’an about Islamic Architecture and how to shape, décor, orientate, and build a building.
Llewellyn, 1980, stated that the “fundamental purpose of all planning and design in Islam is islah, or the establishment of well-being and prosperity”. To be more specific, he then further specified the objective of landscape planning and design is *ihya* or revival, meaning that landscape planning should revitalize and improve the quality of life in land. He also believed that another objective of Islamic architecture and landscaping is *tahsin al-ard*, which means enhancing and beautifying the earth.

*وَمَا خَلَقْنِا السَّمَاوَاتِ وَالْأَرْضَ وَمَا بَيْنَهُمَا لَعَلَّمُونَاهُمَا أُمَّتَى بِالْحَقِّ (44:38-39)*

“We did not create the heavens and earth and all between them carelessly. We did not create them but for right ends.”

*وَمَا خَلَقْنِا الشَّرْعَ الْمَكْرَمَ لَنْ يَغْضَبْنَا عَلَيْهِمْ وَلَا نَبَلِعَنَّهُمْ صَمِيمًا (44:38)*

*ـْفَيْسَأَنَا مِنْهُمَا نَفْسًا وَمَا كَلَّمْنَاهُمَا مُنْفِعًا لَّهُمَا فَغُفِّلَ مِنْهُمَا (44:39)*

“If anyone revives dead land, for him is a reward in it, and whatever any creature seeking food eats of it shall be reckoned as charity from him.” (*Mishkat al-Masabih* 1:600)

Islam is a religion that puts women’s privacy as a priority. Sharia law states that women should cover their *aurat*, by wearing veil and long clothes. This also applies to designing building and placing them. Islamic architecture and urbanism pays special attention to women’s privacy. It understands the activity of women in general and it should be able to protect their privacy without hindering them from doing what they need to do.

It is mentioned in Llewellyn’s paper that a design must insure privacy for women with sufficient air and sunlight. This consideration will affect the
regulation of building height and orientation, the design and placements of doors and windows, and the strategic design of gardens and rooftops in order to conceal the interior of a building, so that women are comfortable in doing their activities without fear of being seen from the outside, but are not living in a cornered, dark, airless spaces.

If secular planning and designing have the ideas of social benefits and costs, Islamic sharia law evaluates all acts, including designing and planning decisions, by the terms *masalih* (social goods) or *mafasid* (social evil). *Masalih* or *mafasid* and social benefits or costs generally have similar ideas, but not entirely the same.

*Masalih* or social goods have hierarchy to be considered. The first hierarchy is *daruriyat*, or emergency, or absolute necessity. This includes things that must exist in life for it to be considered good. Religion, morality, offspring and family, reason and mental health, and also property are considered *daruriyat*. The second level of hierarchy in *masalih* is *hajiyat* or social needs which alleviate hardship. These are things that one can live without, but the existence help make one’s life easier and possibly more beneficial to others. These may include easy access to road and circulations, artificial lighting, and so on. The third hierarchy of *masalih* is called the *tahsiniyat* or the refinements that completes ethics, aesthetic, and honor. This may include building ornaments, luxury gardens, and etcetera.

Most of these categories cannot be expressed in terms of financial profit and loss, and all of them must be considered in weighing social goods and evils when making any decisions regarding designing and planning.
Design for privacy, for example, is able to protect the family structure while indirectly protecting property and religion.

According to these sharia values, all design and planning decisions regarding land uses, management techniques, and the architecture itself must not be made based only on the thought of financial profit; while they must be financially viable, they must be positively beneficial for a lot of people as well. Thus, in Islamic sharia, the wider interest of the society at large takes much precedence over the interest of a group of individuals; the prevention of evils normally also takes precedence over the acquisition of benefits.

It is clearly stated in Al-Qur’an that corruption of the earth (al-fasad fi’l-ard) is strictly forbidden; such as the destruction of crops and wasteful overindulgence (israf). This kind of prohibitions requires the use of methods that can maximize the conservation and the benefits of all natural resources. For example when designing a building, it is strongly suggested to create ventilations and use natural air conditioning rather than the electric ones because of the production of Freon gas can damage the earth. Microclimatic design control by site selection, landscape design, building form and orientation, and the maximized use of wind and sunlight are also encouraged to minimize the use of non-renewable resources during the existence of the building.

2.2.2. Islamic Planning

Whenever the terms “Islamic city” or “Islamic settlement” or even “Islamic architecture” surface, many will ask why those terms exist and are
distinct. Are there certain causes that build the character of those environments? What is its relationship with Muslim lifestyle?

A Muslim society is a group accumulated from individuals Muslim. Thus, a Muslim settlement is also an accumulation of a number of Muslim houses. House, as explained by Rapoport (1991), is "an institution, not just a structure, created for a complex set of purposes. Because building a house is a cultural phenomenon, its form and organization are greatly influenced by cultural milieu". Hence, the culture of Islam holds a significant influence to the organizations of houses in an environment with Muslim as majority.

In the world of Muslim, architectural environment and urbanization can be categorized into two construction activities: monuments and vernacular buildings. The creation of monuments in Islamic architecture and urbanism is done with the purpose of fulfilling the interest of society at large, or to complement a certain social need. Buildings like central mosques, madrasa, mushalla, and palaces are architecture accomplishments that only represent a small aspect of activities done inside those buildings. Monuments in architecture are buildings with unique, permanent, and tendency to be luxurious. These buildings are made to impress God and fellow mortals. That's why Islamic architecture and urbanism is very valued.

The second category, which is the vernacular buildings, is a representation of physical environment that is truthfully bigger than lavish monuments. Unfortunately, traditional vernacular building in Islam earns less spotlight, although the role of these buildings in shaping a physical environment is as important (if not more important) than any shape and form
in the monument category. Moreover if seen from a Muslim environment in Indonesia, where the traditional culture is still strongly rooted and followed by almost all layers of society. Traditional buildings, grown and built by the society, with the influence of sharia and *fiqh* law of Islam, big or small, are the core of a Muslim environment.

The term “Muslim culture” embraces the aspect of historical phenomenon much wider than what usually discovered in other cultures surrounding it. Kuban (1980), through various researches and observations, considers that the variety of spaces and styles are the defining character of Islam culture. Islam culture is a culture indefinable by some material similarity or constructions. Kuban then forms a new definition of Islam: “Islam is a civilization (madaniya) which by its very nature and by its universality embraces a multitude of cultures and styles.” (Kuban, 1980)

Cultivated by flexible structure and the existence of tolerance, the roots of Islam culture since a long time ago craft a new form that expresses the character of a Muslim community. This adapting ability is the early Islam character that sets it apart from other culture and contributes significant influence to the very universal character of Islam. This adapting ability is also what gives space for the current Muslim culture to absorb knowledge and wisdom taught by earlier civilizations.

Islam is a religion with no hierarchy, be it among the people of Indonesia, Middle Asia, or Africa. That is why the building shape and style built by Muslim is not supposed to discriminate each other just to discover a standard form or a so-called “Islamic Style”. From other side, Islamic
architecture is a very diverse course. This has been going on since a long time ago and still exists until today. Thus, if an observation or a discovery is conducted to search a standard and specific “Islamic” style, what can be concluded is only the fact that building styles and shapes are a result of the cultures experience by the Muslim societies and will always develop and differ from one another.

Hence, what is needed to do is not trying to find a “universal” shape of Islamic architecture, but try to understand that universality in Islamic architecture takes precedence and priority over mere “similarity” or “uniformity”. Islamic architecture is an architecture that groups all kinds of human activities.

If in the present time we’re looking for a specific shape to identify a culture, what must be remembered is the fact that all traditional shapes built in countries with Muslim as majority become a “Muslim” shape, because those shapes are a re-representation from all the experiences and the events that happened in the past.

The same line of thought can be implemented to present-day Islam. Unless Islam create its own modern image, architecture in countries with Muslim as majority will seem unfitting for the existing culture, and even worse, for the physical requirements of Muslims themselves. The existing structures will only be imitation or a made-up structure, just like history of Islam that are not written by Muslims.

This does not mean that orientalist traditions are seen valueless. These traditions are very highly valued as a source of documentation,
because without those traditions, the reproduction of contemporary Islam history will be a very exhausting task. However, without the redefinition of concept based on evaluation of each party from various cultures, the discovery of self-identity in Islam culture will be handicapped.

Rapoport, 1994, states that in the creation of human settlement, there are two large aspects to be considered, which are the physical and socio-cultural aspect; with socio-cultural aspect as the main emphasis. A thorough understanding about the identity and the character of a culture will make physical and cultural variable clearer. Specific characters of a culture—for example the acceptable ways in a society, behaviors that are considered deviate, and implicit social standards—need to be weigh in because, in fact, these non-physical factors are the ones affecting the shape of settlement area.

Figure 2.1: influence of material and immaterial elements
Source: Rapoport, 2001

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Rapoport also argues that the adaptive solutions proposed by human do not appear only because those solutions are physically implementable. As many as the opportunities a physical adaptive solution can offer, the choices made by human are still limited by the existence of cultural matrix. These socio-cultural aspects then grouped as the primary factors, and the physical aspect including climate, technology, material availability and so on are grouped as modifying factors.

In terms of determining a shape of human settlement and connects the relationship in it, the ideal vision of human is still the deciding factor. This is as if all variation of physical shape, climate, material availability and technology advance are neglected. The shape of a built environment is in fact a reflection of various cultural elements, such as religion and beliefs, family and kinship structure, social organization, profession, and inter-individual relationship in a certain area.

Figure 2.2: diagram of settlement system in Muslim city Isphahan
Source: Rapoport, 1994

2.3. The Structure of an Environment

There are several conditions for an image to have any value for orientation in an urban environment. It has to be sufficient, true in a
pragmatic sense, and it must allow people to operate within it to a desired extent. In a physical sense, structuring and identifying an environment require certain cues: visual cues such as shapes, color, movements; other senses such as smells, touches, sounds, kinesthetic senses, even sense of gravity or electric field. Other required skills might be the technique of orienting inside an environment.

A well-structured map must be, at the very least, good enough to get someone home. It must be easily identified and well-structured enough to guide an observer home, or to any destination for that matter.

Maps should also be readable and adequately clear and well integrated. It should have an abundance of cues and symbols so that people are able to make alternative decisions in way-finding. This way, risk of failures can be minimalize and the opportunity of mobilizing with ease is increased.

Any image, for that matter, should be open ended and adaptable to changes. It should allow individuals or observers to continue investigating and organizing reality. A well-structured image should also be communicable to other people.

Structure is the spatial or pattern relation of the object (as in the urban element) to the observer and the other objects surrounding it (Lynch, 1960). Structure is possibly the easiest component to be physically manipulated compared to the identity and meaning due to its nature to be almost completely objective.
2.3.1. The Structure of a Pesantren

As mentioned above, Islam first came to Indonesia in the time of large Hindu movements. In order for the sufi to spread the gospel of Islam, the first generation of pesantren made imperative adaptations of the educational systems, religious practice system, and also the instruments and the requirements of Islam to be able to assimilate the Islamic culture with the local tradition and pre-Islamic primitive usage (Moersid, Fanani, and Budhi, 2002).

One of the first moves to assimilate Islam was to replace the Hindu epics with stories about Islamic heroes. This is the basic understanding for many of other attempts in diffusing Islam and the local culture. The phenomenon is repeated and adjusted in many different situations; the names are changed but the glorifying of God remains the same. This can be observed in the implementation of Mancapat and Mancalima, a traditional conception of primitive classification in society, to the structure of pesantren. While the ancient belief refers to the four elements—guru in the north, wali in the west, pandita in the south, and ratu in the east—controlling the evil at the center, the pesantren adapts it into its own structure.

Figure 2.3. The structure of pesantren derived from the principle of macapat
Source: Moersid, Fanani, and Budhi, 2002
One of the major characters of pesantren is how they grow from within the society. All pesantren start small, one all-purpose building. They pray together, study, play, and even sleep in that building. Then the number of santri grows and they have to add another building. Some pesantren also expands due to the Kyai’s sons building their own branch of pesantren around the main pesantren. What used to be multi-masses building turns into a scattered settlements connecting with each other. As pesantren expands, other people also move in to the area. Pesantren’s surrounding quickly evolves to a full-blown settlement with bustling social, economic, and mainly religious activities.

This is mostly the reason why a pesantren area never has an obvious or textbook external structure; they are different from one another and are generally blended into the society.

2.3.2. Urban Spatial Design Theory

The approaches of urban design theory can be defined in three major theories: the figure ground theory, the linkage theory, and the place theory (Trancik, 1986). Each of these approaches has different values and they can’t be reduced from one another. The ideal situation is to implement all three of them to give the object a structure of solids and voids, to arrange and connects the elements through a linkage, and to perpetually respond to the other elements that turn spaces into places. A good urban landscape should have its physical spatial structured designed as a response to those three theory.
2.3.2.1. Figure-Ground Theory

Figure ground theory is essentially a theory to analyze and study the way solid masses (figures) relate to voids (ground) in an urban environment. Every urban environment has a certain pattern on solids and voids and the figure ground theory is generally an attempt to manipulate this pattern. The manipulations may be in a form of addition, subtraction, or completely changing the physical geometry of the urban pattern. These manipulations aim to illuminate the structure of an environment or a district by establishing a hierarchy of spaces of different dimensions. These spaces may be individually enclosed, but they are arranged in an order to be able to relate with each other.

A principal field of solids and voids create a particular pattern in the urban environment which is often called the “urban fabric”. This pattern is ornamented by major buildings such as landmarks, or special open spaces that provide node-like focal points within the field.

Figure ground illustration is a visual and graphic way to animate solid-void relationship within that area. The illustration is two-dimensional and it clarifies the structure and order of the urban spaces.

Trancik (1986) categorized urban solids into three groups and urban voids into five. These groups are not the defining groups of urban solids or voids, but these are the most frequently embodied and generalized in urban environments.
a. **Urban Solids**

1) The first group of urban solids is public monuments or institution. These urban solids are often a visual focus in the landscape and they have a particular social and/or political significance.

2) The second group is the *urban blocks*. In terms of urban blocks, several important things are the pattern, the size, and the orientation of the blocks. The pattern is usually defined by the use, for example residential, office area, or retails. The size and the orientation of the blocks are important to determine whether they can conform into a larger district or not.

3) The third group is *directional or edge defining buildings*. These buildings are non-repetitive, special in terms of shape and form, and linear in configuration. These buildings could very well be in the form or an edge or they could surround a certain monument, define a particular axis, and frame important places.

In an ideal urban design, these three groups together would create a pattern of solids and voids where the voids are a figural network instead of just lost spaces.

b. **Urban Voids**

1) The first group of urban voids is *entry foyer spaces*. These spaces allow transitions from areas that are private to areas that are very public. Foyer spaces or transitional spaces are important for the sake of security. They provide a way for owners to see the public spaces from inside their private territory. The most common
example of this group is fore courts, lobbies, front yards, and other semi-private spaces.

2) The second group of void is the *inner block void*, or often called the hole in the doughnut. This simple open space may be used to cater many functions, such as for recreation or simply just as a transitional space.

3) The third group is the *network of streets and squares*. A network of streets and squares is basically the unifying structure of an environment, and it possesses a social function and physical quality. The network also forms a systematic hierarchy of order in an urban environment.

4) The fourth group is *public parks and gardens*. Aside from being a place to relax, unwind, and provide a much-needed water reservation area for modern urban environments, parks and gardens also function as nodes in an environment.

5) *Linear open space* is the fifth and the last group. Typically, this group consists of elements like rivers or waterfronts, but it could also be edges and links.

There are generally six different types of typological patterns that are formed by different constellation of solids and voids in an environment. These patterns are also influenced by movements that circulate in that particular area. The six patterns are grid, angular, curvilinear, radial concentric, axial, and organic.
The play of composition of urban solids and voids play a big role in determining how structurally viable an environment is. A reckless design may result in lost spaces.

2.3.2.2. Linkage Theory

The linkage theory is originated from the lines that connect the elements of an urban environment. These lines could be in the form of streets, pedestrians, linear open spaces, and of the likes. The linkage theory basically arranges a system of connection or networks that institutes a spatial structure in an environment.

The linkage theory puts more emphasis on circulation diagrams than spatial diagrams. It also accentuates more on the movement system and the efficiency of infrastructures than the spatial patterns of buildings and activity supports.
a. **Visual Linkage**

Visual linkage is elements of an environment that is able to connect places and spaces into a certain visual connection. Some of the linkage connects two places equally some other puts more emphasis on one of the places (Zahnd, 1999). There are five elements of visual linkage mentioned by Zahnd. These elements have their own characteristics and apply to their own condition.

1) **Line.** Line directly connects two places with one row of masses. These masses can be either building masses or any other masses, such as trees or sculptures.

2) **Corridor.** Corridor is two alignments of masses that directly connect two places. Similar with line, these masses may be buildings or any other objects.

3) **Side.** Side is similar with line, but it does not directly connect two places.

4) **Axis.** Axis connects two places but put emphasis in only one of them.

5) **Rhythm.** Rhythm connects two places with a certain variation of masses and voids.
b. Collective Linkage

According to Fumihiko Maki (1964), there are three forms of general linkage patterns:

1) Compositional form. The compositional form is a pattern where individual buildings are composed in a two-dimensional plane. The linkage is only implied and is mostly used by functionalist urban designers.

2) Mega form. The mega form is a pattern where structures are connected to linear frameworks in a rigid, hierarchical, and an open-ended system. The linkage in this form is visually easy to see since it makes up most of the system.

3) Group form. The group form is the accumulation of structures along an armature of communal open spaces. The linkage is formed naturally and organically, and is more sensitive to topography and human scale.
2.3.2.3. The Place Theory

The place theory is the third theory in Trancik’s approach to urban design. This theory complements the physical attributes of figure-ground and linkage theory with its human dimension. The core of place theory in spatial design is to understand the role of cultural and human character in a physical space.

In a simpler manner, a space is a void purposely built with the prospect of physically linking other elements, whereas a place is a space infused with contextual meanings of cultures and human contexts.

Figure-ground and linkage theories both have several categories based on a varying physical attributes, but in place theory, there is no mold or predetermined pattern. Each place is unique because it is heavily influenced by the characters of the surrounding. These characters may mean material substances like colors or shapes, but they can also mean the function that human give to them from time to time.

Place, in conclusion, is a combination of physical aspects (buildings, colors, shapes) and non-physical aspects (nature, culture, time, human) in an urban environment.
These three theories are irreducible from each other. They complement each other in the best way, and they enhance the potential of an environment maximally only if applied together. An environment without any regards to the arrangement of urban solids and voids would have many lost spaces. If it disregards linkage design, it will have very ineffective wasteful activities of movements; and if it ditches the important of human and social value, that environment would be void of meaning and life.

2.3.3. The Hierarchy

Hierarchy, in Oxford Dictionary means “An arrangement or classification of things according to relative importance or inclusiveness”. In an urban environment, there is also a certain hierarchy that determines the structure of that environment. Hierarchy can be determined by looking at many different factors.

According to Ching (1943), the essence of hierarchy is in the difference that emerges among shapes and spaces. These differences are what give a sense of importance to a certain part of the environment, whether it’s functional, formal, or simply symbolical.

“In any case, the manner in which the functional or symbolic differences among a building’s elements are revealed is critical to the establishment of a visible, hierarchical order among its forms and spaces.” – Ching, 1943

To make a building or a space special, it is necessary to give it a sense of anomaly, to make it a pattern-breaker. Building with the highest hierarchy is usually the one with the most exceptional features. However, it is
entirely possible for an urban setting to have more than one dominant building. The second building, less noticed, exists to give a visual accent, rhythm, or tension in the composition. The creation of this secondary node needs to pay attention to how much it can be emphasized. When both focal points are created equally, none of them will be considered special anymore and it will create confusion among observers.

A building needs a special articulation to make it seem important or significant. Articulation can be achieved by giving it visual emphasize; such as creating an exceptional size, making a unique shape, or putting it on a strategic location.

2.3.3.1. Hierarchy by Size

The most common way to signify a building hierarchy is the size. In a setting of two-story buildings, a single three-story building will appear important. The simplest way to show hierarchy is to create a sheer mass among many regular ones. However, there are also several cases where smaller space signifies importance. In order to achieve this, small important spaces must be placed in a strategic setting.

2.3.3.2. Hierarchy by Shape

Another way to significance specialty is to make the hierarchically special building an entirely different space. In order for the emphasis to be strong enough, the building needs to be significantly different in shape from the rest. For example, in a block of square-shaped buildings, a building shaped like a dome will be unique and special, and therefore bear a sense of
hierarchy. However, it is also imperative for the unique shape of that space to not defy its original function.

2.3.3.3. Hierarchy by Placement

An important space usually has the most strategic location in an environment. The types for this location may either be the end of a linear sequence, or the centerpiece of a symmetrical arrangement, or the focus of a radial setting, or being offset above, below, or in the foreground of the composition.

![Hierarchy by size, shape, and placement](source: Ching, 1943)

2.3.4. Structure of an Organic City

According to Kostof (1991) organic city, or *villespontanee*, is presumed to be built without a designer. The machines that drive the development of an organic city are the benefit of the time, the land it’s laying on, and the life of its people. *Ville spontanee literally* means ‘the spontaneous city’. It is also called the “grown” city, or “generated”, or “geomorphic” to put emphasis on its determining pattern.

The irregular pattern of an organic city is the result of development left entirely to the people living in that certain area. The absence of a
governing body to divide lands before leaving it to hands of the people, results in the absence of a uniformly patterned city (Kostof, 1991).

However, Kostof believes that there is essentially no such thing as an “unplanned” city. No matter how arbitrary or how random the pattern of a city seems to be for an observer, that particular pattern is created through decades of adjustment. There are social contracts involved, different needs to be met, and compromises between individual rights and common will that are embodied in the deranged, crooked pathways.

Like any development, organic pattern of a city also happens due to a form of evolution. There are several notions to be discussed when it comes to the evolution of the organic pattern of a city.

2.3.4.1. City as organisms

The notion of a city as organisms came up along with the development of modern biology and the science of life. This notion affiliates city’s primacy as an urban life. The main argument is that city is similar to a human body; the open squares and parks are the lungs, the center are the heart pumping blood through the arteries and so on, with blood being compared to traffic and arteries to streets and paths. However, Lynch once stated that cities are not organism; they do not grow or change themselves or repair themselves, because it is essentially human purpose that drives the making of a city.

2.3.4.2. The role of topography

What determines the shape of evolved city is the natural landscape. It is the most widely acknowledge factor due to the fact that it is visually the
easiest to grasp. Human have built their settlements according to the topography of that particular area since a long time ago. The early form of settlement usually follows the path of water, riverbanks, or shores.

A settlement that forms around the existence of water in the form of river crossing is one of the examples. Houses are usually built on each side of the river bank, following the branches of the river. The settlement built on a defensive site usually develops according to the line of stretched out fortress edge, then inward to the city.

The hilltop town has a radial development pattern according to the shape of the hill on an arrayed pattern. The main building is located on the top and the streets are arranged on a descending concentric pattern of circles. The composition is that of a terraced settlement.

2.3.4.3. Synoecism

Synoecism, a term first made popular by Aristotle, literally means “living together”. It is a term used to describe the movement of several villages to form a town together. Synoecism can appear in two ways; the first one happens when people actually leave their villages to move to another settlement that can contain them, the second happens when the villages literally merge together to form a town.

2.3.4.4. The law and social order

Law and social order is a non-physical factor but it is also a very solid factor in influencing the evolution of an organic city pattern. The case of Muslim settlement is an evidence of how strong social order is as the drive of urban shaping. Muslims build their environment based on kinship and the
sharia law stated in Qur’an and the bound of sunnah. The aftermath of this unplanned development is sometimes puzzling for other people, but actually very meaningful for them because this development embodies their belief and supports their lifestyle.

2.4. The Identity of an Environment

As discussed earlier, the identity of an environment is a large part of deciding how clear its image is. Lynch simply described identity as “a special feature of an object which implies distinction or characterization from other objects and is able to give the said object a recognition as a different entity”, which then extended by Relph (1976) as “a basic feature of our experience of places which both influences and is influenced by those experiences”. Identity is seen as not only the landmark or the activities in an environment, but also the experience, the thoughts, the mind, the purpose, and the intentions of the observers. It was argued that what’s important is not only the identity of a place, but also the identity that an observer has with that particular place. This matters because the role and the position of an observer in a specific environment may vary from being a completely involved insider to a barely there outsider.

2.4.1. The Components of The Identity of an Environment

Essentially, there are three components that build the identity of an Environment (Relph, 1976). These components are fundamental and irreducible to one another.
2.4.1.1. The physical features or appearance

When discussing about how an identity is formed, the easiest way is to look at its physical features or its appearance. This creates a very tangible identity for a place or an environment. In making a strong environmental image, tangible identity is an incredibly important part because it generates a sense of perceptibility for the observers. Visual sense is one man’s most active senses so it’s easier for men to relate and identify with something based on visual features.

There are certain features that create obvious identity on particular objects. These identities may or may not match the initial expectation of the designer or the creator, but observers are entitled to have their own interpretation of the identity. For example in countries with Islam as the majority of the religion, buildings with dome roof, despite of the actual function and intention, will be identified as mosque or mosque-like. However, in Europe countries where renaissance architecture first began, dome may mean anything from churches to city hall to museums. A neighborhood whose houses are protected with tall wall fences may also be easily identified as individual, inapproachable neighborhood.

Other physical feature that forms identity is color. The color white represent pureness and cleanliness, hence the popular use in hospitals. A building with grey and white paint will be identified as a cold place, compared to buildings with brown or yellow paint. The color red creates the illusion of warmth and increase appetite, and is very popular in restaurants or food
chains. Combination of several bright colors creates image of playfulness and is mostly used in kindergarten or places visited by children.

A neighborhood whose houses are protected with tall wall fences and no social interaction may also be easily identified as individual, inapproachable neighborhood. Physical appearance or features are easier to be recognized than structures of a neighborhood because the recognition only requires one sense: vision.

2.4.1.2. The observable activities and function

The term “observable” once again exhibit how visual an “identity” is. As functional or as alive a building is, identity will not appear if it’s not visible. The appearance of an environment and its function may very well be different. A seemingly cold environment will gain a warm identity if the people living in it are actively socializing with each other. Sometimes architects or designers deliberately alter the shape or color of a place to distract the observers, but the identity will be revealed as soon as observable activities appear. For example in Java, during the early 20th century, all buildings are obliged to adapt the shape of Joglo, the traditional Javanese house. This included mosques and churches and public places. This might create confusion, but as soon as people came to pray in mosques or congregate in churches, the identity of the buildings was easy to define. Activities or function of an environment has the ability to add to an identity, remove an identity, or even change an identity completely.

Activities in an environment form its social dimension. According to Madanipour (1996), a concept of “space” without its social content is a
concept difficult to comprehend, and it is equal to the concept of society without spatial milieu. The concept of space and social activities are a relationship best seen as a continuous two-way process, in which human creates and alter “space”, and in the same time become influenced by the elements of said “space”. By shaping a built environment, urban design influence—by inhibit, facilitate, precipitate, modify; but not determine—patterns of human activities, and thus influence social life as well.

Social and spatial aspects in urban design are very closely related in the process of understanding an “urban space”. It can be clearly seen when there is efforts to shape of modify an “urban space”, where, whether we want it or not, will always be related with the social aspect contained in said urban space.

2.4.1.3. The Meaning

Meaning is a component far from visual senses. Meanings are gained through experience and familiarizations (Relph, 1976). An environment with distinctive meanings for special observers will have the same identity time after time, no matter how much the appearance changes or how unobservable the activities are. The easiest case is the one with our hometown. Hometown is a place where we have very strong emotion connection with the surrounding. Even after we move away from it for a very long time, after all the developments and the changes, even though the function has changed, we still have the same emotional attachment to that place. That place still has meanings for us, and it helps us create a clearer identity despite the physical changes or the shifts in activities.
The same happens with an environment with no familiarization, for example when we go to a certain school that we never formally attended. It is physically obvious from the straight, uniformed building and the many doors and windows, and the signage; this is a school building. The activities are also very observable. There are students wearing uniform, studying in classes, teachers teaching, again, these are all components that shape the identity of the environment clearly as a school. But since we have never formally attended the school, we have practically no emotional connection with the place. We have never experienced it, and we are not familiar with it. The easily identified place now becomes meaningless for us. The identity is incomplete.

These three elements of identity complement each other. An identity is not complete without all three of these elements present. However, identity is not a matter of black and white. If one element is missing, the other two will help observer creating an identity for that certain place, despite the incompleteness.

2.4.2. The Types of Identity

Relph (1976) categorized an environment's identity into seven different types, according to the role or the background of the observers. Considering the fact that they are three components with many degrees of intensity, the possibilities of creating a certain “type” is abundant.

a. The Existential Insideness

From the existential insideness, places are lived and dynamic, full with meanings. These people are the main actors or roles in an environment.
They actively participate in developing, building, and maintaining an environment, and thus they know their environment the best.

b. **The Empathetic Insideness**

For empathetic insiders, places are records and expressions of the cultural values. These people get to know their environment second handedly, by socializing in a certain community.

c. **The Behavioral Insideness**

From the behavioral insideness, place possesses qualities of townscape as the primary basis for public or consensus knowledge of that place. For these people, an environment has its own ambience, but not necessarily emotionally connecting.

d. **The Incidental Outsideness**

For incidental outsiders, the functions of a place are the important ones and the identity of that place is merely a background.

e. **The Objective Outsideness**

For objective outsiders, places can be easily processed and reduced into a single-dimensional location for objects and activities.

f. **The Existential Outsideness**

For existential outsiders, place is a lost and unattainable involvement. An environment is just as incidental as its existence.

g. **The Mass Identity**

The mass identity is a consensus identity that is far from direct experience. Mass identity is the easiest identity to be manipulated or
fabricated, because of its tendency to be superficial and its nature to be created under some kind of agreements.

Identity of an environment cannot easily be pinpointed or determined, because there is no such thing as a wrong identity. The process of determining an identity is naturally close to determining the meaning of a place in the sense of its subjectivity. While meaning lays completely on the observer’s mind, identity of a place can still be manipulated. This is why in urban design, it is essential to shape the identity of a place in a way that it won’t be confused or mistaken with the others.

2.4.3. The Human Value

One of the most predominant aspect in an environment, moreover a socially unique environment like a pesantren area, is the human value. This human value influences perception, cognitive processing, territoriality, and also meanings of an environment. Madanipour, 1996, stated that there are various individual qualities that affect each person’s environmental cognition. These qualities are the ethnicity, age, gender, lifestyle, length of residence, and travel mode. Each of these qualities possesses an obvious effect to a person’s character thus shaping how they give meaning or interpretation to their environments.

2.4.3.1. Perception

According to Lawson (2001) perception is “an active process through which we make sense of the world around us”. This includes the active use of our senses. The process of perceiving something may start from how we see, feel, taste, smell, or hear that particular object. Understanding that, it is
unlikely that two different subjects will have an exactly identical perception of any object. In the architecture world, it is very common to modify the physicality of an object to try to relate with as many similar perception as possible.

However, the process of perception does not end with the stimuli of seeing or feeling. A complete perception usually refers to the process of understanding all the stimuli. Ittelson (1978) identified four dimensions of perception that are spontaneously operated:

a. **Cognitive.**

The point of cognitive dimension is that it helps us to make sense or to understand our environment. This involves organizing and contemplating information we get from the stimuli.

b. **Affective.**

The affective dimension, or our feeling, can easily affect how we perceive the information we get from the environment. And vice versa, the condition of the environment can easily affect our affection or feelings.

c. **Interpretative.**

This includes the meanings or associations we derive from the environment. When we interpret information or stimuli, we are likely to compare the recently attained experience with our own memory.

d. **Evaluative.**

The evaluation is the dimension where we apply values and preferences to determine whether the information is good or bad.
2.4.3.2. **Spatial Cognition and Meanings**

As mentioned above, cognitive ability is the ability to make sense or to understand the environment. Spatial cognition, hence, is the way we obtain, organize, and keep information about our surrounding, such as locations, distance, and arrangement or order. Spatial cognition helps us to navigate our way around the environment. With the information we organize through the spatial cognition, we are also able to solve problems, overcome chaos, finding a way out, basically anything that has ties with the three dimensional physical or spatial environment. Spatial cognition is the basic tool for us to create a mental map (also called a cognitive map) of our neighborhood or even our city at large.

David Stea, 1975, defined cognitive map or mental map as a process that enables us to collect, organize, store, recall, and derive information about relative locations and geographic environment. Mental map is strictly different with the cartographic map, where everything is scaled and exact. Mental map is essentially a collection of our own experience in a certain area. This is why a mental map is very subjective and will most likely differ among various subjects.

The individual differences of subjects play the most roles in determining the looks of our mental map. A middle aged man and a teenage girl will draw two immensely different mental map of the same neighborhood where they both actually live in. The six individual differences that were mentioned earlier—ethnicity, age, gender, travel mode, lifestyle, and length or residence—have their own special influences towards the shape of our
ment mental map. The more categories two subjects are different in, the more distinct their mental maps will likely to be.

Another thing that affects the way we respond to our environment is the meaning in our surrounding. Meaning is also a very subjective aspect, since it depends entirely on how we interpret or derive symbols, signs, or images.

![Diagram of "meaning"
Source: Laurens, 2004](image)

2.5. Conclusions of Literature Reviews

Based on the theories and references above, several conclusions to be drawn are:

1. *Pesantren* has historic significance that allows them to have strong social and cultural presence in society, mainly in Java.

2. The structure in an urban environment consists of three major elements; layout, hierarchy, and pattern.

3. Layout in urban structure can be analyzed by its two dimensional figure ground pattern, its linkage pattern, and the existence of place in a particular space.
4. Hierarchy in urban structure can be determined by many factors, such as the land use, territoriality factor, and factor of activities and their importance in society.

5. Pattern in an urban structure can be determined by the shape and relationship between masses and open spaces in the urban environment, as well as by the history and the development process.

6. The identity of an urban environment also consists of three major elements: the physical appearance, the observable activities and functions, and the meaning of the environment.

7. The physical appearance can be analyzed by the shape, color, and special ornaments.

8. The observable activities will be linked with the spatial dimension of those activities to determine their influence in an urban environment’s identity.

9. Meaning of an environment is aided by human behavior and perception, as well as cognitive process experienced by the observers.