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**Thesis:** Children subjective well-being in changing urban neighbourhood of Depok district and Ngaglik district, Sleman, Indonesia

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Specialization: Urban Competitiveness and Resilience

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# **MASTER'S PROGRAMME IN URBAN MANAGEMENT AND DEVELOPMENT**

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## Summary

Sleman is a striving regency in the Yogyakarta Special Region Province. Being closely adjacent to the Yogyakarta Municipality, Sleman receives many spill-over effects from Yogyakarta's economic boom, especially in terms of new settlements and business areas. To support the economic development in Yogyakarta, many housing developers build their new projects around Sleman. Two of most popular sub-districts in Sleman for development are the Depok district and the Ngaglik district. For the past 5 years, these two sub-districts have been experiencing rapid new housing development. Many of these new housing areas are built within a neighbourhood. This development finally changes the built environment in the neighbourhood, risking to alter children's outdoor activity places.

On the other hand, playing is very important for children psychological development and subjective well-being. Through playing, children develop their cognitive ability and their identity. Playing also boosts children's confidence through their interaction with their peers. It is widely agreed that children with good cognitive development and strong identity will strive more in society also have bigger chance to have a high life satisfaction score.

In developing countries children are playing around their neighbourhood and its built environment, especially those who live in urban neighbourhood. Their playground is prone to any development that can happen anytime. This phenomena raising a question what is going to happen to children who use their neighbourhood as their playground if their neighbourhood changed? What will happen to their happiness if their playing activities change due to the change of the neighbourhood and its built-environment?

The main objective of this research is to explain the influence of the changing built area in the Depok district and the Ngaglik district neighbourhoods relative to the well-being of the children. This research will also try to explain how the children feel and their perspective of their neighbourhood.

Survey is the chosen strategy for this research. This strategy is deemed suitable with the objective of this study which are to measure the level of the subjective well-being of the children and the influence of the changes in the built environment on their subjective well-being. The survey was carried out by giving the sample group a questionnaire. The questionnaire consisted of 37 questions which were separated into three clusters; outdoor playing activities, built environment change, and subjective well-being aspect. Children that were used as the sample filled out the questionnaire by themselves without any intervention from the researcher. The survey was conducted with a sample of 220 children from four neighbourhoods in the Depok district and the Ngaglik district. The children were chosen from an age group of between 9-12 years old.

The study found that built environment changes in the neighbourhood does not influence children's subjective well-being negatively. In fact, the children feel happy about the changes. This result also highlights four underlying indicators important for their subjective well-being: parent-child relationship, feelings about their home, feelings about themselves, and feelings toward their neighbourhood. These indicators significantly influence their subjective well-being and how they react toward the changes.

Although the results of the analysis do not show any negative influences of the changes in the built environment on children's subjective well-being, it does not mean that the children in the neighbourhood do not need a place to play and to do their outdoor activity.

The children feel fine and positive about the changes because they assume it is easy for them to find a nearby substitute. However, if the real estate development continues without any proper control from the government, the children will never find another place to play. Therefore, it is important to start controlling the real estate development in Sleman Regency.

**Keywords:** children, subjective well-being, happiness, built environment, neighbourhood.

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# CHAPTER 1: INTRODUCTION

## 1.1. Background

Like many other phenomena that are apparent throughout many cities in Asia, more and more neighbourhoods in Indonesia are highly urbanized for the sake of economic development (Dewi, 2012). Massive developments change the face and landscape of urban neighbourhoods. Houses and public spaces are changed into shophouses, malls, hotels and apartments. These, in turn, change the way the residents interact among themselves. Their movement and activities inside their own neighbourhood are now limited due to the construction of new high rise buildings within it. These changes influence the residents' senses of place and social relations they once knew, especially for the children in the neighbourhood. Once the neighbourhood landscape changes, it also changes children's activities in it and their perception of their neighbourhood. Moreover, according to studies conducted by McDonell (2007) it is stated that children's general safety is influenced by features of their neighbourhood. It is also mentioned by Coulton and Korbin (2007) that neighbourhood quality is one of the main predictors of children's well-being. According to Sheridan Bartlett (1999), a good and supportive neighbourhood is very important for children's quality of life. On the other hand, a harmful and stressful neighbourhood can also have negative impacts on children's well-being. These findings highlight the importance of neighbourhoods for children.

According to the 2010 Population Census that was conducted by the Bureau of Statistical Centre (BPS), it is apparent that children constitute 33% of Indonesia's total population. Furthermore, with a total Fertility Rate (TFR) at 2,6 based on 2012 Fertility Census, then it is safe to predict that there will be a lot more children in our population. The majority of these children will be born in urban or semi-urban neighbourhoods. Children in many urban neighbourhoods in Indonesia use their surroundings as a daily playground (Darmawan, 2003). Therefore, if the neighbourhood's built area is changed, it will also alter their playing activities and the way they perceive their neighbourhood.

Furthermore, playing is considered as one of basic children right. Lack of playing can be linked to the poor well-being of children and will affect their long term development.

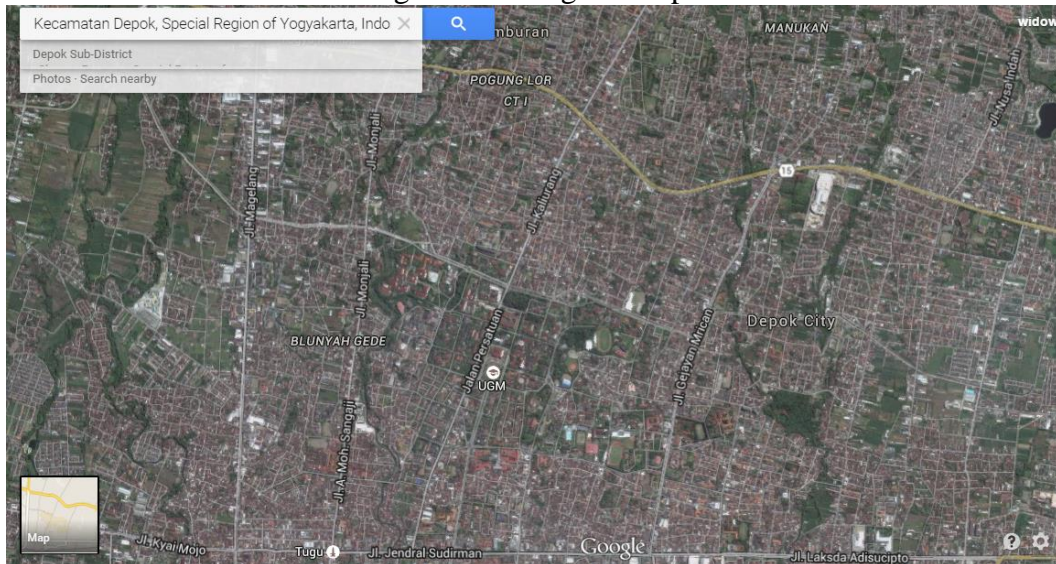
For the past 5 years there have been so many physical developments in Sleman Regency. Most of these developments are strongly related to services, retail, and properties such as shophouses, elite housing complexes, malls, hotels and apartments. These developments clearly change the environment and built area of the neighbourhood. These changes will eventually influence the residents of the affected neighbourhood and also the children who live there. Hence it is important to understand the effect of this change to the children's well-being in Sleman through their perception of their changing neighbourhood.

## 1.2. Research problem

In the past 5 years, Sleman has undergone a massive physical development to attract more investment in the city. However, this development has a certain dark side to some extent. The rapid development has pushed aside from their safe play space as they no longer have it around their neighbourhood. Children are forced to play around construction sites, along the main road, and on vacant land.

This condition is very much apparent in Depok district of Sleman Regency. Depok district situated directly adjacent to Yogyakarta City. Moreover, in this District there is also one of the biggest university, Gadjah Mada University. This highly strategic position putting this district into the hotbed of housing and service area development. Many new housing, apartments shophouses and retails store are built around this area. In recent years, this development is no longer focusing on the main street Jalan Kaliurang (Kaliurang Street) but starts moving inside the neighbourhood.

Picture. 1.  
Google earth image of Depok District

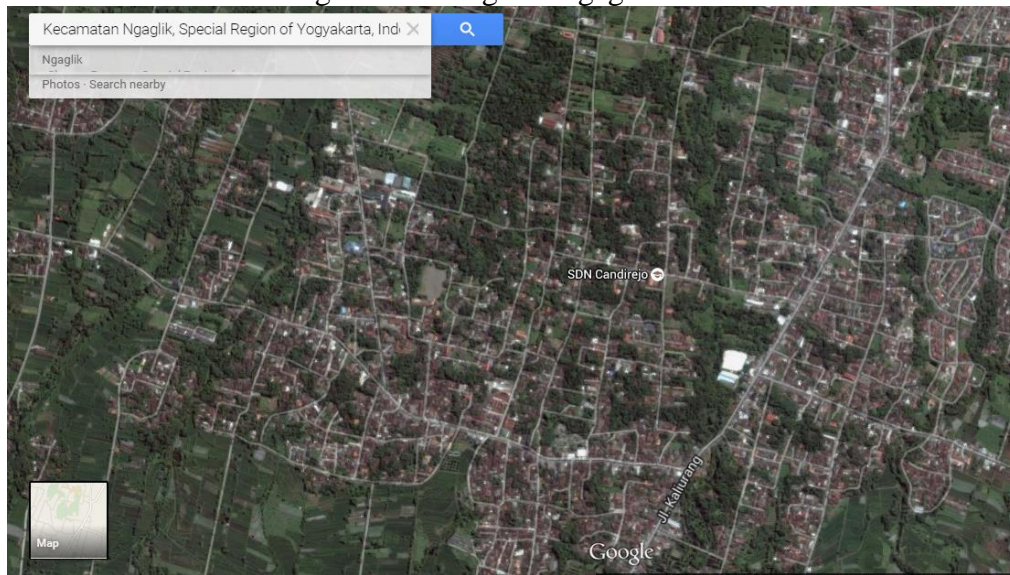


Source: google earth.

Depok is also known as one of the highest populated districts in Sleman Regency with a population of 130.659 residing in an area of 35.55 km<sup>2</sup>. (<http://www.slemankab.go.id/3274/kependudukan-demografi.slm>). This already congested neighbourhood is now dealing with more and more commercial development inside their neighbourhood. Furthermore, more and more boarding houses are built and convert many neighbourhood open spaces which are used as neighbourhood playgrounds. As their play area in the neighbourhood diminishes, they are forced to play somewhere else further from their neighbourhood or in limited areas around their houses. This condition is limiting the area of their play space.

Whereas the Depok district has such massive development, its adjacent district, the Ngaglik district, has started to undergo various development, as well. Both districts are situated close to each other and share the same main road (Jalan Kaliurang). In the Ngaglik district where residents used to easily find organic public open space to gather and socialize, there have now been changes due to rapid development. Many real estate projects are starting their development in this district. A number of land developments and land conversions have change the surrounding area of the neighbourhood.

Picture. 2.  
Google earth image of Ngaglik District



Source: google earth

Therefore it is important to investigate the effect of the changing state of both Districts to Children well-being through their perception in order to influence the local government on their spatial policy and regulation.

### 1.3. Research Objective

The main objective of this research is to explain the influence of the changing built area in Depok District and Ngaglik District neighbourhood to the well-being of the children. This research also try to explain how the children feel and their perspective of their neighbourhood.

### 1.4. RESEARCH QUESTIONS

How does the neighbourhood- spatial change influence the subjective well-being of Depok and Ngaglik Sub-district children?

- What are the most important factors of children subjective well-being?
- Which part of the neighbourhood is most important for the children? Why?
- How do the children perceive the changes in the neighbourhood?

### 1.5. SIGNIFICANCE OF THE STUDY

Neighbourhoods are an important part of play spaces for children. Through playing in their neighbourhood, they build a relationship with their peers and develop their cognitive ability from exploring their surrounding built environment. These activities are proven to be crucial parts of children's well-being (Bradshaw et al., 2011; Bender, 1997). While in developed countries where playgrounds or parks are provided for residents in the neighborhood enable children to play in safe places, the condition is somewhat different in developing countries. In developing countries, children are playing around their neighborhood and its built environment, especially those who live in urban neighborhoods. Their playground is prone to any development that can happen anytime in their neighborhood.

There have been many studies conducted on neighborhoods and children's health or physical activity. However, there are still limited studies on the influence of neighborhood changes on

children's well-being. This research is intended to give new insight on the relationship of neighborhood-change and children's well-being.

#### **1.6. SCOPE AND LIMITATION**

This research will be implemented in two urban neighborhood in Sleman, Depok and Ngaglik Sub-District. These two neighborhoods are chosen according to their unique characteristics. For the past 5 years there have been rapid developments in these neighborhoods, especially in the area where children usually play. Therefore, these neighborhoods are regarded as good sampling for the research.

This research will be focusing in children in the age range of 9-12 years old considering their independent ability to explore their neighborhood is much better than the younger age.

The limitation of the research will be the limited data that is available in the field and the limited time frame of the research.

## CHAPTER 2: LITERATURE REVIEW

Playing is a very important part in children's cognitive development and subjective well-being. Through playing, children develop their cognitive ability and their identity. It is widely agreed upon that children with good cognitive development and a strong identity will strive more in society also have a bigger chance to have a high life satisfaction score. Their good cognitive development through their childhood will give them the ability to adapt and navigate their adult life in the future. Playing also boosts children's confidence through their interaction with their peers. They learn to interact and solve various problems while maintaining relationships with their peers. All of these abilities can be acquired if children have the opportunity to play properly in a suitable place such as playground.

In many developed countries the understanding of how important playing is for children manifests in various developments of playgrounds in and around urban neighbourhoods or residential areas. However, in many developing countries, a playground is not an easily found in the urban neighbourhood. Therefore, children choose to play in and around their urban neighbourhood. This puts an urban neighbourhood as an important part of children's play space. However, as crucial as urban neighbourhoods serve as a play space for children, this neighbourhood is prone for rapid and drastic change. Urban neighbourhoods are renowned as neighbourhoods which can change rapidly throughout the years. This in turn poses a question to the well-being of the children who live in the neighbourhood. What is the influence of the built environment changes in the neighbourhood to the children's well-being? To be able to answer this question, first we must understand the concept.

### 2.1. Subjective Well-Being

Subjective well-being is a troublesome notion to define. Many researchers use it interchangeably with life satisfaction and happiness. However, many others do not really agree with this kind of usage. They argue that all of those terms are different in one way or another. First of all, Brulde (2007) constitutes four views of subjective well-being:

1. Cognitive (attitudinal) views. It views subjective well-being as a cognitive state or attitude on one's life as a whole. Brulde (2007) describe it as "is simply to evaluate one's own life in a positive manner, to approve of it, or to regard it favourably".
2. Affective views. It sees subjective well-being as an affective state of some kind. There are 2 kinds of affective views:
  - a. Hedonistic view states that subjective well-being is the presence of pleasure and the absence of pain. Plant (1991) stated: "Human well-being consists in the pursuit of happiness and human welfare consists in living a life with a preponderance of pleasure over pain".
  - b. Mood or emotion view defines subjective well-being as a certain kind of mood or emotional state (Angner, 2010). This view will depend on one's definition of mood or emotion, however it has been described differently from hedonistic view as "it conceives of certain kinds of pleasant experiences (pleasant moods) as more valuable. . . than others, e.g., transient pleasant sensations" (Brulde, 2007).



3. Composite view sees subjective well-being as a composite state, where the constituents could be cognitive and/or affective. (Angner, 2010).
4. Special case of view which sees subjective well-being in a matter of perceived desire satisfaction, which means the judgment that one's preference are satisfied (Angner, 2010).

Diener et al (1999) explained that there are two approaches to the exploration of subjective well-being:

1. Bottom up approach. This approach regards subjective well-being is influenced by demographic and objective circumstances such as income, health and education.
2. Top down approach sees subjective well-being determines by personality traits and genes of an individual.

However, a more careful observation suggests that subjective well-being is not simply about objective circumstances or personality traits. These approaches are not mutually exclusive in relation to subjective well-being. Rather, both approaches are interrelated, especially in explaining why there are differences between a nation's well-being and yet there are also differences in individual well-being. Furthermore, White (2008) also recognized that culture is also important key that influence one's perception of well-being. Moreover, he also considered that well-being is a process in a specific time and place which means that a person's well-being changes throughout his/her life course.

In his further explanation, White (2008) formulated three interdependent dimensions of well-being, namely subjective, material, and relational. The subjective dimension refers to values, perceptions, and experience of an individual. The material dimension refers to objective measure of well-being, practical welfare, and standard of living. The last one, relational dimension, refers to personal and social relations. All of these three dimensions have relative importance to an individual, depending upon time and place.

Meanwhile, Veenhoven (2009) states there are four kinds of satisfaction, namely pleasures, part-satisfaction, peak experience and life satisfaction.

	<i>Passing</i>	<i>Enduring</i>
<i>Part of life</i>	<b>Pleasure</b>	<b>Part-satisfaction</b>
<i>Life-as-a-whole</i>	<b>Top-experience</b>	<b>Life-satisfaction</b>

Table. 1  
Life satisfaction matrix

Source: Veenhoven, R., 2009. How do we asses how happy we are? Tenets, implications and tenability of three theories. In: Dutt, A.K and Radcliff, B, eds. 2009. Happiness, Economics and Politics: Towards a multi-disciplinary approach. Cheltenham: Edward Elger Publishers. Ch. 3. Pp. 45-69

Pleasure is seen as a passing satisfaction with part of life. Pleasure can be mental and sensory. The idea that we have to maximize pleasure is called hedonism. Part-satisfaction is an enduring satisfaction with part of life. The best example for it is satisfaction in working-life or satisfaction in school. Peak experience is an ecstatic kind of satisfaction and lasts longer than pleasure. Life satisfaction is an enduring satisfaction with one's life-as-a-whole (Veenhoven, 2009). Veenhoven put life satisfaction, happiness and subjective well-being as the same concept which is the degree to which an individual judges the overall quality of his life as a whole favourably (Veenhoven, 1984). This concept is strongly emphasized in the affective theory that sees happiness as a salient and intense affective of negative and positive experience. This experience is relative to one another, which means it can differ from time to time (Diener et al, 1991). Mood becomes the informant of assessment since it relies to an affective process. Veenhoven (2009) argues that mood is an affective meta-signal that is not linked to a specific object, making it more neutral and acts as a signal in one's life that is important for human survival. Mood also acts as a predictor of gratification that tells us how well we are doing and whether our needs are properly fulfilled. Furthermore, it motivates us to move since we want to achieve or maintain the satisfaction that once we felt when our needs were fulfilled.

*Affect theory of how happiness is assessed*

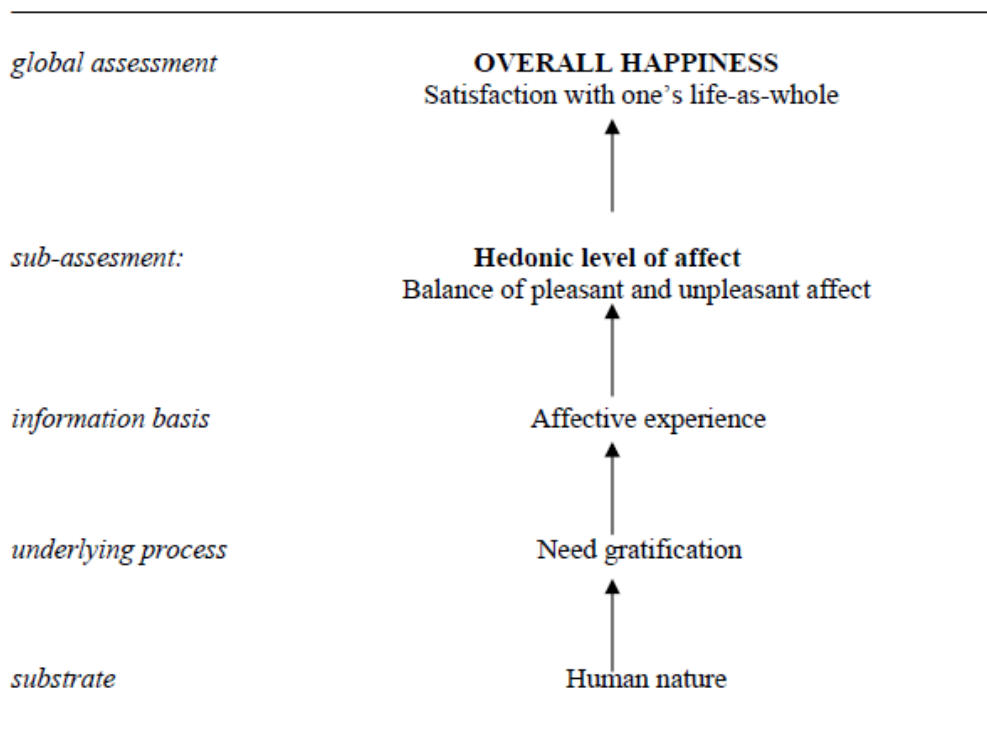


Fig. 1  
Affect theory of Happiness

Source: Veenhoven, R., 2009. How do we asses how happy we are? Tenets, implications and tenability of three theories. In: Dutt, A.K and Radcliff, B, eds. 2009. Happiness, Economics and Politics: Towards a multi-disciplinary approach. Cheltenham: Edward Elger Publishers. Ch. 3. Pp. 45-69



Research on children's overall satisfaction and subjective well-being have been done many times in the past. However, most of this research was done with their parents or teachers as the respondents rather than the children themselves (Ben-Arieh, 2005). Nevertheless, this trend has been shifting as much more research on this subject directly targets the children. A research study done by Casas., et al (2007) on subjective well-being and child-parent relationships on 12-16 year old children in Spanish involved both children and their parents in the survey. The study suggested that child-parent relationships significantly contributes to their health and future life domain, but not to global life satisfaction.

In 2011, Goswami also did research on children's subjective well-being in England regarding their social relationships and their subjective well-being. In the study, the result implied that relationship with family, positive-affect friends and neighbourhood adults positively influenced their subjective well-being.

Furthermore, research done by Bradshaw et al (2011) suggested three indicators of children subjective well-being:

- Personal well-being: an overall life satisfaction of a child.
- Well-being at school: the degree of children likeness feeling towards their school.
- Self-defined (subjective) health: self-assessment of children health rate.

According to their research, the overall life satisfaction of children in a population does not seem to be associated with their satisfaction in the particular domains of school or health, and neither is it associated with child-parent relationships or the family structure of a country. It is associated with peer relationships and the material well-being indicators (deprivation and poor housing). Material well-being is also associated with peer relationships (Bradshaw, et al., 2011).

Shimoni and Ben-Arieh (2013) had also done research on a similar topic as Goswami. In their research, Shimoni and Ben-Arieh used Overall Life Satisfaction (OLS), Student's Life Satisfaction Scale (SLSS) and happiness with life as tools to measure children's subjective well-being. According to their study's result, good relationship with family, friends, school and communities are positively correlated with children's subjective well-being. Moreover, family and friends are proven as the strongest contributors for children subjective well-being.

Another research study done by Weber and Huebner (2015) focused more on children's personalities and their subjective well-being. Using Adolescents Personal Style Inventory (APSI) and SLSS to 7 graders in the southeastern United States, Weber and Huebner intended to study the correlation between personalities and global and domain specific satisfaction. The results suggested that conscientiousness positively correlated to all five domains of life satisfaction (family, school, friends, self, and living environment), while neuroticism correlated negatively to all five domains.

From the research and theories that have been presented earlier, it can be concluded that there are several indicators and aspects influencing children's subjective well-being. In order to stay focused on the research topic, the study chose to select several indicators which are very important and directly correlated for the research. First is the relationship between the parents and children. This indicator is important to identify the level of trust between parents and their children to let the children play independently outside their house. Second is the relationship with peers/friends. This indicator is chosen according to the fact that children are rarely playing by themselves outside their house. Kids are more attracted to play outside if

they have friends that they can play together with. The third indicator is their assessment about themselves. This indicator is used to investigate their overall feeling about themselves and how it affects their overall happiness. It is crucial to also include internal aspects, such as their self-assessment, to be able to objectively measure their subjective well-being. The fourth indicator is their feeling toward their school. School is the place where children usually play outside their house rather than their neighbourhood. It is important to know their assessment about their school to objectively measure their outdoor activities. The fifth indicator is children's feeling toward their living environment. Their living environment provides affordances for freedom of mobility so that the children can play with their friends. Hence, it is important to know how they assess their living environment affecting their subjective well-being. This study also applies Veenhoven's (1984) approach on overall life satisfaction, subjective well-being and happiness as equal concepts. Therefore, the three terms above are used interchangeably in the discussion.

## **2.2. Neighbourhood and Built Environment**

Neighbourhood is a very difficult term to define. Many scholars have tried to define it, but they never reach a clear consensus of its definition. Neighbourhood is often used in multiple ways to describe spatial, cultural, socio-spatial and functional entities and is often interchangeably used with community (Barton, 2000; Barton et al., 2003).

Some define neighbourhood as an area with administrative boundaries such as post code and ward boundaries (Ellen and Turner, 1997; Stafford et al., 2003; Meegan and Mitchell, 2001). However, according to Jenks and Dempsey (2007) administrative boundaries can be entirely different from residents' perception of their neighbourhood. Some scholars define it in a sense of physical boundaries in which residents live. On the other hand, in an urbanized neighbourhood, physical boundaries such as a river or hills are rarely found to mark a certain area or territory of a neighbourhood. Another definition of neighbourhood is a shared social and cultural identity in a specific area among its residents. More recent usage explains a neighbourhood as a settlement within large urban settings (Barton, 2000). The more comprehensive definition of neighbourhood is as both a district - a physical construct, describing the area in which people live, and a community - a social construct, describing the people who live there (Briggs, 1997; Galster, 2001). Furthermore, Galster (2001) defines neighbourhood as bundle of spatially based attributes associated with clusters of residences, sometimes in conjunction with other land uses. The attributes are further explained as follows by Jenks and Dempsey (2007):

- structural characteristics of buildings (type, design, density);
- infrastructural characteristics (roads, pavements);
- demographic characteristics (age, family composition);
- class status [or socio-economic] characteristics (income, occupation);
- tax/ public service characteristics (quality of public facilities in relation to taxes);
- environmental characteristics (topography, pollution);
- proximity characteristics (access to services, employment);
- political characteristics (nature of local political network);
- social-interactive characteristics (social networks, degree of socialisation);
- sentimental characteristics (sense of identification with place).

From the attributes of the neighbourhood we can see that built environment is an important part of a neighbourhood.

The most prominent feature we can recognize in a neighbourhood is its built environment. The built environment plays a major part in every urban neighbourhood. Batruska (2007) defines the built environment as pervasive but evasive, since the existence of it is very obvious, yet difficult to explain. We see it everywhere and its overarching reach in our everyday life. Batruska (2007) explained the built environment as everything humanly made, arranged, or maintained in order to fulfill human purposes; to mediate the overall environment with results that affect the environmental context. From this definition we can interpret that the built environment is not only the buildings, but also the meaning born from it. The function of the built environment is not solely as a utility for local residents, but also as a neighbourhood identity. How a built environment is shaped and designed can give opportunities for its residents to interact or even discourage them to interact with one another (Lofland, 1998). The built-environment strongly influences the pattern of neighbourhood resident activities and interactions. A study by Abu-Ghazze (1999) in Abu Nusseir, Jordan prove the layout of the residential buildings and different types of open spaces influence people's behaviour and communication network. Large open spaces were found to be ineffective in building social interaction among the residents. On the other hand, small and confined places were more effective in creating social interaction.

A similar study which was done in Malaysia by Aziz, et.al (2012) also confirmed how the built environment can influence social activities. In the low-cost, walk-up flats neighbourhood, social interaction is strongly influenced by the availability of events to watch. More people are seen in places where people can sit and watch an event easily. These activities are only possible in a certain layout of spaces where there are enough openings and comfortable places to sit around. Again, it shows the importance of the design of the built environment to human being's behaviour.

However, another research study by Shen, et.al (2015) which was conducted in various types of neighbourhoods in Beijing indicated that there are other factors influencing people's behaviour around the built environment. This research investigated the influence of the built-environment to space-time fixity and flexibility of daily activities in four different types of communities. The result of the study suggested the influence of the built environment to space time fixity in each of the communities is different. Space-time fixity is not so sensitive to the built-environment occupants in two communities. The study implied there are influences from social, cultural, and family norms upon this relationship. Nonetheless, this study does not dwell deep into the social, culture, and family norms, but only focuses on changes in the built environment and its influence on children's activities.

Furthermore, as Lofland (1998) stated in his book *The Public Realm*, a place that has become a part of a community or a neighbourhood holds an emotional ambience and meaning to it. In this sense, the interaction is no longer among the residents only, but also between the residents and the built environment. Several studies show that built environment is one strong determinant of psychological well-being (Evans, 2003; Araya, et.al., 2006; Weich, et al., 2002). One of the most widely cited studies is a correlation study between green open areas and city residents' well-being. Many studies have shown that open green space in a city or urban neighbourhood can improve the city's residents life satisfaction. On the other hand, a very dense and populated neighbourhood can easily lower the life satisfaction level.

Open space in a neighbourhood can be manifested as a playground, park, and community garden or, in many developing countries, a vacant lot that is organically changed into a community meeting place (Prasetyo and Martin-Iverson, 2014). This open space not only poses for adults and grown-up's interaction space for neighbourhood residents, but also as a playground for children from the surrounding neighbourhood. A neighbourhood playground is one of the favourite places for neighbourhood kids to meet and play with their peers. They value the playground as a place providing them with so much potential which can be elaborated into many different activities for them and their peers. However, some children also consider that a playground can be a very dangerous place. Especially those who live in a deprived neighbourhood with high criminal incidents. The neighbourhood playground is seen as a dangerous place because of the openness of the place which enables strangers and many illicit activities to enter the playground. The notion of "stranger danger" from their parents also reinforces the danger of a neighbourhood playground (Castonguay and Jutras, 2009).

Another place children see as a playing space is the environment close to their house, friends' houses, or their school. In these places, children can meet and hang out with their peers. It is especially preferred by children of 7-8 years old. For kids in this age range, areas close to their house or school are familiar places that they feel safe to navigate around. Familiarity to the built environment becomes very important for kids in this age range. Moreover, parents usually give limited freedom to children in this age range. Parents give these children a set of rules for how far they can and cannot go for playing and to explore their neighbourhood (Castonguay and Jutras, 2009). On the other hand, for kids 9-12 years old, their playing range is a little further away from the spaces around their house or school. It can even reach the neighbourhood boundary. Their older age gives them the benefit that younger kids do not have. Kids in this age group are given more freedom by their parents because their parents see them as much more dependent and able to protect themselves better. Moreover, children at this age have a better navigation and sense of place because they know their neighbourhood better. Hence, they have more independent mobility compared to their younger peers (Castonguay and Jutras, 2009).

Contrary to popular belief that children are regarded as too young to understand and to process the phenomena in their urban neighbourhood, many studies show it the other way around. Their wider range of playing around their neighbourhood makes them more aware and sensitive to the changes in the built environment in their neighbourhood. These children spend most of the time roaming and exploring their neighbourhood. They recognize their play space in their neighbourhood, the suitable route to reach their favourite place, and they know safe places for them to play around. These children, whether they realize it or not, have created a mental map which helps them navigate among the built environment in their neighbourhood. Furthermore, these kids are also assessing the built environment's quality surrounding them. They look for a suitable space for their needs and desire. It is especially prominent in the children of an urban neighbourhood. Several studies suggest that kids of 7-12 years old have good memories and understanding about the neighbourhood where they live. They can explain and elaborate their perception on their neighbourhood and its built environment logically and coherently. These kids are able to assess their neighbourhood quality objectively. They are able to identify things that they regard as dangerous to them and how to avoid them. Several research studies point out that children of 9-12 years old can clearly describe changes in the built environment of their neighbourhood and the socio-economic effect to their neighbourhood (Castonguay and Jutras, 2009; Lim and Barton, 2010; Mitchell. at al, 2007). It clearly proves that children's interaction with their neighbourhood

and its surrounding built environment can develop their sense of awareness to the surrounding environment.

Consistent with the concept above, there are some variables and indicators which are important to the research topic. First indicators are open space availability and open space visits as two indicators to investigate the utilization and the importance of the open space in the neighbourhood. The second group of indicators are the existence of built environment changes, type of the built environment change, and children's feeling toward the changes. These indicators are used to measure children's comprehension on the changes that had happened around their neighbourhood and their perception of these changes. The third set of indicators are places where children feel as important and less important for their playing activities. These indicators are meant to identify children's assessment of their living environment. All of these indicators were put as questionnaire items in the survey sheet.

### **2.3. Sense of Place**

Children who live in an urban neighbourhood are very perceptive and involved with their surroundings. They see their neighbourhood not only as a place to play, but also as a part of their identity of who they are. These children and their neighbourhood have a dynamic relationship. The kids learn how to react and adapt to their neighbourhood. They also learn how to navigate and find their way through various experiences in their urban neighbourhood. This interaction shapes their perspective of the environment where they live. They put context and layers to their environment and specific places that they consider as important parts of their daily life. In Lofland's (1998) words, this is when spaces become places. Places are spaces with rich and meaningful association and also steeped in sentiment.

In her book *The Public Realm*, Lofland (1998) classified meaningful places/built environment into three categories. First is memorialized Loci. It is a small part of a neighbourhood or a community that is important to the people in that neighbourhood because it reminds them of meaningful moments in the past. The most common example is a statue or a monument. Second is Familiarized Loci. Familiarized Loci are paths/rounds/ranges that people see or move through in daily basis and become so familiar to it. Once this place is gone or altered, people will start to miss it since they become so familiar with its existence. One of the simple examples is an old grocery store in our neighbourhood that we visit frequently. This grocery store becomes part of our daily life and we take for granted its existence. However, once it is closed for good, we start to feel that there is something missing in the neighbourhood. Third are hangouts and home territories. Home territories are areas/places where people visit regularly and form a sense of community in this place and make it as a part of their identity. Home territories exist in the borderline of home and public territories. It can be defined as public territories for some, but may be used as home territories by others. The identity of this place solely depends on the relationship between the people and the place. The simplest example is a regular convenient shop just around the corner that people only see as a regular shop, but for several kids who live nearby, this convenient shop could mean a focal meeting point for them.

Their ability to navigate and build a dynamic relationship with their environment mediates their sense of place and self-assurance. Children feel more confident and outgoing once they have a strong sense of independency around their surroundings. They feel more in control of their actions and their decisions of what they want to do around their house. This in-control

feeling and independency has a strong correlation with their subjective well-being. Children with a high score of independence are reported to have better confidence levels and scored better in their subjective well-being measurement (Bender, 1997).

The children built this sense of independency through the insideness of their neighbourhood (Lim and Barton, 2010). Their insideness is formed through their independent mobility and their ability to harness the affordances around them. Affordances is defined as positive and negative opportunities that a person perceives while acting in a specific setting. The concept of affordances can be emotional, cultural, or social. The meaning and the utilization of the affordances depends on the individual. For a person to perceive and process the affordances, it relies upon his/her characteristics and needs. The neighbourhood offers an opportunity that a child considers supporting his/her activities. Children's perceptions of affordances grow as they grow older, too. A 7 year old kid will see different affordances from a 9 year old kid. Affordances that are perceived and then utilized and shaped into activities are, as Kyttä (1997, 2004) calls it, actualized affordance.

Since affordances can be perceived, utilized and shaped in so many different ways depends on the individual characteristics, social, cultural and many other factors, Kyttä constructed three categories of possible affordances:

1. Field of Promoted Action (FPA) is affordances that can be actualized in a socially approved environment.
2. Field of Constrained Action (FCA) is affordances that is limited through certain design of places or spaces so that only several people that can actualized it.
3. Field of Free Action (FFA) is affordances that is discovered by a child independently.

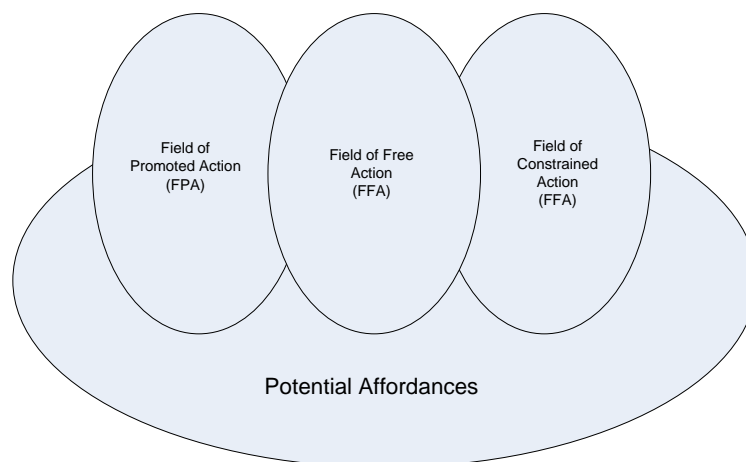


Fig. 2  
Categories of Affordances

Source: Kyttä, M., 2004. The extent of children's independent mobility and the number of actualized affordances as criteria for child friendly environments. *Journal of Environmental Psychology*, 24 (2004), pp. 179-198.

The actualization of affordances is only possible when children are given independent mobility to explore their neighbourhood. Furthermore, actualized affordance encourages children to move more. The more children explore their neighbourhood, the more insideness they have on their neighbourhood. There are at least three definitions and operationalization concepts of independent mobility. The first and the earliest concept is territorial range mobility. Territorial range means the geographical distance from children's homes to places

where children are allowed to wander when playing and socializing (van Vliet, 1983). The second concept is a license to explore independently in the surrounding environment. This license is a set of rules defined by older or authoritative family members concerning the range of their play space (Hillman, Adams, & Whitelegg, 1990; Kytta, 1997; O'Brien, Jones, & Sloan, 2000). The last one is the degree of children's actual mobility in a certain period of time (Kytta, 1997; Tillberg Mattson, 2002).

Using these factors, Kytta (2007) build 4 co-variation models of independent mobility and actualized affordances inter-relationship: Bullerby (the ideal environment), Wasteland, Cell and Glasshouse.

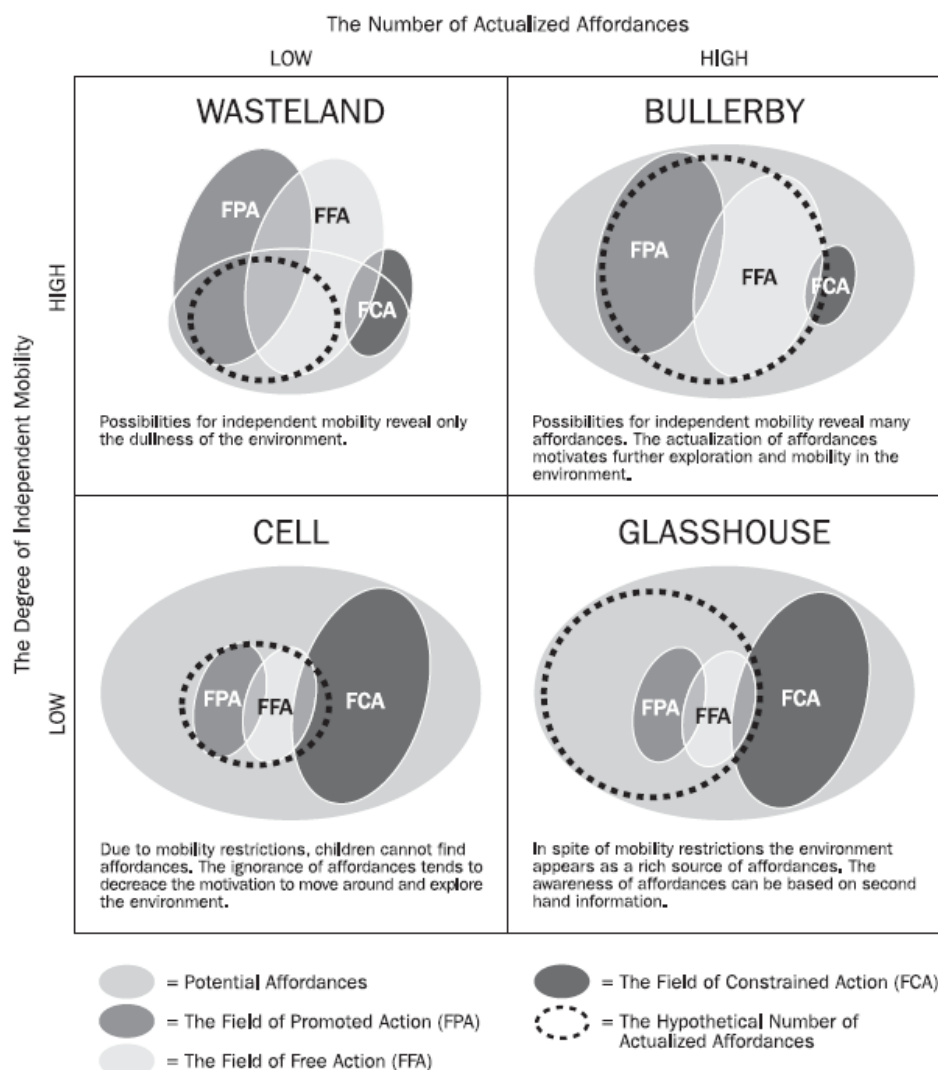


Fig. 3

### Categories of children independent mobility

Source: Kytta, M., 2004. The extent of children's independent mobility and the number of actualized affordances as criteria for child friendly environments. *Journal of Environmental Psychology*, 24 (2004), pp. 179-198.

From the models we can conclude that the supply of affordances will increase as the independent mobility license is given more freedom. On the contrary, a limited license of

mobility will only result small in amount affordances that can be actualized. In the models, Bullerby is considered as the most ideal environment for children. In this model, environment affordances can be optimally actualized because the children are given freedom to be mobile in their neighbourhood. Whereas, this mobility freedom also encourages the kids to find more affordances that can be utilized and shaped as they will. Contrary to the Bullerby model, the Wasteland model shows that even though the children are given enough mobility license, if the environment only provides limited affordances, or even no affordances at all, the actualized affordances will not be created. The Cell model portrays the mobility restriction that is applied to the children by their parents or the existing rules in the environment limiting their ability to discover affordances around them. Furthermore, because they cannot discover more affordances to utilize, they do not have more reasons to explore and move around the environment. An almost similar situation can be seen in the Glasshouse model. In this model, the limited mobility license makes the children unable to explore the surrounding environment. However, the information they perceive from their peers inform them the abundance of affordances that exist outside their limited area of mobility.

Insideness, itself, is seen as how the children position themselves in their neighbourhood through experiences and affordances that they choose to engage in. This concept strongly stresses the importance of intentionality and positionality in children's actions in their neighbourhood (Lim and Barton, 2010). However, since the children grow, their decisions will also change accordingly. Their intention and position will shift along with their growth. So does the environment they live in. It also changes through time and development. Therefore the relationship between the children and their neighbourhood cannot be seen as a static relationship. However, this dynamic relationship is not always a smooth process. Sometimes, what the children need does not always meet with the reality of urban development. When there is a mismatch between children's insideness and the way their neighbourhood changes, it puts the whole process of learning and gaining independence at risk. Their freedom might be limited because of the new development inside their neighbourhood or their place's identity is disrupted because they feel that their old neighbourhood is losing its charm that they once held dear. These disruptions can influence their subjective well-being in a long term.

Various studies had been done to investigate children's sense of place toward their neighbourhood. Holt., et al (2008) conducted research on children's perspectives of opportunities for play and physical activity in two different neighbourhoods. The research was done with children between the ages of 6-12 years old from a grid-style neighbourhood and lollipop (cul-de-sac) style neighbourhood. The result of the research suggested that children who live in a grid-style neighbourhood have more active transportation than those who live in a lollipop (cul-de-sac) neighbourhood. It is because the grid neighbourhood has better walkability and offers more accessibility for active travel. The research also found that younger children who live in cul-de-sac neighbourhoods spend more time playing outside compared to younger children living in a grid-style neighbourhood. They also had a better weather image compared to the children who live in a grid neighbourhood. On the other hand, older children who live in the grid neighbourhood are more active playing outside compared to those who live in cul-de-sac neighbourhood. In the research it was explained that cul-de-sac neighbourhood offers more opportunities for parental supervision and lower through travel, making it safe for young children to play outside. However, for older children, cul-de-sac neighbourhoods offer little opportunity for them to explore their neighbourhood since they have low walkability and accessibility. Whereas a grid neighbourhood with high



walkability and accessibility gives good opportunities for older children to explore their neighbourhood, but can be dangerous for younger children because of the traffic.

Similar research done by Othman and Said (2010) to a cul-de-sac neighbourhood in Malaysia found a rather different result. Children found more affordances in a cul-de-sac with slightly sloping landforms and a variety of vegetation compared to a cul-de-sac with a flat surface and only some vegetation. Furthermore, it is not the cul-de-sac's design that encourage children to play outside, rather parent consent and affordances sociality.

Another study conducted by Hume. Et al (2005) on Australian children indicated that children's perceptions on their neighbourhood and living environment matters to their physical activities. The research suggested that the family home is a place where children's perspectives for physical activities is less prevalent. Children see the family home as a place where they can rest and restore their energy. Children also described that there are not many affordances in the family home for physical activities. On the other hand, schools, green space and outside areas are seen by the children as places where they can play freely and interact with their peers. From the explanation above, there are two variables which are important for the study. Those variables are affordances and children's independent mobility.

## **2.4. CONCEPTUAL FRAMEWORK**

Many studies and much research regarding children's subjective well-being and built environment were done in the past. However, those studies were done separately and mostly done in developed countries with a strong culture of playground life. There has not been a study on the influence of the built environment on children's subjective well-being in a developing country, especially in Indonesia's neighbourhoods where playground culture is not a common norm.

In Indonesia, the majority of neighbourhoods do not have playgrounds. Children are usually playing in the street, their friend's house, around their neighbourhood or football field (Darmawan, 2003). Even this football field is not a deliberately built football pitch. It is rather an organic football pitch which is created from vacant ground anywhere in the neighbourhood. The neighbourhood and its built environment become very important for children's outdoor activities in a neighbourhood without a playground. Furthermore, playing is also very important for children's subjective well-being. Playing helps children interact with their friends, release their stress, and reduce their neurotic tendency (Weber and Huebner, 2015). With that premise, it is safe to say that in a neighbourhood without a playground, the neighbourhood and its built-environment can affect children's subjective well-being through its function as a substitute for a proper playground.

Therefore, using the three main theories above, the study constructs the following conceptual framework as the underlying framework of this study.

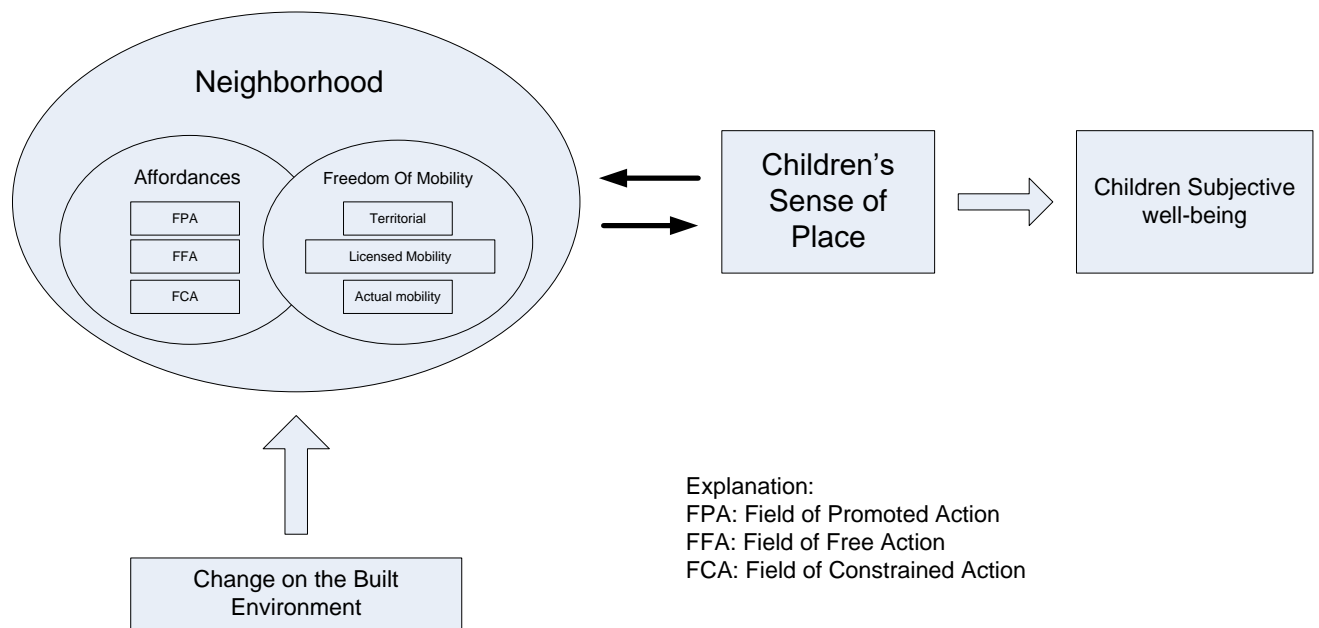


Fig. 4  
Conceptual Framework

Source: Author (2015)

This research conceptual framework explains the relation among each variable explained in the previous section. In the neighbourhood, there are built environments that are very important in providing affordances and freedom of mobility to the children in order that they can play and interact with their peers. From this interaction within the neighbourhood, the children develop their sense of place for their neighbourhood, therefore they can subjectively and objectively assess their subjective well-being and their neighbourhood quality. The research question will be “how does the neighbourhood-change influence the subjective well-being of the children?”

## **CHAPTER 3: RESEARCH METHODOLOGY**

After identifying the concepts needed for the research in chapter 2, these concepts are then translated into variables and indicators in chapter 3.

This chapter will describe the methodology that is used in this research. The research focuses on the influence of changes in the built environment of neighbourhoods towards children's well-being. Thus, a correct approach to collect, process, and analyse all the needed data for the research is very important in order to achieve academically valid research.

### **3.1 OPERATIONALIZATION: VARIABLES AND INDICATORS**

As it is stated before, this research tries to look deeper into the influence of a certain action towards several aspects of the research subject. In the case of this research, the action is the changing process of the built environment in the neighbourhood. As for the aspect that is influenced by the action is the subjective well-being of the children in the neighbourhood. The research subject is the children who live in the neighbourhood.

Another important part of this research is to measure the level of subjective well-being of the children in the impacted area. This measure is needed to see how deep the children's subjective well-being has been influenced by the built-environment-change in the neighbourhood.

These two aspects are mediated by the concept of sense of place. This concept is needed to explain the process of how the built environment-change influences children's subjective well-being.

According to these explanations of these concepts, we can identify some of the variables that are involved in the research. The independent variables are drawn from the built environment concept. The dependent variables are constructed from the children's subjective well-being. Between these two variables there are intermediary variables that are established from the sense of place concept.

#### Independent Variable

According to Batruska (2007) the built environment is "everything humanly made, arranged, or maintained in order to fulfil human purposes; to mediate the overall environment with results that affect the environmental context. From this definition we can interpret that the built environment is not only the building, but also the meaning born from it". The built-environment-change means every change or alteration of the built environment happening in the neighbourhood. Therefore, the variables for this concept will be mainly focusing on the alteration of the neighbourhood's built environment from their original state and function into a new state and function, especially changes that potentially reduce the number of open space in the neighbourhood and altering/disrupting children's playing pattern. Hence, the variables of this concept are open space; and land conversion/building conversion. From those variables, the indicators are then determined into the number of open spaces in a neighbourhood; the use of the open space; number of houses per square meter; number of commercial buildings within the neighbourhood; percentage of land/building conversion.

### Dependent Variables

Children's subjective well-being is seen as overall life satisfaction of a child (Bradshaw et al, 2011). It means that life satisfaction is the variable of this concept. Several indicators are built according to this variable; time spent outside with peers; relationship with peers; relationship with parents; and self-assessment of subjective well-being.

### Intermediate Variables

Sense of place is seen as an intermediate variable because it helps to explain the dynamic interaction between children and their neighbourhood. This interaction eventually leads to understand the process of how the built-environment can be such an influence to children's subjective well-being. From the literature review it can be decided there are two variables involved in this concept. Those are affordances and freedom of mobility. In affordances there are several important indicators that are needed to be addressed in this research which are safety; facilities being used by children; children's play range territory; and places/areas visited most by the children. Furthermore, in freedom mobility, children's territorial play range and parents consent are two important indicators for this research.

**Table. 2**  
**Variables and indicators of research**

<b>Research Question</b>	<b>Concept</b>	<b>Variables</b>	<b>Indicator</b>
How does the neighbourhood-change influence children subjective well-being?	Built Environment Change.	Land conversion and Building conversion (Independent Variable)	Built Environment Change in presence; Type of built environment change; Feeling about the changes in the neighbourhood
	Sense Of place	Affordances (Independent Variable)	Safety; children play range territory
		Freedom of mobility (Independent Variable)	Parents consent; Frequency, Duration
	Subjective well-being.	Life Satisfaction (Dependent Variable)	Time spent outside with peers; Relationship with parents; Relationship with peers; self-assessment of subjective well-being.
How do the children perceive the changes in the neighbourhood?	Built Environment Change	Open space (Independent Variable)	Open space availability in the neighbourhood; the use of the open space
		Land conversion and Building conversion (Independent Variable)	Built Environment Change in presence; Type of built environment change; Feeling about the changes in the neighbourhood
Which part of the neighbourhood that is most important for the children? Why?	Sense Of place	Affordances (Independent Variable)	Safety; Facilities being used by children; children play range territory; places/areas visited most by children.
		Freedom of mobility	Children territorial play range;

		(Independent Variable)	parents consent.
What is the most important factor of children subjective well-being?	Subjective well being	Life Satisfaction (Dependent Variable)	Time spent outside with peers; Relationship with parents; Relationship with peers; self-assessment of subjective well-being.

Source: Author (2015)

### 3.2. UNIT OF ANALYSIS

The research focused on the dynamic of built environment-change in the neighborhood and its influence to children subjective well-being. The children that are chosen for this study is those who are fall under the age group of 9-12 years old. There are two locations of research subject in this study, Depok sub-district and Ngaglik district. In each sub district two neighborhoods are chosen. Jurug and Kayen for Depok district. Dayakan and Pedak are chosen for Ngaglik district.

### 3.3. DATA COLLECTION

Primary data is used in the study. Primary data was gathered through questionnaires (quantitative data collection) and field observation. In this research, the respondents were determined to be a group of children within the age range of 9-12 years old who live in a neighbourhood with rapid built environment-change. This group of children was chosen to be the respondents since in this age range they are still actively playing in their neighbourhood together with their peers. Therefore, they are the most affected group by the spatial change in their neighbourhood. Children in this age range also have better comprehension and understanding about their environment, making them the perfect respondents for the research.

The questionnaire was designed to be easily understood by the children. It consisted of various questions relating to their playing behaviour and habits; the degree of their peer relationships; their perception of their neighbourhood and the changes that are happening or have happened; and finally about their subjective well-being. These questions were asked to the children in order to investigate the relationship between the independent variable (built environment change) and dependent variable (children's subjective well-being). Furthermore, the questionnaire was also created according to the variables and indicators that are stated in the literature review.

The second data that is used in this research is field observation data. This data is utilized in this research in order to determine the location of the neighbourhood with the most built environment-changes and high concentrations of children who play outside. The field observation was done prior the survey.

### 3.4. STRATEGY AND APPROACH

There are two main focuses in the research, those are, measuring the level of subjective well-being of the children and the influence of built environment-change to their subjective well-being. A strategy is needed to gather all the information for the research. Survey is the chosen strategy for this research. This strategy is deemed suitable with the objective of this study.

Survey is a methodology of research that mainly collecting standardized information from many people regarding their perception, opinion or attitudes toward certain subject(s) or topic(s). This methodology enables researcher to gain information from many respondents efficiently. This method especially useful in gathering a lot of information from many research subject/object in a short time. This research will use this strategy to gather information regarding the children well-being level in the research location. By asking question to these children through a survey, we will be able to gather information about their level of subjective well-being.

### 3.5. DATA ANALYSIS AND TECHNIQUES

This study mainly used primary quantitative data which is gathered through survey. The primary data is analysed using ordered probit regression analysis in STATA to find the influences of independent variables to dependent variables. The ordered probit model is as follow:

$$y_i^* = \beta_0 + x_{1i}\beta_1 + x_{2i}\beta_2 + \dots + x_{ki}\beta_k + \varepsilon_i$$

$$\begin{aligned} y_i^* &= \text{dependent variable} \\ x_{ki} &= \text{independent variable} \\ \beta_k &= \text{Constant} \end{aligned}$$

The ordered probit model is used in the study because of the dependent variable gathered by the survey is ordinal (categorical) data. To measure the influence of built environment change to children subjective well-being, the questionnaire uses likert scale to identify children's level of happiness.

The result of the analysis is used to answer the research questions and explain the field condition of the study location.

### 3.6. VALIDITY AND RELIABILITY

Reliability of a research is defined as consistency of a study result although it has been tested multiple times in various conditions or using different set of indicators (McGoey et al., 2010). On the other hand, validity is explained as the rationality of a research process and the data collection instrument that is used in the study (McGoey et al., 2010). A good research has to fulfil these two conditions so it can be scientifically accountable.

Using SPSS the data is tested with Cronbach Alpha test to check the reliability of the data. Using this method, the Cronbach Alpha score of the data was 0.610. The validity of the data was tested using Pearson correlation.

In order to achieve it, triangulation method is used to further validate the findings. The result of quantitative data analysis was triangulated with existing theory and previously similar study.

### 3.7. GEOGRAPHIC SCOPE AND SELECTION

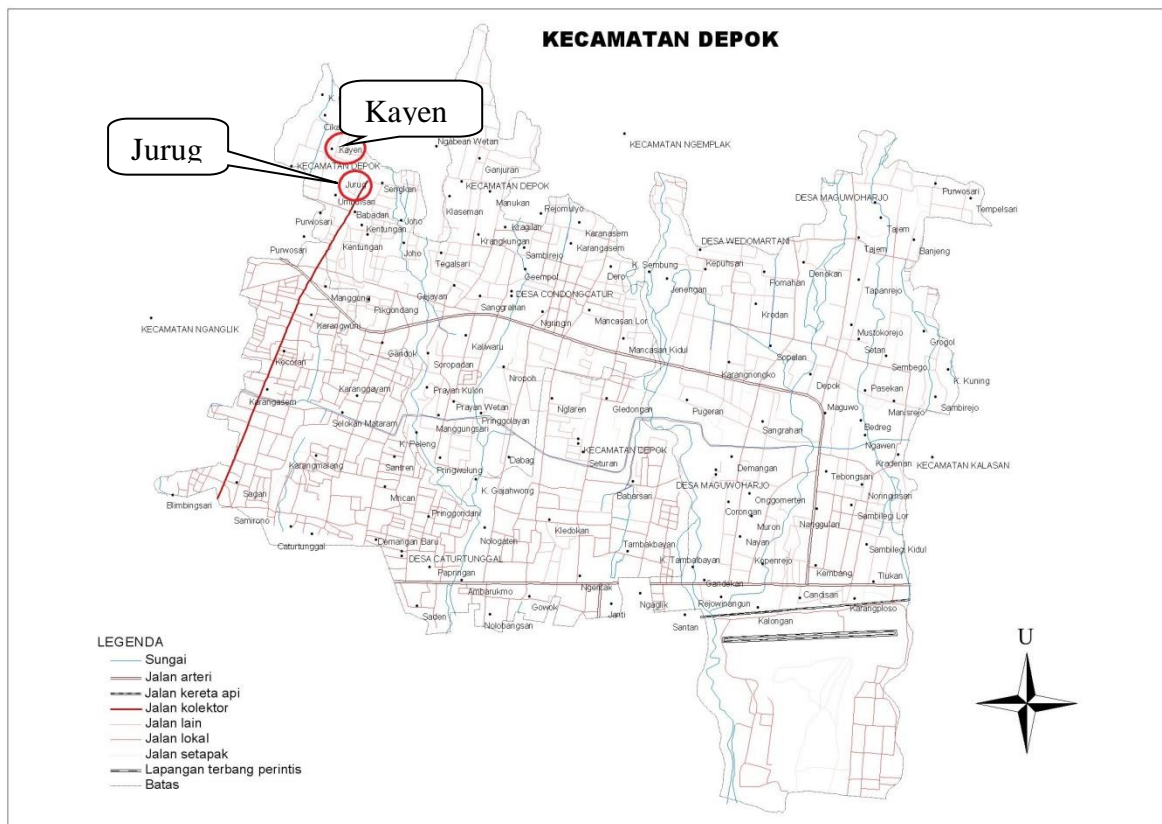
The location of this study are Depok District and Ngaglik District in Sleman Regency, Indonesia. These two locations were chosen according to the rapid development in the neighbourhood according to preliminary field observation and the population of children age 9-12 years old in the neighbourhood.

## CHAPTER 4: RESEARCH FINDINGS

### 4.1. RESEARCH LOCATION AND RESEARCH IMPLEMENTATION

The research was conducted in two sub districts, Depok Districts and Ngaglik Districts. Depok and Ngaglik Districts are planned to be Centre of National Activities according to Sleman Spatial Plan Document. Therefore, physical and infrastructure developments are inevitable in order to fulfill its function in the future.

The research was conducted in two neighbourhoods in each district. In Depok District the research was conducted in Jurug and Kayen neighbourhood.

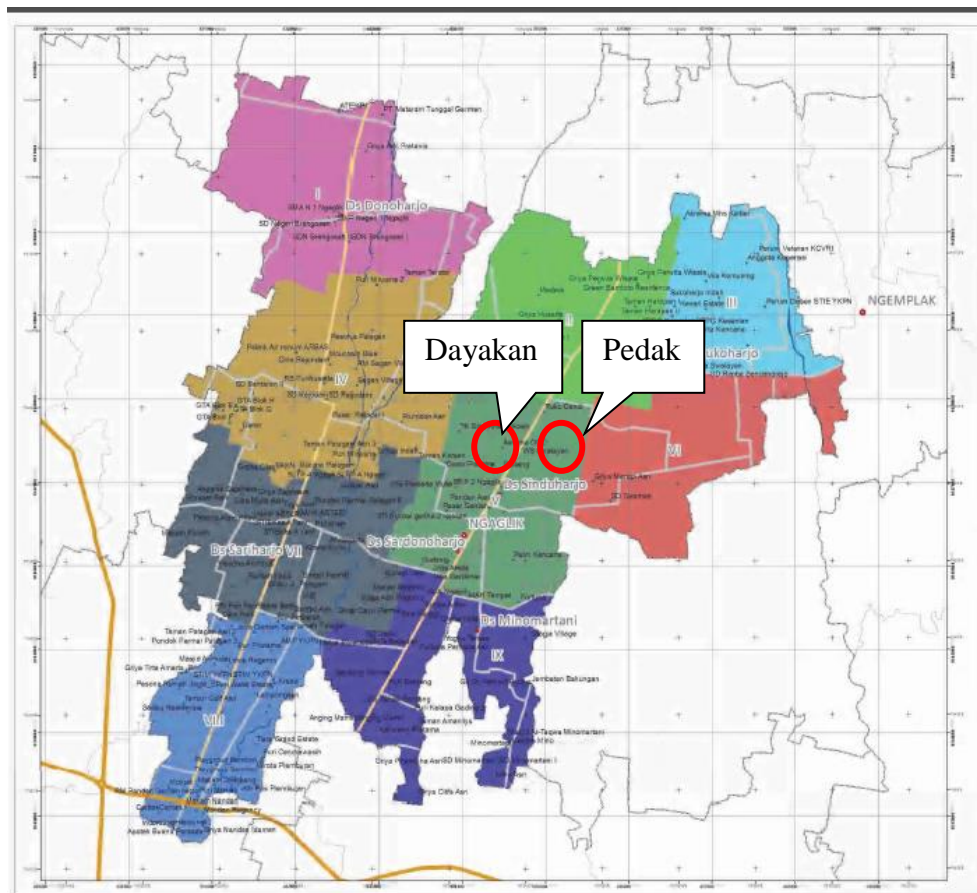


Picture. 3

Depok district administrative map

Source: <http://depokkec.slemankab.go.id/profile/peta-wilayah>

Furthermore, in Ngaglik District, the research was conducted in Pedak and Dayakan neighborhood.



Picture. 4

Ngaglik District administrative map

Source: RDTK Ngaglik Sub-District Document

There are several reasons of choosing these neighbourhoods:

- Jurug and Kayen are situated very close to the major road and have massive physical changes for the last 3 years.
- Pedak and Dayakan are situated somewhat a little further from the major road and the physical changes in these neighbourhoods are starting to increase.
- According to field observation, all four neighbourhoods chosen as research location provide equal characteristics for children to support their outdoor-activities (later will be explained in section 4.3.1).
- Highly concentration of children playing in the neighbourhood was seen in regular basis.

The children chosen as the respondents for the survey are those who fall into the age group of 9-12 years old. This age group was chosen because they are still at the age of actively playing in the outdoor with friends but also have the cognitive capability of recalling memories and analysing their surroundings. Another reason for selecting this age group is their ability to understand the concept of happiness and articulate in describing it.

The sample are decided using the formula of:

$$n = \frac{N}{1 + (N * e^2)}$$



Description:

N: Population size

n: Sample size

e: desirable error rate

Using the formula above and the census data from Regency Statistical Bureau the sample size is calculated as follow:

Depok District:

$$n = \frac{7612}{1 + (7612 * 0.1^2)}$$
$$= 99 \text{ sample size}$$

Ngaglik District:

$$n = \frac{6187}{1 + (6187 * 0.1^2)}$$
$$= 98 \text{ sample size}$$

Total sample:

Depok + Ngaglik:

$$99 + 98 = 197$$

Due to the high probability of drop-outs and error factors among children as respondents of a survey, the desirable error rate is 10% (Scott, 2008). However, in order to anticipate the high rate of drop-outs, the study then adds another backup of respondents with 23 more children. The total sample is 220 children. During the survey, it was quite surprising that all of the children responded to the survey quite well, although there were still a few that needed to be further confirmed through interviews.

The research was conducted through surveys using a set of questionnaires. The questionnaire was comprised of 37 questions regarding their outdoor activities, their neighbourhood, and their subjective well-being assessment. The questionnaire was made using simple language and commands so that it would be easy to follow and to understand by the respondents. The survey was then followed by several interviews. The interviews were performed in order to confirm their responses in the survey sheets. Some interviews were also conducted informally/impromptu after the survey sheets were submitted by the children. These informal interviews were meant to gain extra information that cannot be obtained through survey. This interview was usually carried out in a group since the respondents usually came in a group.

In conducting the survey, the researcher was helped by two assistants in order to disperse the survey sheets and maintain the order of the children. The assistants received a briefing of the survey guidelines before conducting research and also the assistants never worked by themselves. The researcher was always present during the research.

There were several research guidelines that needed to be followed before distributing the questionnaire to the respondents. First, the respondents have to be voluntarily taking part in the survey. Second, the researcher has to explain the objective of the research to the respondents.

Third, the questionnaire was filled in by the children themselves and the researcher is not allowed to intervene during the process of the survey. Fourth, the questionnaire has to be returned immediately after the survey. The children are not allowed to bring the questionnaire home as they may have the possibility to change the answers. Fifth, the children received suggestions to answer the questionnaire as honestly as possible according to their own feelings and understanding without being affected by their friends' answers.

The research was performed during the month of Ramadhan month most of the children were fasting and limiting their outdoor activity. Therefore, most of the surveys were carried out in the evening around iftar time or early in the morning when they still had energy. Furthermore, at that time, the school was also in holiday. Hence, it was impossible to conduct research in school. Most of the interviews were carried out in one of the children's houses or as they were playing around the neighbourhood waiting for the iftar, or time of night night after the Tarawih prayer. The parents were not present while the children were filling out the survey. This is due to creating a sterile environment in obtaining honest responses from the children without any parental intervention.

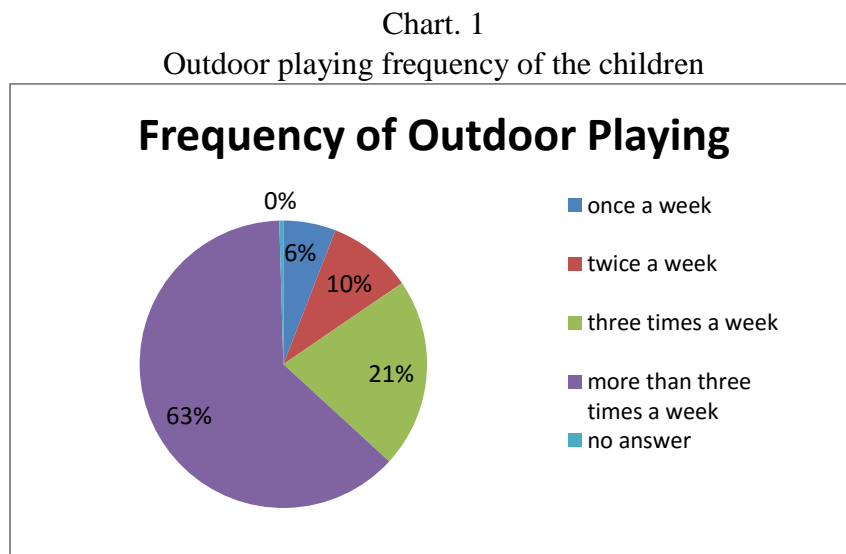
The findings of the research will be explained according to the sections of the questionnaire and followed by answering the research question.

## 4.2. DESCRIPTIVE ANALYSIS

### 4.2.1. CHILDREN OUTDOOR PLAYING ACTIVITY

Children's playing activity is the first section of the questionnaire. This section is meant to understand their preferences in playing and their activities during their play time. This section consists of 14 questions in total.

The respondents consist of 63% boys and 37% girls. This result is due to the fact that boys are more active outside compared to girls in the location of the research. However, 95% of children who took the survey answered that they often played outside of their house and there were only ten respondents who answered "NO" to the question. The majority of the respondents answered more than three times a week for the question of their frequency of playing outside.

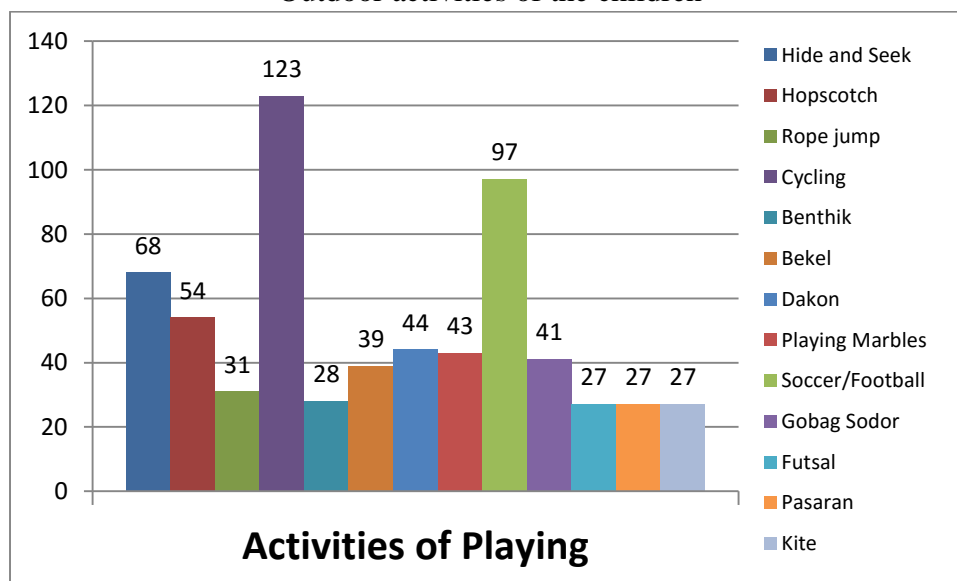


Source: Author (2015), Based on research survey (2015).

Furthermore, for the question of their playing duration, 65% answered more than 60 minutes and 11% answered 30-45 minutes. When the results were analysed with the kind of activities that they usually do when they are playing outside, it explains the reason why most of the children spend a significant amount of time playing outside. It can be seen from the research that the most popular activities among children are activities that are enjoyable for a long duration. Those activities are cycling and playing football. Cycling is very popular for both boys and girls in the neighbourhood which is why it is chosen as the most played activity among respondents. Cycling enables these children to explore their neighbourhood with ease, as well as the enjoyment of the main activity itself.

The second most popular outdoor activity among children is playing football/soccer. Football/soccer is a very popular sport in Indonesia. This sport is also an ideal sport which can be played by many children as most of them gather in a group of 4-6 kids. Moreover, boys usually go the football field by cycling together with their groups and cycling around a little bit before starting to play football with their peers. Rizal, 10, answered “Both of the activities are supporting each other. I can go to the football field with my friends using my bike. Sometimes I pick up one of my friends and then we will cycle around our neighbourhood for a while before playing football”.

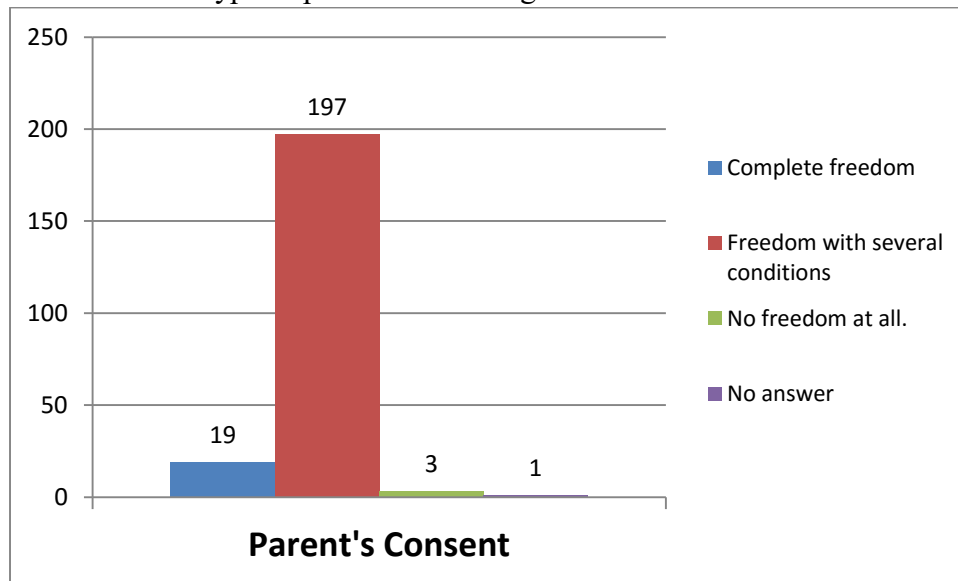
Chart. 2  
Outdoor activities of the children



Source: Author (2015), Based on research survey (2015).

In this section we also asked the children about the degree of consent that their parents give them in order to play outside. From the result, there are 197 respondents who chose “freedom with several conditions” as the degree of their consents. Only 19 answered “total freedom” and 3 chose “no freedom at all”. It shows that parents in this neighbourhood are feeling safe enough to let the children play independently. This result is supported by the survey result which indicated 93% of the children also feel safe in the neighbourhood. It also indicates that parents have enough trust to their children. These two aspects help to support children’s independent mobility that eventually encourage them to explore their neighbourhood.

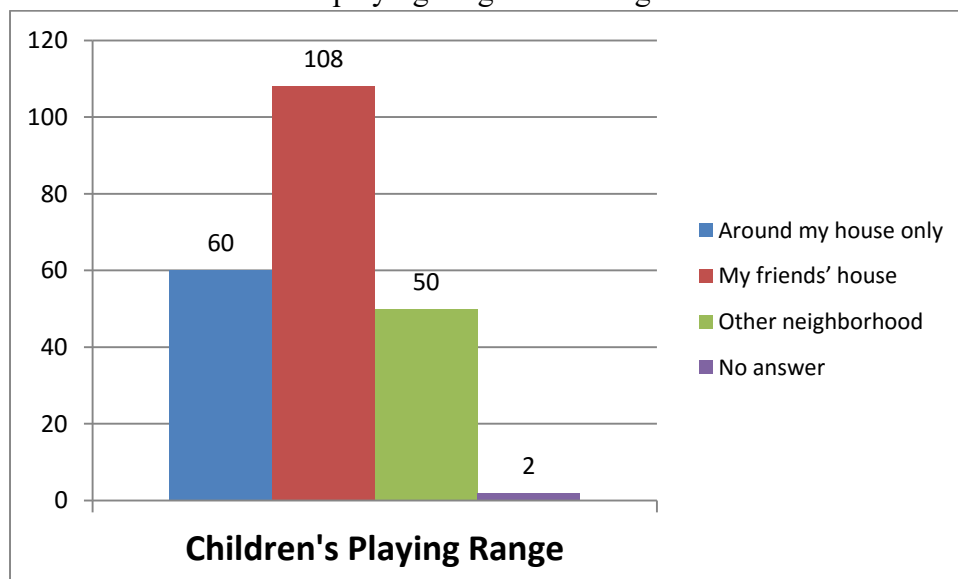
Chart. 3  
Type of parent's consent given to the children



Source: Author (2015), Based on research survey (2015)

Another variable determining the freedom of their outdoor playing activity is the territory of their outdoor playing area. In the survey out of three options that are given, visiting a friend's house is the most popular answer among children with 108 respondents and going as far as another neighbourhood was chosen by 50 respondents. It supports the previous result which is that the degree of freedom that parents give is quite lenient. On the other hand, there are 60 children who chose the option of "around my house only". Those who chose this option are usually young girls. One of the respondents, Apri, 9 years old girl, expressed that her parents only allow her to play further away from their home if she is with her friends or not alone.

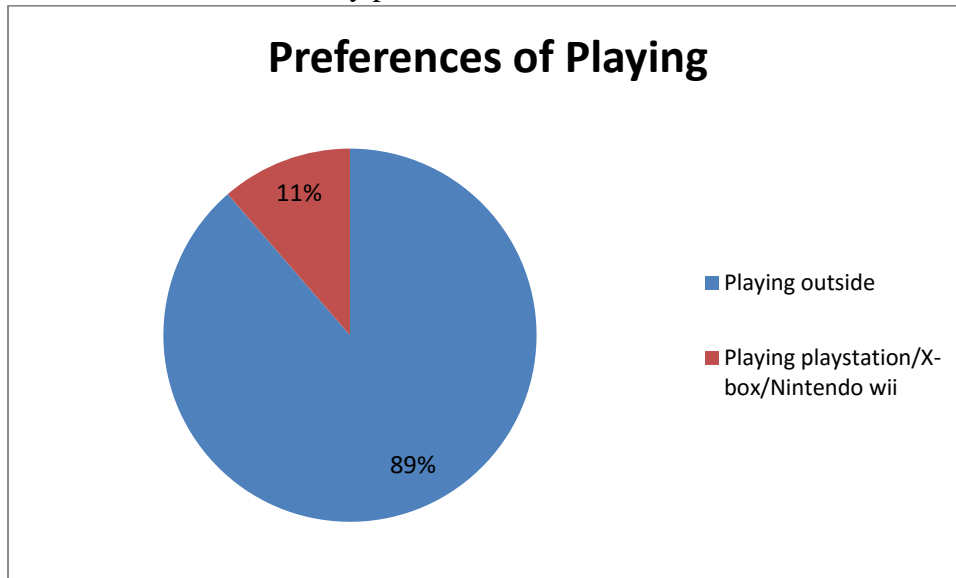
Chart. 4  
Children's playing range in the neighbourhood



Source: Author (2015), Based on research survey (2015)

Moreover, when they were given preference questions between playing console game/tab or playing outside their house, 89% of the children chose playing outside compared to 11% of them who chose to play the console game.

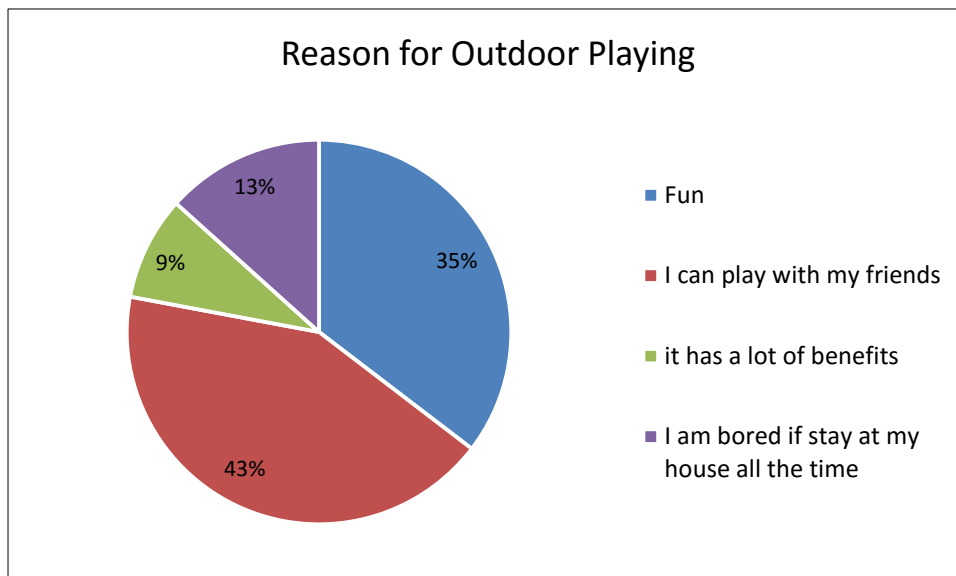
Chart. 5  
Activity preferences of the children



Source: Author (2015), Based on research survey (2015)

The reason of their preferences to play more in the outdoor mainly because it is fun and they can meet and play with their friends. It can be seen in chart 6 the percentage of each reason stated by the children in the survey.

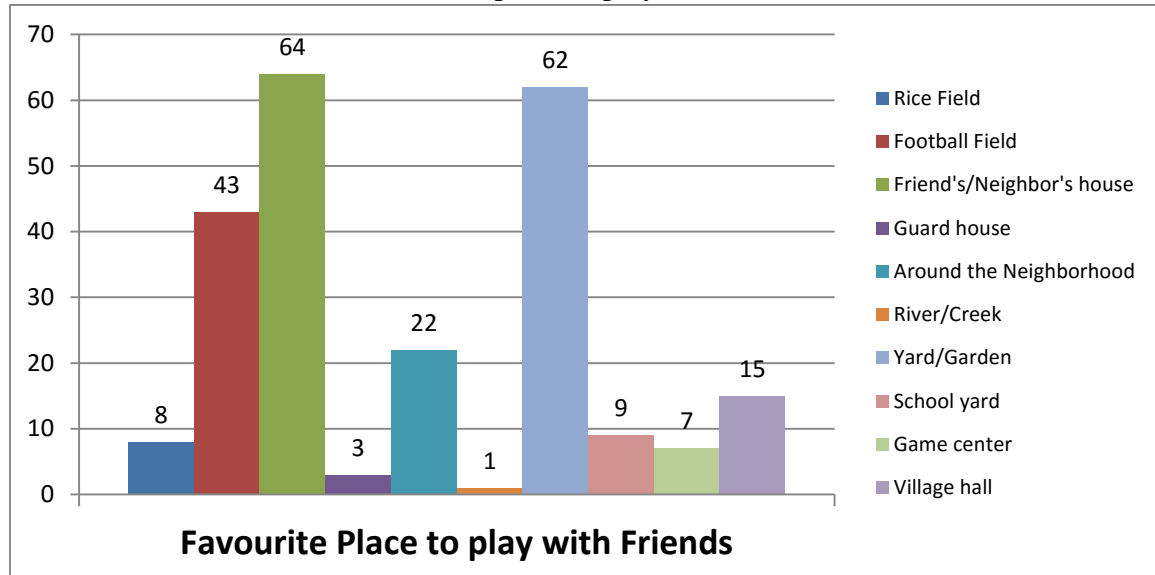
Chart. 6  
Children's reason for outdoor activities



Source: Author (2015), Based on research survey (2015)

In the last part of this section, several open questions were asked to get further information on their sense of understanding about their neighbourhood. One of the questions asked in the questionnaire was about their favourite location playing with their friends; friend or neighbour's house and their house yard/garden came out as the two most favourite places to spend the day with their friends.

Chart.7  
Favourite place to play with friend



Source: Author (2015), Based on research survey (2015)

Contrary to their favourite activity of cycling and playing football, the majority of the children stated that a friend's or neighbour's house, in addition to their own house yard/garden are the most convenient places to spend time with their peers. When they were asked about the reason of their choice, most of the children answered it as a matter of accessibility and practicality. Although these children can roam around their neighbourhood easily, playing in these two places are easy to access and provide loads of amenities they need; cool shade on hot day and free treats/snacks from other family members of the house.

#### 4.2.2. BUILT ENVIRONMENT-CHANGE

The second section of the questionnaire explores the children's understanding of their neighbourhood. The first three questions in the questionnaire dwell into the availability and the usage of public open space in their neighbourhood. Important to notice here is that public open space in these neighbourhoods is different from public open space known in most European countries. In most neighbourhoods in Sleman, public open space is vacant land owned by the neighbourhood and is usually used for various activities as shown in the picture below.

Picture. 5  
Organic open space in the neighbourhood

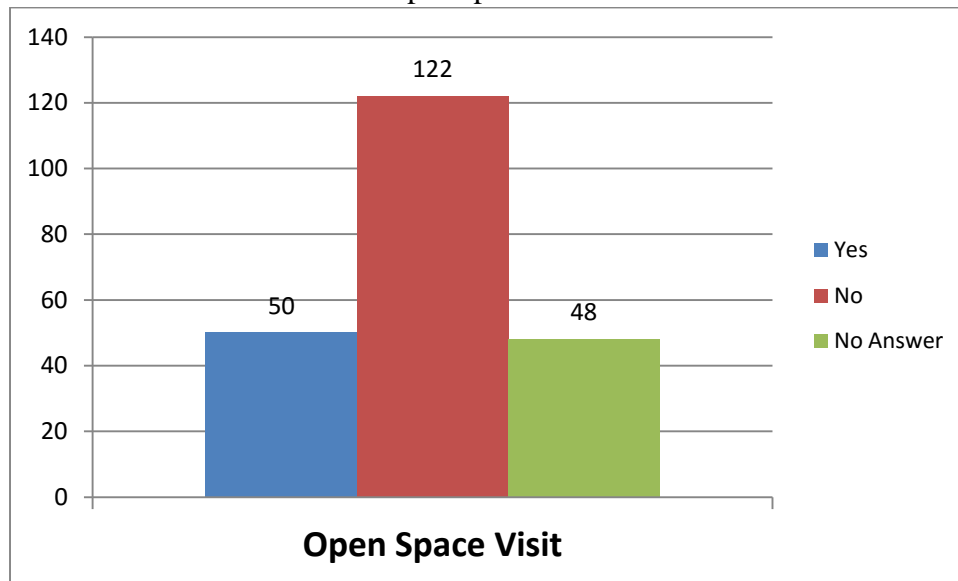


Source: Field Observation

The availability of public open space in a neighbourhood is an important indicator to investigate the provision of public open space in the research location and how the children see the importance of it for the neighbourhood.

The result of the survey shows there are 115 respondents who responded on the availability of open space in their neighbourhood. On the other hand, there are 105 respondents who answered that their neighbourhood does not have any public open space. However, when these children were asked whether they visit the public open space in their neighbourhood, the majority of the respondents answered “No”; only 50 respondents answered “Yes”. There are several reasons for their reluctance to visit public open space in their neighbourhood. As said by Adi, 11, public open space in his neighbourhood has limited shade and trees, making it too hot for him and his friends to stay there too long. Putri, 9, added that in rainy season the place becomes full of mud and mosquitos, making it uncomfortable. On the other hand, those who responded affirmatively for quite often visiting public open space stated that one of the reasons is the vastness of the place making it possible for them to play various group games. As it was stated by Rifky, 11, he and his friends often visit this place to play football, fly kites, and play gobag sodor with his friends. Another reason stated by Nisa, 10, is because the public open space in her neighbourhood is close to her school, so she plays there every now and then.

Chart. 8  
Open space visit



Source: Author (2015), Based on research survey (2015)

Moreover, when the children are asked about the importance of public open space availability in their neighbourhood, 165 children stated that it is important to have public open space in their neighbourhood. Their reasons range from the importance of this place as a place for various activities in the neighbourhood, as well as a place for them to play and exercise.

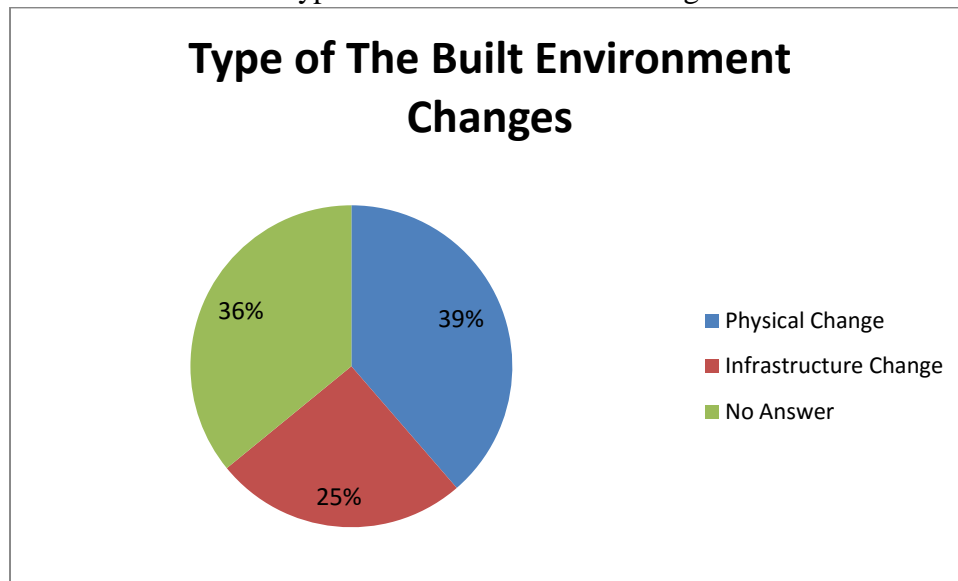
Another variable that is asked in this section is about safety. The children responded to the safety question with 93% of them feeling safe in their neighbourhood and 7% who feel unsafe. The reason why they feel safe is mainly because there are regular neighbourhood watch efforts in their neighbourhood and good social bonding among neighbours in their neighbourhood. This high rate of feeling safe is directly proportional to the level of consent that the parents give to their children. Both parents and children feel safe in the neighbourhood.

The next part of this section dwells on children's awareness of their neighbourhood and changes that have happened in their neighbourhood in the past 3 years. From 220 respondents who were asked whether they recognise any changes in their neighbourhood, 64% of them responded "Yes" and 36% responded "No". For those who recognised these changes, the follow up questions covered their understanding of the changes and their feelings about the changes. Their understanding about the changes was then divided into 2 types of built-environment-change; physical change which is comprised of new buildings and/or housing around their neighbourhood, and infrastructure changes such as road improvement, street light improvement and drainage.

From the survey result, it is shown that physical changes are easily recognized by the children in the neighbourhood. Physical-changes make up 39% of the changes that the children used to describe the alteration that has happened or is happening in their neighbourhood. Furthermore, 25% of the respondents' descriptions fell under the infrastructure change.



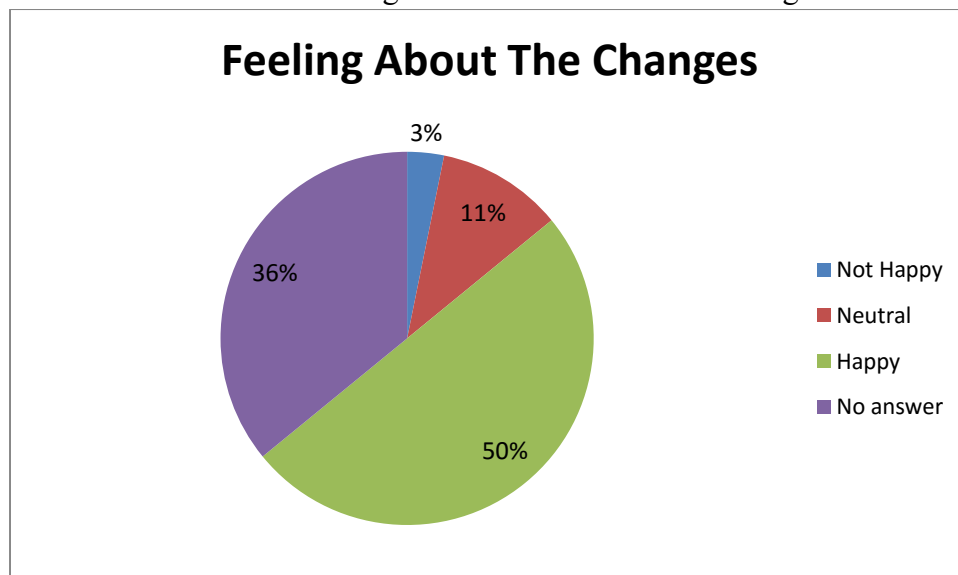
Chart. 9  
Type of built environment change



Source: Author (2015), Based on research survey (2015)

The next subject being investigated by the questionnaire is the children's feeling about the changes in their neighbourhood. The survey shows that 50% of the children who understand the changes in their neighbourhood feel happy about it. Only 3% of them are sad about the changes. Even after they were asked how they would feel if one of their favourite places to play with their friends was altered and changed, their reaction was very calm and stated that they would find another place to play around since it is easy for them to mobile around.

Chart. 10  
Children's feeling about built environment change



Source: Author (2015), Based on research survey (2015)

Following the built-environment-changes, subjects are given questions on places that children recognize in their neighbourhood. The questions are questions numbered 22-25 in the

questionnaire. These questions were asked in order to investigate the children's ability to observe and assess their neighbourhood and also places that are important for them. It is important to understand how children assess their neighbourhood so that the study can investigate their interactions with and their sense of place toward their neighbourhood. There are four categories of places to indicate their ability to recognize and explore their neighbourhood: Favourite place in the neighbourhood, least favourite place in the neighbourhood, best place in the neighbourhood, and worst place in the neighbourhood. In this case, the difference between favourite place in the neighbourhood and favourite place to play with friends lies on the decision maker. The favourite place in the neighbourhood is a place where the children can go and visit by themselves without making any compromise with their friends. On the other hand, a favourite place to play with friends is a place where the children have to make several compromises with their friends in order for them to be able to play together.

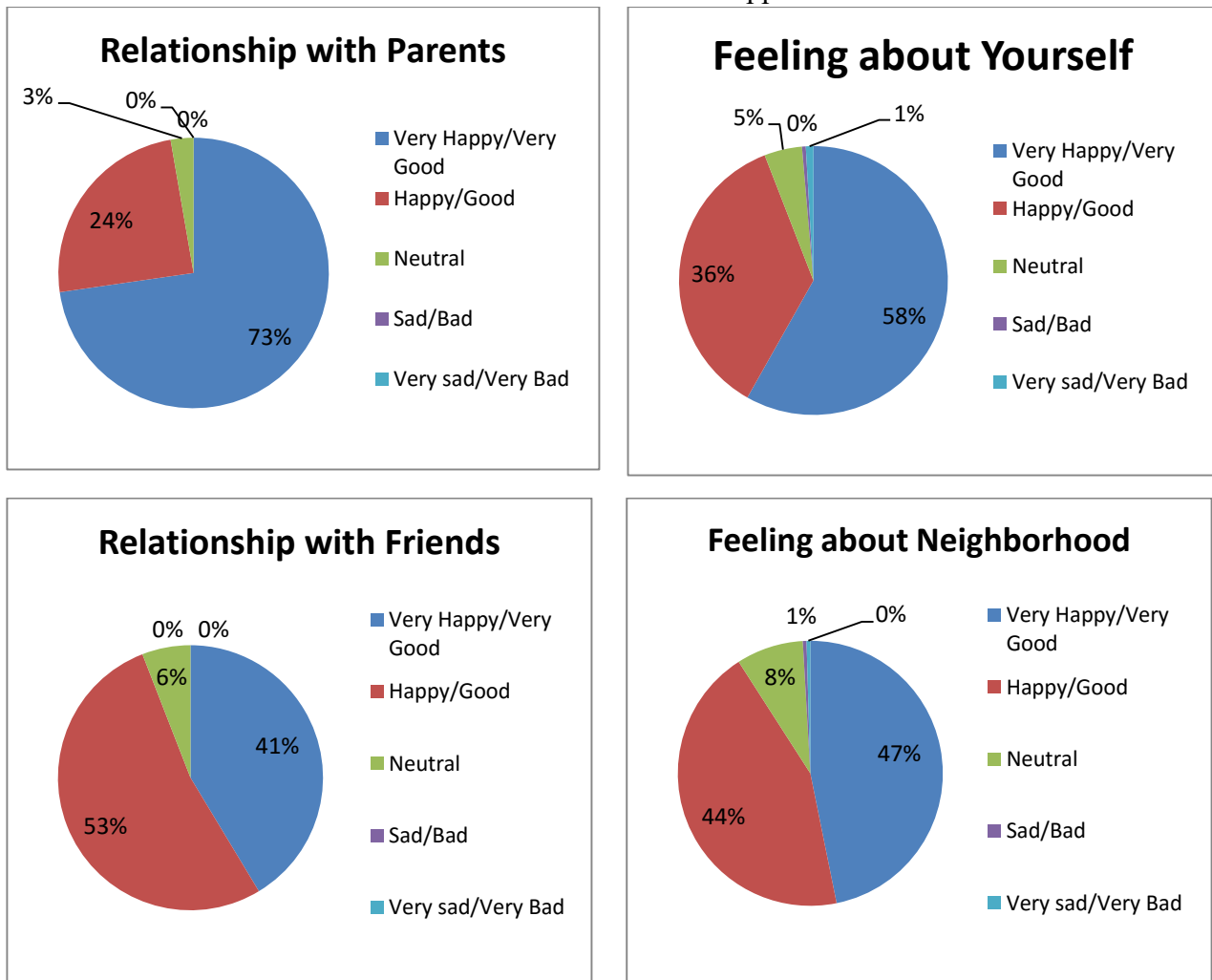
Places that children chose as their favourites in their neighbourhood are the football field and friend or neighbour's house with 56 respondents and 57 respondents choosing these locations, respectively. The least favourite places in their neighbourhood are the river/creek and the neighbourhood landfills with 38 and 19 respondents, respectively. The river/creek was chosen because children are warned by their parents that it is a dangerous place since many accidents have happened there already. The neighbourhood landfills were chosen because they are dirty and smell really bad. However, it is also interesting to recognize that 42 children mentioned that they do not have places they dislike in their neighbourhood. It shows that a large number of children feel happy toward their neighbourhood. This result is also supported by a descriptive analysis result which shows that 44% of the respondents are happy and 47% of the respondents are very happy toward their neighbourhood.

Furthermore, children chose the football field and their home yard/garden as the best places in the neighbourhood with 49 and 53 respondents, respectively. The reason of choosing their own yard/garden is quite subjective among children. The last category is the worst place in the neighbourhood. Directly proportional to least favourite place category, in this category landfills and creek/river were also chosen as the worst places in the neighbourhood. Based on further analyses from these categories, the football field appears in two categories and in the favourite place to play with friends category. It means that the football field plays an important role in the children's outdoor play activities.

#### **4.2.3. CHILDREN'S SUBJECTIVE WELL BEING**

The third section of the questionnaire is researching into the subjective well-being of the children and other factors influencing it. When asked about their feelings toward their parents, friends, themselves, and their neighbourhood, the children tend to respond with happy and very happy (four and five on likert scale).

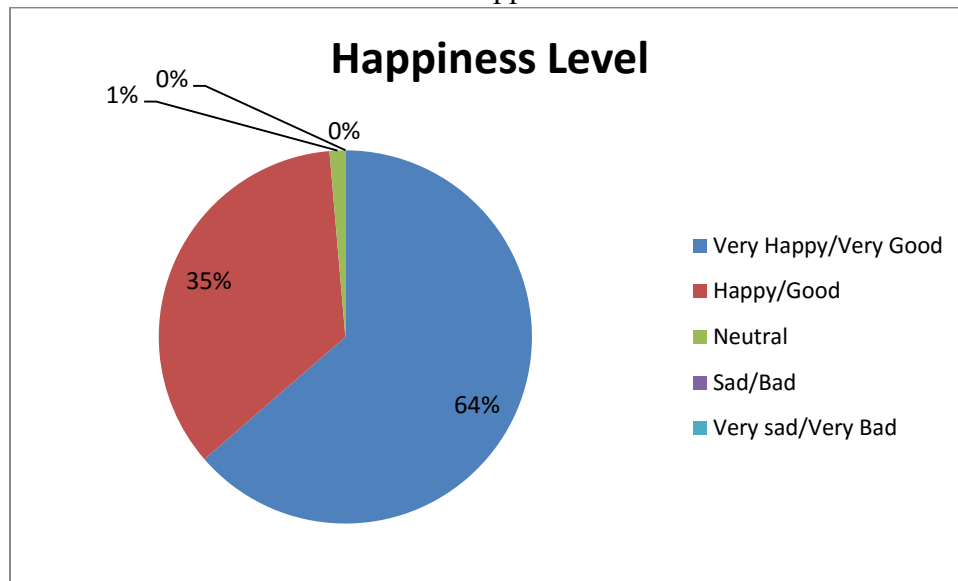
Chart. 11  
Children's life domain happiness



Source: Author (2015), Based on research survey (2015)

The same results also appear when they were asked about their feeling toward their home, their family, and their neighbours. Most of the kids responded happy and very happy in those three areas of their life. All of these factors are very important for children's subjective well-being. According to Huebner (1991) friends, family, living environment, self-assurance and school life are five life domains that are important aspects for overall life satisfaction of children which influences their subjective well-being. Furthermore, in his research, Huebner discovered that satisfaction with family, oneself, and living environment have a strong contribution with children's global life-satisfaction, whereas, friends is the weakest contribution. The findings are in fact in contrast to Bradshaw (2011) and Goswami (2011) who stated that friendship has a strong correlation with children's global life-satisfaction. This study's findings highlights the many aspects of children's global life satisfaction and well-being. This fact probably influences their feeling toward themselves and their daily feelings which, in turn, put their happiness level at optimum level with 64% reporting to be very happy and 35% reporting to be happy.

Chart. 12  
Children's happiness level



Source: Author (2015), Based on research survey (2015)

### 4.3. STATISTICAL ANALYSIS AND RESEARCH QUESTIONS

According to the conceptual framework from the previous chapter, there are three variables which are important in shaping children's sense of place and their happiness. The variables are affordances, freedom of mobility and the changes. The variables are then broken down into several indicators which are investigated in the questionnaire. These indicators are then clustered into several groups according to the research questions which are intended to be answered. In finding the answer, these clustered indicators are analysed using ordered probit regression in STATA.

In order to have a thorough explanation of the main research question, the research analyses will answer three sub-research questions in the beginning before finally stepping out to answer the main research question.

#### 4.3.1. WHAT IS THE MOST IMPORTANT FACTOR OF CHILDREN SUBJECTIVE WELL-BEING?

From the statistical analysis the research identified four important indicators that are crucial to children's subjective well-being. As it is shown in table 3, the four indicators are the relationship between the children and the parents, the feeling about yourself, the feeling about home, and the feeling about their neighbourhood. These findings are different from the theory in the theoretical framework which stated that friend/peer relationships are important for children's subjective well-being and put the parent-child relationship as only significant in health and future life domain rather than overall subjective well-being.

A logical explanation on the significance of the child/parent relationship to children's subjective well-being is provided by Thoilliez (2011) in her research. Thoilliez (2011) stated that parents are seen as providers of unconditional love, support, and stability at home. These

conditions create homes as a safe haven for children and a place where children feel safe and relaxed. Furthermore, a conducive situation at home is reported to have a positive effect to children's subjective well-being. A conducive home is also a very important predictor for children's moods and is also strongly linked to prevent depression in children. Uusitalo-Malmivaara and Lehto (2012) in their research found that children who live in stable households with good and stable relationships between parents and children have positive moods and emotions. Therefore, these children perform better in terms of social ability and have a better sense of themselves. Furthermore, it also encourages a positive in-look toward themselves, which is also reflected in another significant indicator of feelings about yourself.

Holder and Coleman (2008) in their research found that temperament and personality are a strong indicator for children's subjective well-being. Children who reported feeling positive about themselves were also reported to score high in subjective well-being. Children who reported being positive toward themselves were also identified to have an extraverted personality and healthy level of self-confidence. An extraverted personality and self-confidence enable children to have good social skills and have a lot of friends, crucial for children's subjective well-being according to Bradshaw, et al (2011) and Goswami (2011).

**Table. 3**  
**STATA Model for Important Indicators Influencing Children Subjective Well-Being**

	Happiness
Duration	-0.13 (0.10)
Peer Relationship	0.03 (0.17)
Children and Parents Relationship	0.39* (0.20)
Feeling about Yourself	0.34* (0.14)
Daily Feeling	-0.02 (0.17)
Feeling about home	0.39* (0.19)
Feeling about Neighbourhood	0.39** (0.14)
Feel about School	0.23 (0.16)
Age	-0.14 (0.09)

Gender	-0.13 (0.20)
Observations	220

Standard errors in parentheses

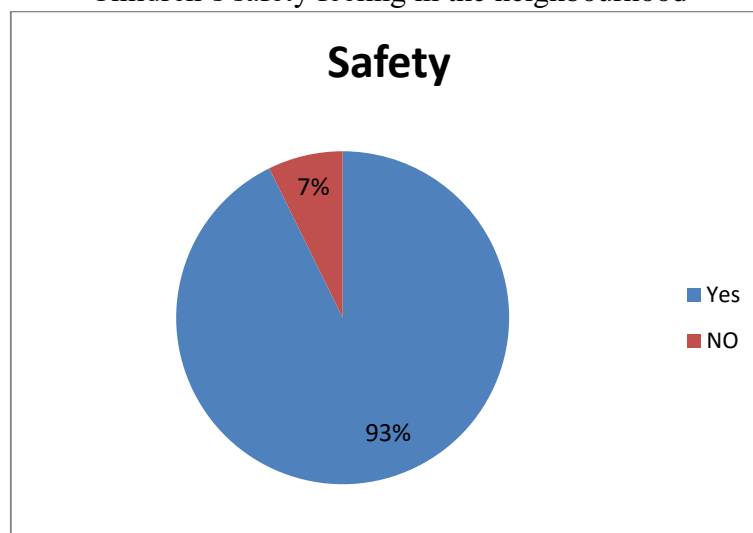
\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Source: Author (2015) ordered probit model analysis

The strongest indicator which influences children's subjective well-being is their feeling toward their neighbourhood. This indicator shows that every increase in children's feeling towards their neighbourhood will also increase their happiness score by 0.39. In the descriptive analysis, 47% of respondents reported being very happy about their neighbourhood and 44% reported happy. According to Zhang and Min (2010) there are five characteristics of neighbourhood environmental characteristics for children's activities. Those are safety, amenity, accessibility, sociability, and attractiveness. Safety comprises of traffic safety and crime-free. Amenity means that the neighbourhood features clear visibility of the surrounding area and a well-kept, aesthetically pleasing environment. Accessibility means the environment has high walkability and cycle-ability with good access to various public services. Sociability consists of conduciveness for gathering and staying. The last one is attractiveness which means the neighbourhood offers many opportunities for children to explore and learn. If all of these characteristics are found in the neighbourhood, it means the neighbourhood is considered conducive for children's outdoor activities.

In the questionnaire, a question regarding the safety of the children was asked to the respondents. The result from the question shows that 93% of the children feel safe in their neighbourhoods.

Chart. 13  
Children's safety feeling in the neighbourhood



Source: Author (2015), Based on research survey (2015)

The neighbourhoods also have sufficient quality of amenity and accessibility according to field observation that was done during the research process as seen in the picture below. It is also apparent that the neighbourhoods also offer good sociability and attractiveness for the children.

Picture. 6  
Neighbourhood environment



Picture.7  
Example of organic football field



Source: Field Observation

All of these qualities give the neighbourhoods sufficient affordances. These affordances are harnessed by the children and enable them to explore the environment. The interaction between the children and their neighbourhood creates a positive sense of place for the children. Therefore, their satisfaction toward their neighbourhood is at the optimum level and, in turn, significantly influences their overall well-being.

Moreover, as the children explore the neighbourhood, it helps them to gain the sense of independence and confidence which influences the way they feel about themselves. According to Bender (1997) children with a strong sense of confidence and independence perform better in their social interactions among friends. Therefore, they have better relationships with their friends and they are also good at making new friends. As mentioned earlier in chapter 2, relationships with friends is one of the key indicators of children's subjective well-being (Bradshaw., et. Al, 2011).

The findings indicate that there is one common influence from the significant indicators. All of these indicators signify the importance of self-assurance for children's subjective well-being. Self-assurance becomes a catalyst for children to build good friend relationships that are important for their well-being.

#### **4.3.2. WHICH PART OF THE NEIGHBORHOOD THAT IS MOST IMPORTANT FOR THE CHILDREN? WHY?**

According to the survey results, there are two kinds of places that are important for the kids. Places where kids usually play with their friends and places that they favour the most in the neighbourhood.

According to them, the difference between these two places lies on the decision maker. Places where kids play together with their friends are decided together. Meanwhile, kids can go to the place they favour the most without having to discuss it with their peers.

The descriptive result from the survey shows that the football field and playing around the neighbourhood are two places children chose mostly. For their favourite place in their neighbourhoods, the football field and a friend or neighbour's house become the common options among children.

However, from the statistical analysis as it can be seen in table 4, there are no variables that are significant enough to determine the influence of places where the children play most with their happiness. Even though activities show significant value to children's happiness with 0.18 value, it only shows that children engage in various activities while they are playing outdoors. This indicator does not specifically pinpoint a specific place with which the children feel a strong attachment.

Another indicator that shows significance in the ordered probit model is age. Age has negative significance to happiness. It means that when the children got older, their happiness level will drop at 0.21 point. This indicator also does not answer the research question.

**Table. 4**  
**STATA Model for determining important place in the neighbourhood**

	Happiness
Safety	0.28 (0.33)
Activities	0.18* (0.09)
Open Space Visit	-0.18 (0.11)
Radius	-0.17 (0.13)
Location	-0.03 (0.05)
Consents	0.18 (0.27)
Age	-0.21* (0.09)
Gender	-0.22 (0.20)
Observations	220

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Source: Author (2015) ordered probit model analysis

The possible explanation for this result is the fact that no matter where the kids play, they remain happy. There are no specific and overtly important places that may reduce their happiness level if this place is altered or disappeared from their neighbourhood. Children in this neighbourhood are resilient and creative. Hence, they will likely find a new place where they can play around with their friends if their regular play spaces are altered. Another



explanation might be related to housing types in Indonesia that still allow houses to have front yard/back yard where kids can play with their friends.

However, from the descriptive analysis, the finding shows that the football field consistently appears in three categories. Those are favourite place to play with friends, favourite place in the neighbourhood and best place in the neighbourhood. It shows the importance of the football field for the children in all neighbourhoods. When the children were asked why they chose the football field in all three categories, the majority of their answers stated that since it is a vast area, they can have various games and activities there, not only football. It illustrates the many affordances of a football field. Kytta (1997, 2004) suggested that children prefer places or spaces with many affordances to offer and to harness. These places give them many options and opportunities to explore and to cultivate for their playing activities.

Furthermore, with many affordances that they can utilize, the children form insideness within themselves and, in turn, they have the sense of independency that they need to be able to interact with their peers confidently (Lim and Barton, 2010). Their independency is also crucial in forming their sense of place. With the independency that they have, children have the ability to explore their neighbourhood and to create a dynamic interaction with their neighbourhood. This dynamic interaction is iterating the children's sense of place. In this case, this dynamic interaction happened in the football field. The football field provides them with many affordances that they can utilize and in turn, children form insideness towards the space that helps them strengthen their sense of place. This dynamic puts the football field as an important place for the children in the neighbourhood or as Lofland (1998) called it home range.

#### **4.3.3. HOW DO THE CHILDREN PERCEIVE THE CHANGES IN THE NEIGHBORHOOD?**

According to the statistical analysis in table 5, the children respond positively to the changes in their neighbourhood. The change indicator has positive significance for children's subjective well-being. The result shows that if there is one point shift in change indicator, there will be an increase of happiness score as much 1.04 point. Furthermore, the children who recognized the changes in their neighbourhood are also happy about the changes. It can be seen from "feel about changes indicator". This indicator yields a positive result toward happiness. It means that every one point increase in the "feel about changes" indicator, the happiness score of the children will increase by 0.40 point in the equation.

This finding is also supported by the descriptive analysis from the survey result. In the descriptive analysis which has been explained above, 50% of the respondents reported of being happy with the changes out of 64% respondents that recognized the changes in their neighbourhood within 3 years time.

The children see the changes in their neighbourhood as a positive addition to their neighbourhood. New housing projects in the u are seen as an opportunity to have new friends and neighbours. New shophouse complexes are seen as new amenities allowing them to have more options for shopping and entertainment. Improvement of the infrastructure (new street lamp, better drainage and sewage, roadwork) is seen to make their mobility and activities

much more convenient and easy (clear and bright street at night, no more flooding and better neighbourhood street condition).

The entirety of additions and improvements that have happened in the neighbourhood are seen and felt as affordances and amenities by the children. These new affordances and amenities bring more opportunities and options for their playing activities. The children feel that their neighbourhood is much more vibrant after a new convenience store opened close to the neighbourhood. One of the children interviewed in the survey said that he used to cycle a little bit further away just to buy his favourite snacks. His mother was not very pleased about it because he had to cycle until the main road. However, since a new convenient store was built in his neighbourhood he can buy all his favourite snacks easily and his mother is not worried anymore. Another child, Yusuf (11), mentioned that there are new housing complex developments in his neighbourhood. The housing development company is now creating a new path from the neighbourhood street to these new complexes, thus creating a new cycling path for him and his friends.

**Table. 5**  
**STATA model for children perception on built environment change in their neighbourhood**

	Happiness
Open Space Availability	0.16 (0.18)
Open Space Visit	-0.13 (0.11)
Changes	1.04** (0.40)
Feel about Changes	0.40** (0.16)
Type Of Changes	-0.14 (0.16)
Age	-0.19* (0.08)
Gender	-0.06 (0.19)
Observations	220

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Source: Author (2015) ordered probit model analysis

However the statistical analysis points out that age has a negative correlation with children's perception of the changes. This negative correlation shows that the older the children become,

the less acceptable they are toward the changes in their neighbourhood. This is due to the pre-teen age (12 years old) children having better observational ability and understanding of their neighbourhood. They also feel the effect of those changes to their lives since they already have longer and specific memories of various places in the neighbourhood. It makes them more sceptical toward built-environment-changes in their neighbourhood and influences their happiness level. Moreover, Thoilliez (2011) stated that the older the children, the factors that influence their happiness are becoming more complicated than for the younger aged children.

#### **4.3.4. HOW DOES THE BUILT ENVIRONMENT-CHANGE INFLUENCE CHILDREN SUBJECTIVE WELL-BEING?**

Playing is a very important factor for children. Playing serves as a moment where children can socialize and interact with their peers to maintain their subjective well-being. In a neighbourhood where there is no official playground, children play anywhere around their neighbourhood. It means that the neighbourhood is a substitution for a playground, making it an important place for children and their friends so that they can interact and maintain their happiness. Hence, a change in the playground may alter their happiness level. The research question tries to investigate the influence of built-environment-changes to children's subjective well-being.

**Table. 6**  
**STATA model for built environment-changes influence on children subjective well-being**

	Happiness
Duration	-0.21 (0.12)
Radius	-0.09 (0.14)
Consents	-0.24 (0.32)
Frequency of outdoor playing	0.23 (0.12)
Changes	0.94* (0.45)
Feel about Changes	0.39* (0.18)
Type Of Changes In the Neighbourhood	-0.24 (0.18)
Safety	0.46 (0.37)
Children and Parents	0.37

Relationship	(0.19)
Feeling about Neighbourhood	0.40** (0.14)
Feeling about Home	0.51** (0.19)
Feeling about yourself	0.44** (0.14)
Age	-0.10 (0.09)
Gender	-0.10 (0.22)
Observations	220

Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Source: Author (2015) ordered probit model analysis

From the result of the STATA analysis in table 6, the research shows that the existence of built-environment-change and children's feeling about the change have a positive correlation with children happiness level. In the case of built environment-change existence, those who answered there are no changes in their neighbourhood, or do not recognize the changes, have a better chance to be happy compared to those who responded as recognizing the built-environment-change in their neighbourhood. However those who reported recognizing the changes in their neighbourhood are actually happy with the changes in their neighbourhood. This may be due to their perspective of the changes. For the children the changes are seen as positive progress for their neighbourhood. The new housing complexes are seen as a new opportunity for new friends. The new shops and retail are seen as a convenience for them since it is easier for them to buy snacks or the toys they love. The infrastructure changes are seen as a good improvement in their neighbourhood which makes their neighbourhood cleaner and with no more flooding in the area.

Furthermore, kids who reported positive response to changes also recorded positive scores on the likert scale of happiness with mostly reported 4 and 5 on the level of happiness. Meanwhile, for those who reported that there are no changes in their neighbourhood also reported the same likert scale score of 4 and 5 on happiness level. These findings show there is a significant influence of changes and their responses to these changes toward their subjective well-being.

Three other indicators with positive correlations are children's feelings toward their neighbourhood, their homes, and themselves. These three indicators are underlying factors for children's well-being. Parent/child relationships may become less significant after we add other indicators in the model, nonetheless, three other major indicators remain consistently significant to children's subjective well-being. For the children in the neighbourhood, these

three indicators are crucial for their happiness. These indicators determine the level of overall life satisfaction of the children in the neighbourhood. If all of these three indicators are fulfilled, no matter the situation that might happen to the neighbourhood, their level of happiness may be still at the optimum level. In short, neighbourhood change and the feelings toward the change, itself, cannot directly influence the subjective well-being of the children. The influences of the changes to the children's subjective well-being depends on how the children feel about themselves, their homes, and their neighbourhood. Nonetheless, this still needs further research.

These findings are contradictory to the initial assumption of this research. The initial assumption of this research was a change in the neighbourhood built-environment would alter children's subjective well-being. Although, further analysis of the data shows that built-environment-change, in fact, does not really affect children's subjective well-being. It is true that children are developing a sense of attachment to several places in the neighbourhood (football field, friend or neighbour's house, and their own yard/garden), nonetheless they do not feel any sense of urgency toward this places. They do not really mind and feel sad if one of their favourable places is altered. The children think they will find another place to substitute the altered space. The fact that their neighbourhood has good accessibility also helps them to be mobile from one place to another, making it easy for them to find a substitute for the place. Thus, their level of happiness is recorded as quite high with a majority of the respondents reporting happy and very happy in their questionnaire.

## **CHAPTER 5: CONCLUSION**

### **5.1. Results**

Playing is an important part for children's subjective well-being and physical development. Playing is also a right for children. In a neighbourhood where playgrounds are not a common norm, children are doing their outdoor activities wherever they feel fit and supported. Children harness various affordances that are offered by the neighbourhood and its built environment. Further, their playing activities also help to develop a sense of place and attachment between children and the environment surrounding them. Making the neighbourhood and all the built-environment in it important for their outdoor activities and subjective well-being.

Sleman is a striving regency in the Yogyakarta Special Region Province. Being closely adjacent to the Yogyakarta Municipality, Sleman receives many spill-over effects from Yogyakarta's economic boom, especially in terms of new settlements and business areas. To support the economic development in Yogyakarta, many housing developers build their new projects around Sleman. Two of most popular sub-districts in Sleman for the development are the Depok district and Ngaglik district. For the past 5 years, these two sub-districts have been experiencing rapid new housing area development. Many of these new housing areas are built within a neighbourhood. This development finally changes the built environment in the neighbourhood risking to alter children's outdoor activity places.

This phenomena raising the question of what is going to happen to children who use their neighbourhood as their playground if their neighbourhood changes? What will happen to their happiness if their playing activities change due to the change of the neighbourhood and its built-environment? From these concerns, this research was done to further investigate the influence of built-environment-change in the neighbourhood to children's subjective well-being in two areas of research.

The research was conducted with a sample of 220 children from four neighbourhoods in Depok district and Ngaglik district. The children chosen were from a 9-12 year old age group. They were chosen for this research since they are still at the age of actively playing outdoors with friends, but also have the cognitive capability of recalling memories and analysing their surroundings. Another reason for selecting this age group is their ability to understand the concept of happiness and articulate describing it.

The methodology used in the research was both quantitative and qualitative. The quantitative method was carried out by giving the sample group a questionnaire. The questionnaire consisted of 36 questions which were separated into three clusters; outdoor playing activities, built-environment-change, and subjective well-being aspect. Children in the sample filled the questionnaire out by themselves without any intervention from the researcher.

Qualitative data was gathered through field observations of the research locations and a follow up interview with the children. Qualitative data was used to further confirm the questionnaire results and added some data that was not able to be presented in the questionnaire.

The study was done during the Ramadhan month in Indonesia. During this month, schools were on holiday and kids did not play outside as much as during a regular month since most of them were fasting. Only several children were found during the afternoon time. Most of the children were gathered during evening time when they were out going to the mosque for Iftar or at night after the Tarawih prayer.

The results of the questionnaire were then coded into an Excel worksheet before being analysed. The result was analysed using Excel, SPSS and STATA. The Excel programme was used to make description analysis of the data. SPSS was used to determine the validity and reliability of the data. Finally, STATA was used to perform multiple regression analyses in order to answer the research question.

The results of the multiple regression analysis show interesting findings. First, contrary to the theory that peer/friends relationship is important to the subjective well-being of children, the multiple regression generated four different significant indicators. The indicators are parent/child relationships, feelings toward their home, feelings toward their neighbourhood, and feelings about themselves. Parents are seen as providers of unconditional love and support for the children. A good relationship with parents gives comfort and confidence to children that eventually boosts their mood and overall life satisfaction. Confidence is also important in shaping children's social ability. A healthy level of confidence enables children to have good social skills and to have a lot of friends, crucial for children's subjective well-being according to Bradshaw, et al (2011).

A positive feeling toward their home also recorded positive correlation to children's subjective well-being. A good, stable home provides a safe shelter for the children where they can interact with other family members and de-stress from daily life. Family interaction is very much important for children's subjective well-being as mentioned by Thoilliez (2011) and Holder (2008). A good home environment is also important as a place for self-rejuvenation for kids, enabling them to release their stress and keep their subjective well-being at an optimum level.

Feeling good toward the neighbourhood is important for children's subjective well-being. As it is known that playing is an important part of subjective well-being, to be able to play in a safe and supporting neighbourhood that they love will boost their happiness level. Furthermore, the neighbourhood offers many affordances and children are given lenient consent from their parents. This privilege encourages the children to have outdoor activities and interact with their peers. This is an ideal situation where children can foster their peer relationships which are an important indicator of their subjective well-being according to many theories.

Moreover, children in the neighbourhood responded positively to the changes in the neighbourhood. Both groups, those who recognised the changes and those who did not, do not have any difference in their happiness. They both are happy. The children see the changes in their neighbourhood as a positive addition to their neighbourhood. New housing projects in the neighbourhood are seen as an opportunity to have new friends and neighbours. New shophouse complexes are seen as new amenities allowing them to have more options for shopping and entertainment. Improvement of the infrastructure (new street lamp, better drainage and sewage, roadwork) is seen to make their mobility and activities much more convenient and easy (clear and bright street at night, no more flooding and better neighbourhood street condition).

In conclusion, the neighbourhood changes and the feelings toward the change, itself, cannot directly influence the subjective well-being of the children. The influences of the changes to the children's subjective well-being depends on how the children feel about themselves, their homes, and their neighbourhood.

It is true that children are developing a sense of attachment to several places in the neighbourhood (football field, friend or neighbour's house, and their own yard/garden), however they do not feel any sense of urgency toward these places. They would not really

mind or feel sad if one of their favourable places were altered. The children think they will find another place to substitute the altered space.

To summarize the findings, built-environment-change in the neighbourhood does not influence children's subjective well-being negatively. In fact, the children feel happy about the changes. This result also highlights four underlying indicators important for their subjective well-being: parent/child relationship, feeling about their home, feeling about themselves, and feeling toward their neighbourhood. These indicators significantly influence their subjective well-being and how they react toward the changes.

## **5.2. Lesson learnt from study**

Although the results of the analysis do not show any negative influences of built-environment-change to the children's subjective well-being, it does not mean that the children in the neighbourhood do not need a place to play and to do their outdoor activity. The children feel fine and positive about the change because they assume it is easy for them to find a nearby substitute. However, if the real estate development continues without any proper control from the government, the children will never find another place to play. Therefore, it is important to start controlling the real estate development in Sleman Regency.

According to Sleman Regency's Bappeda, at the moment there are two regulations which regulate the land development in Sleman Regency. The first regulation is Regulation No. 13/2010 which regulates the development of shopping centres and retail according to its size, scope of service, and sub-district population. This regulation is limiting the number of retail shops, shophouses, and modern shopping centre developments in a sub-district. However, since it is based on the population and scope of service, as the population grows, the number of retail uses and shophouses will also grow proportionally.

The second regulation is Regulation No. 12/2012 which regulates the Sleman Regency Spatial Plan for 2011-2031. In this document, the government has set out the zoning plan for Sleman Regency land use. The plan is to create 1067 Ha of green open space in Depok district and 435 Ha of green open space in Ngaglik District. This plan is set out to be fulfilled in the next 20 years.

One regulation is underway to be assigned by Sleman Regency Government regarding land utilization permits. This regulation is aimed to control and to regulate the construction of new housing complexes and shopping centres by private companies. This regulation emphasizes the importance of obeying the zoning regulation according to Regulation No. 12/2012. All of these regulations are created to respond to the factual situation in Sleman Regency where massive physical developments from the private sector are underway. It will be very effective if the government really applies it seriously. Indeed, some of the regulations still need refinement to fully affect the real condition in the field. Nonetheless, this is a step that needs to be appreciated.

Furthermore, according to Bappeda, the Sleman Regency was also appointed by The Ministry for Women and Children to be one of the Children-Friendly Cities in Indonesia. By this appointment, Sleman Regency is required to provide a safe and accommodating environment in the best interests of the children. One of the requirements includes a playground provision in the neighbourhood. Therefore, Sleman Regency spatial planning has to be in accordance with this requirement. It will be interesting to observe this policy's influence on the children's subjective well-being for future research.



### **5.3. Limitation of the research and recommendation**

The study still has many limitations. The timing of the study was done during Ramadhan when the majority of children in the age group of the respondents were fasting. Most of the children who played during the day were those who were not in the desired age group. Furthermore, since the majority of the children are Muslim, most of them were performing fasting and limiting their outdoor activities. This condition was indirectly also affecting outdoor activities of their fellow peers who are Non-Muslim. During the daytime, they had fewer friends to play with, hence they shortened their playing time and shifting their playtime to evening time.

During the study, there were only 81 girls who were voluntarily taking part in the survey. The reason is mainly due to the small number of girls who were playing outside during Ramadhan. Most of the girls play indoors to avoid the heat during the day and to save energy. Girls in this age are also starting to help their mothers and family for iftar in the evening, hence they were not as many as boys in the evening, either. It will be very important for future study to choose the right time in conducting the research, especially in a country where religious customs are very apparent. Choosing the right time will enable the study to observe the children in their normal state thus it will give a better understanding on children's behaviour.

Furthermore, throughout the survey the children always arrived in a group and filled out the questionnaire together. Although it was convenient for both the researcher and the respondents, there was the possibility that these children would influence each other's responses. Children are very susceptible to peer pressure, especially boys. Boys will try to impress their peers and are very competitive with one another. There was the likelihood that some of these boys finished their survey in haste to find out who would finish first. This behaviour would influence their responses and the results of the survey. In future research, it will be good to make sure that the children fill out the survey independently.

The research was only conducted in a small area in Sleman Regency due to limitations of time and budget. It will be very interesting to continue the study in a much broader area in Sleman. The questionnaire also needs refinement for future study. Questions regarding cultural and family background were not asked in the questionnaire and perhaps it can be added for future research. The study also did not track down children who do not play outside. It can be very useful for future research to also include children who choose to stay at home rather to play outside in order to give more balanced results from both groups.

Much of the secondary data that was needed for the preliminary research was limited. Data on the existing amount of open space in the neighbourhood, amount of land conversion, number of houses per square meter and number of commercial buildings within the neighbourhood were not available or were lost according to the owner of the data (Office of Public Works, Sleman Regency). This data was substituted with questions in the questionnaire and followed up in interviews with respondents.

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## Annex 1:

# QUESTIONNAIRE

Halo! How are you? Would you like to help me filling out this questionnaire? This questionnaire is made to know your playing activities in your neighborhood and how do you feel about your neighborhood. Do not worry. It is not a test. So there is no right and wrong answers. You only need to choose the answer that fits your mind.

Remember, you need to answer all questions. If you are confuse with the question you can ask me about it.

You do not have to show your answers to anybody. Also, nobody who knows you will look at your questionnaire once you have finished it.

Thank you!

First of all tell me about you.

Are you a ☐ Boy ☐ Girl

How old are you

Where do you live now?

### About your playing activity

1. Do you often playing outside your house?

- ☐ Yes
- ☐ No

2. How many times a week do you play outside your house?

- ☐ Once a week
- ☐ twice a week
- ☐ three times a week
- ☐ more than three times a week

3. How long do you usually play outside your house?

- ☐ Less than 30 minutes
- ☐ 30 minutes-45 minutes
- ☐ 46 minutes-60 minutes

- ☐ More than 60 minutes
4. Where do you usually play outside your house? (you can choose more than one option)
- ☐ My house's yard/garden
  - ☐ My Friend's house
  - ☐ Around my neighborhood
  - ☐ Game station
  - ☐ Football field
5. Who do you usually play with?
- ☐ No one/alone
  - ☐ Sisters/brothers
  - ☐ Friends from school
  - ☐ Friends from the neighborhood
  - ☐ All of them
6. What kind of activities do you usually play outside? (you can choose more than one option)
- ☐ Hide and seek
  - ☐ Dodge Ball
  - ☐ Rope Jumping
  - ☐ Cycling
  - ☐ Tag
  - ☐ Bekel (traditional game)
  - ☐ Dakon (traditional game)
  - ☐ Rounders (traditional game)
  - ☐ Football
  - ☐ Gobag Sodor (Traditional game)
  - ☐ Playing kite
  - ☐ Others:.....
7. How far do you usually play around your neighborhood?
- ☐ Around my house only
  - ☐ My friends' house
  - ☐ Other neighborhood
8. How much freedom your parents give you to play around your neighborhood?
- ☐ Complete freedom
  - ☐ Freedom with several conditions
  - ☐ No freedom at all.
9. Do you play playstation/X-box/Nintendo wii?
- ☐ Yes
  - ☐ No
10. How often do you play playstation/X-box/Nintendo wii in a week?
- ☐ Once a week

- ☐ twice a week
- ☐ three times a week
- ☐ more than three times a week

11. With whom do you usually play playstation/X-box/Nintendo wii?

- ☐ No one/alone
- ☐ Sisters/brothers
- ☐ Friends from school
- ☐ Friends from the neighborhood
- ☐ All of them

12. How long do you usually play playstation/X-box/Nintendo wii?

- ☐ Less than 30 minutes
- ☐ 30 minutes-45 minutes
- ☐ 46 minutes-60 minutes
- ☐ More than 60 minutes

13. Which one do you prefer most?

- ☐ Playing outside
- ☐ Playing playstation/X-box/Nintendo wii

Tell me your reason

14. Where is your favorite place to play with your friend?

Tell me your reason:

## About your neighborhood

15. Does your neighborhood have a public open space?

- ☐ Yes (go to no. 16)
- ☐ No (go to no. 17)

16. Do you play in this public open space regularly?

- ☐ Yes
- ☐ No

Tell me your reason:



17. Do you think your neighborhood needs a public open space?

☐ Yes

☐ No

Tell me your reason:

18. Do you feel safe in your neighborhood?

☐ Yes

☐ No

Tell me your reason:

19. Has your neighborhood changed for the past 3 years?

☐ Yes (go to no. 20 and 21)

☐ No (go to no 22)

20. Can you please describe the changes?

21. How do you feel about these changes?

22. Where is your favorite place in your neighborhood?

Tell me your reason:

23. Where is your least favorable place in your neighborhood?

Tell me your reason:

24. What is the best thing about your neighborhood?

Tell me your reason:

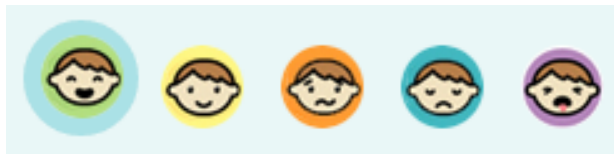
25. What is the worst thing about your neighborhood?

Tell me your reason:

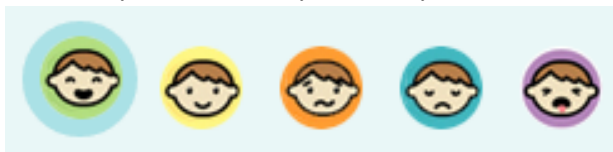
## About Your Happiness

**Choose the face that you think appropriate to your actual feeling.**

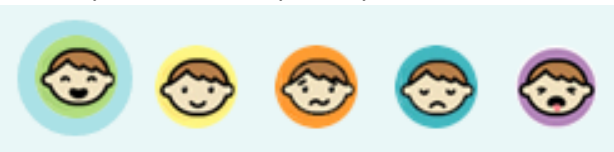
26. How is your relationship with your parents?



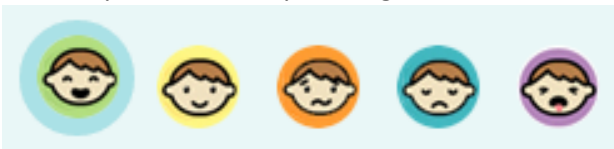
27. How do you feel about your family?



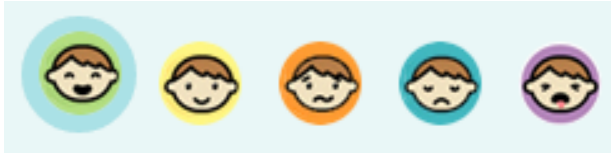
28. How is your relationship with your friends?



29. How do you feel about your neighborhood?



30. How do you feel about your home?



31. Have you ever wished live somewhere else?

☐ Yes

☐ No

32. Do you have friends who live in the same neighborhood?

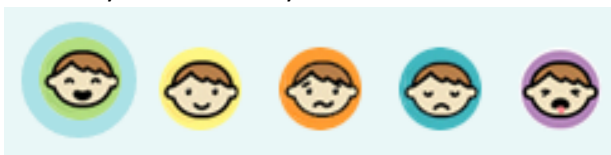
☐ Yes

☐ No

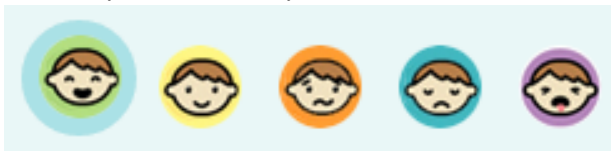
33. How do you feel about your neighbor?



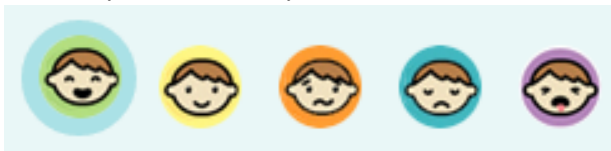
34. How do you feel about yourself?



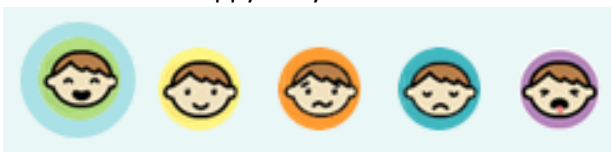
35. How do you feel about your school?



36. How do you feel about your life?



37. All and all how happy are you?



## **Annex 2:**

Semi Structured interview questions:

1. How would you feel if the places where you usually play were changed or disappeared?
2. Why do you like these activities the most? How often do you play it in a week?
3. What do you like these places? What does make it so good for you?
4. Why do you dislike these places? Why do you think these places are bad?
5. Do you often play in a group?

### Annex 3:

#### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Gender	220	1	2	1.37	.483
Age	220	9	12	10.85	1.081
Playing Activity Preference	220	1	2	1.05	.209
Outdoor/playing activity frequency	220	0	4	3.40	.919
Duration	220	0	4	3.36	1.013
Location	220	0	6	3.68	1.949
Companion	220	0	5	3.80	1.064
Activities	220	0	4	2.32	1.114
Radius	220	0	3	1.94	.731
Consents	220	0	3	1.92	.335
Game	220	1	2	1.42	.495
Frequency of playing console game	220	0	4	1.44	1.369
Companion of playing console game	220	0	6	2.21	2.021
Duration of playing console game	220	0	4	1.50	1.357
Preference	220	1	2	1.11	.318
Open Space availability	220	1	2	1.48	.501
Open Space Visit frequency	220	0	2	1.34	.814
Open Space Opinion	220	1	2	1.25	.434
Safety	220	1	2	1.07	.260
Changes	220	1	2	1.36	.482
Type Of built environment change	220	0	2	.84	.815
Feel about the built environment changes	220	0	3	1.75	1.384
Parents and children Relationship	220	3	5	4.70	.516
Feeling toward Family	220	2	5	4.55	.614
Friends Relationship	220	3	5	4.35	.590
Feeling toward Neighbourhood	220	1	5	4.36	.692
Feeling toward Home	220	3	5	4.60	.536
Daydream	220	1	2	1.61	.489
Availability of Friend in Neighbourhood	220	1	2	1.16	.371
Feeling toward Neighbour	220	2	5	4.26	.629
Feel about yourself	220	1	5	4.50	.692
Feeling about your school	220	1	5	4.42	.633
Daily feeling	220	2	5	4.44	.620
Happiness	220	3	5	4.62	.513