

The Impact of Living in High-rises for the Cognitive Development of Early Childhood in Sri Lanka

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Abstract: High-rise buildings have become a popular strategy for accommodating population growth in urban areas in Sri Lanka. Each and every building has different characters and personalities that offer different experiences to a person in their daily lives, but the most vivid to sharpen their psychological and social behavioral qualities is their home or permanent living space and surrounding characters. Different factors such as age, gender, educational level, economic status and social cultural background can be considered to categorize people. The main consideration in this research is the age. Childhood, puberty, adulthood and old age are the four main stages of human life. This study has been carried out to find the impact of living in high-rises during the early childhood. The age category was addressed throughout this analysis will be the age group from 1 to 5 years. Purpose for the gathering information three well-known nurseries were evaluated under Interview guideline for teachers and list of activities for children. Collected data were analyzed by case study approach and presented through descriptive statistics. Findings of this research indicate that living in high-rises during early childhood impacts negatively for the physical, psychological and psych-social development of the child. Recommended options that future architects can follow to minimize above issue have suggested in the end of this thesis.

Keywords: High-Rises, Sri Lanka, Cognitive Development, Early Childhood

Introduction

The way how architecture can manipulate human qualities and experiences is fascinating. Some environment predictability affects human behavior. It is difficult to prove the psychological effects of architecture, but difficulty does not dilute the value of a building that hits the right notes and creates a sense of wonder. Each and every building has different characters and identities which provide different experiences to a person during day to day life, but his home or permanent living space and characters of its surrounding are the most vibrant to sharpen his qualities of psychological and social behavior.

Always human sensors include the eyes, ears, nose, skin and tongue are tracking and seeking different variables such as heat, light, sounds, color, noise, movements and more. Although we do not have much realization, our mind always guided with the volumes and characters of the place wherever we stand. Those various characters will affect the experience of a person which directly going through in a decision making process in day to day activities. As well as the same volume or living space will provide a vibrant feeling or an expression to various people in a different manner.

Categorization of people can be done with the consideration of different factors such as age, gender, educational level, economic status and social cultural background. In this research the main consideration is age. Childhood, adolescence, adulthood and old age are the main four stages in human life which provides the basement to experience

and enjoy his living space as the person desire. Out of them “childhood” is one of the critical stages in every human being.

The characters of living in high-rises can directly affect either positively or negatively to their psychological level, expressions and feelings. The experience from living in high-rises and surroundings may affects for the rest of their life. High rise buildings have become a popular strategy for accommodating population growth in urban areas in Sri Lanka. Hence, most families have chosen apartments as their permanent residences. High rises are basically located higher from ground level and different type of special experiences and qualities are included. Simply this study examines the relationship between living in high-rise buildings and self-rated health of children whom represent early childhood and whether there is an impact of living in high-rise buildings for the cognitive development of early childhood in Sri Lanka. This study will be with reference to pre-school children which provide more knowledge about how living in high rises will effect to the life of children. For that first, it is necessary to understand about impact of living high-rises, link between environment and children, child psychology.

a) Impact of living in high-rise buildings

High rises do generate both positive and negative consequences. It provides extraordinary views (at least to upper-level inhabitants, except if their view is hindered by other elevated structures), and relative urban security. Their usual central urban location is an additional advantage for those who prefer it. Numerous services and transportation options can be found to close to the residence. But most the researchers believe that high rises are unnatural which leads to fear, dissatisfaction, stress, behavior problems, suicide, poor social relations, reduced helpfulness and hindered child development (Gifford, 2007). High rises have

been accused of causing many unpleasant out-come such as,

Residents themselves, a friend or family member or a neighbor will fall or jump from a high window.

Paradoxically, a few residents dread that they might be caught inside during a fire or blast; it for the most part takes more time to arrive at the road from a high-rise staying than from dwelling of a couple of stories.

Residents in spots with dynamic structural plates stress over the whole building falling due to an earthquake.

The sheer number of individuals who live in One Big Residence implies that it might be said, outsiders share your home, in any event.

The sheer number of individuals in a single structure may expand the dread of winding up sick from transmittable diseases generated by others.

Rather than families living in low-density suburban territories, most families like to live in apartment lodging in high urban area, since they valued that lofts offered affordable housing near employment. Be that as it may, above situations legitimately powerful to both kids and grown-ups who lives in elevated structures. Later parents discover the design is challenging for bringing up kids ((Andrews, 2018).

b) Link between Environment and Children

"At first it may be wandering just a few feet away on the playground. Later it means going out to play by them. That's much easier when a mother can look out the window and see the child playing outside than it is in an apartment. "The British psychoanalyst John Bowlby has analyzed the association among young child's explorations and psychological growth. He said that between the ages of 2 and 7, a child needs to make trips into the world with the security of having the option

to come back to the safety of the guardian. During this interaction among independence and reliance, Dr. Bowlby stated, the child bit by bit builds up a feeling of ability and autonomy. (Goleman, 1987))

Living in a high-rise apartment can interfere with the smooth progression flow of this process, Dr. Hart said. "High-rise housing denies both caretaker and child the opportunity to see, hear or otherwise contact each other at will when the child is outside and the caretaker inside," he said. "This results in an all-or-nothing approach. Both the parents relinquish care and let their children play anywhere they wish, or they take the overprotective route of keeping them inside the apartment all of the time."

Access to the outdoors usually does not become an issue for parents until their child requests for the very first time, "Can I go out to play?" "One study of children living in New York City high-rises found that most were not allowed out to play by themselves until they were 10," said Kim Blakely, who works with Dr. Hart in the Children's Environments Research Group, which has studied children living in high-rise apartment. (Goleman, 1987)

Various examinations say that kids have issues in high-rise apartments; none recommend benefits for them. Early audits are clear. One statement says, "For...families with small children, the evidence demonstrate that high-rise living is an unsuitable form of accommodation" (Conway & Adams, 1977, p. 595.) Another concludes that "high-rise housing does not provide an appropriate living environment for preschool or school-age children because too few of the attributes of a single-family house have been accounted for..." (HOGUE, 1976) Despite the fact that the authors softened that by inferring that high-rise residence have both positive and negative highlights for young people. This has not changed much with time. Two of the later

Israeli investigations found that bringing children up in tall structures, particularly on the higher floors, is problematic (Yaran, 2016)

The issues extend from key child development issues to everyday activities such as play. For instance, a Japanese investigation (Masaaki ODA, 1989) concluded that the development of children raised above the 5th floor in high-rise buildings is delayed, compared to those raised below the 5th floor. The improvement of various abilities, for example, dressing, helping and appropriate urination was slower. Children who live on higher floors also rarely go outside to play. A study in India perceived that difficulties of children are not exclusively an element living in high rises (OKE, 1999). As the authors put it, "The ecological constraints of crowding, the high-rise buildings, unsafe streets, scarce open spaces, the preoccupation with the "idiot-box," all seem to conspire against the urban child's natural propensity to play with joyous spontaneity"

Learning Children's play clearly is affected, as parents in apartments either keep their kids inside more frequently, which means close security or over-assurance in an indoor situation or permit them outside, numerous floors away, which can result in under-supervision. One result is that kids in high structures, on balance, invest more energy playing alone and in limited play (Gittus, 1976). Maybe this is the reason there is proof that high-rise brought up kids to have a lower ability of motor skills than kids who raised in single-family abodes.

c) Understanding Child Psychology

There are two types of psychological theories to understand the psychological level of children. Those theories are:

1. Piaget's Theory of Cognitive Development

2. Theory of Psycho-Social Development

Piaget's Theory of Cognitive Development is one of the most persuasive figures in the study of child development by Swiss cognitive theorist Jean Piaget. He built up his cognitive-developmental theory based on the possibility that kids effectively build information as they investigate and manipulate their general surrounding. Piaget was interested in the development of "thinking" and how it relates to development throughout childhood. His theory consists of four stages of cognitive development, first exhibited in the middle of 20th century, is one of the most famous and widely acknowledged theories in child psychological improvement right up 'till the present time.

Piaget believed that as children grow and their brains and mind develop, they move through four stages that have been characterized by considering differences in thought the process. In his research, he observed children and presented them with problems to solve that were related to object permanence, reversibility, deductive reasoning, transitivity, and assimilation/absorption. Each stage builds upon the experience and knowledge learned in the previous stage. Piaget's four stages correspond with the age of the children and those stages are;

1. Sensorimotor stage
2. Pre-operational stage
3. Concrete operational stage
4. Formal operational stage

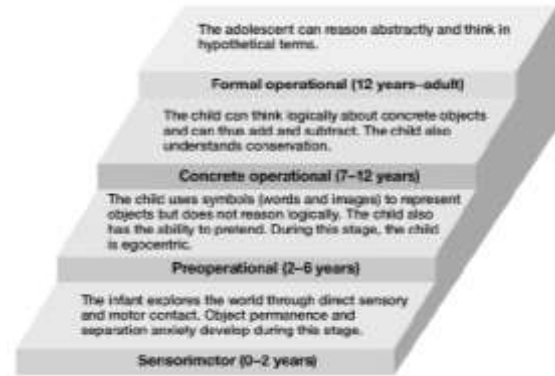


Figure 7 Piaget's Stages of Cognitive Development
(Source: Google)

Erik Erikson's theory of psychosocial development is an extraordinary theory of personality in psychology. Much like Sigmund Freud, Erikson believed that personality creates and develops in a series of stages. Unlike Freud's theory of psychosexual stages, Erikson's theory portrays the effect of social experience over the entire life expectancy. One of the main components of Erikson's psychosocial stage theory is the development of ego identity.

Ego identity is simply the cognizant sense that we create through social connection. As per Erikson, our ego of self-personality is always showing signs of change because of new experience and data we obtain in our day by day communications with others. Addition ego identity, Erikson likewise accepted that a feeling of ability additionally persuades practices and activities.

Each phase in Erikson's theory is considered about getting to be capable of an everyday issue. If the stage is dealt with well, the individual will feel a feeling of dominance, which he referred to as ego strength or ego quality. There are 8 stages in Erikson's stages of psychosocial development; it can be shown in figure 2.



Figure 8 Erikson's stages of psychosocial development
(Source: Google)

The age category which will be discussed throughout this study will represent the age group of 1 year to 5 years. According to Piaget's theory of cognitive development and Erikson's theory of psycho-social development represent two main stages in childhood named, the sensory motor stage (age: 0-2) and pre-operational stage (age: 2-7). During these two stages child has the main requirement of developing through the experiences, observations and movement of five senses. It starts with simple reflects and that behavior develops as a habit. Then it converts to do things intentionally. The key milestone in sensory motor stage is the development of working memory and the realization of objects permanently. Children has the 100% curiosity to explore everything they desire, as an example smelling flowers, tasting foods, talking with strangers can be considered.

But the question is the amount of support that high-rises provide to improve and fulfill these requirements, whether it provides great sources to get sufficient experiences for children and to improve physical ability that they need to do basic movements such as: sit, crawl, stand, walk and run. During the pre-operational stage, Lots of fantasies have been created in child's mind and they are highly enriched by the surrounding details. At this stage, the size of fantasy is the key point hence, we must think whether high-rises provide sufficient atmosphere to children for

develop their cognitive development. If not what would be the impact that should be considered. Then children use to speak, understand words and variety of people. So the social exposure with number of neighbors and peers is a must. But it should be also considered whether that social exposure can be taken in high-rises apartments.

The curiosity of children at around age 4 develops lots of questions in their mind and they try to grab knowledge through that. Therefore, more experiences lead more questions in child's mind. The possibility of having such experiences to a child who spend lot of time in a high-rise residence is again questionable point.

"High-rise housing denies both caretaker and child the opportunity to see, hear or otherwise contact each other at will when the child is outside and the caretaker inside" (Goleman, 1987)

Psychologist Daniel Corppon writes in the Canadian journal of public health, that high-rises keep children and elderly from getting the exercise the extra effort it takes to get outside encourages them to stay at home and flip on the TV. Now it is highlighted that the problem is remain to consider and investigate that the impact of living in high rises for the cognitive development of early childhood. And also the consequences of that should be identified as soon as possible for the next generation of urban cities.

The objective of this study;

- To identify how living in high rises would effect for the cognitive development of early childhood in Sri Lanka.

Most of previous studies have been conducted concerning about people in all ages. But this study specifically limited in to the age group of 0-5 which represent the early childhood. According to the Sri Lankan education system at the age of 6 children will

start schooling but during the age of 0 to 5 years they have highly restricted to their residences and pre-school is the first most place that they expose their personality, which has been taken from their home environment to the society.

And the study directly focuses the attention on cognitive development of children. For that both gross motor skills and fine motor skills will be tested.

Methodology

This research methodology is based on Interview and observation through activities, which has a qualitative approach. Interview carried out among teachers to identify the impact of living in high-rises for the cognitive development of early childhood in Sri Lanka. Observation process was done by following a set of activities for pre-school children. This explains the population concerned for the purpose of the study, followed by how data will be gathered and focused on the research objectives and research questions. The population of this research represent children in the age group of 0-5 years, living in high-rises apartments in Sri Lanka. The sample group consists of 15 pre-school children coming from high-rises apartments and another 15 pre-school children not from high-rises apartments. More over the selected sample group has chosen from three leading preschools in Colombo and all of them are under the age group of 0 to 5 years. In addition to that 25 preschool teachers are questioned through in-depth interview by an Interview guideline made by the researcher. Probability sampling or non-probability sampling methods can be considered as the two ways of sampling designs. In probability sampling, each element of the population has an equal chance of being selected. In contrast, non-probability sampling is based on personal judgments of the researcher and each element in the population does not have an equal chance of being chosen (selected). According to above information we have

selected non probability sampling design to continue this research.

The main source of information which was gathered for this research is based on both primary and secondary data. Data collection method is conducted basically using set of activities done with 15 children living high rises and 15 children living in ground area from selected 03 nurseries (all together 90 children). Also, through an interview guideline 25 preschool teachers were interviewed. Interview guideline were made according to the variables of the research. Set of activities are designed under the supervision of child psychologists. Then it will be conducted as workshops with the sample group in their respective preschools and children will be assessed individually through observations. More over through an in-depth interview was conducted with the teachers of that particular preschools for the collection of necessary primary data. Secondary data will be collected through referring past records, registers, children's working books and earlier assessments done by those respective preschools about these children. Figure 03 review the methodology of current study.

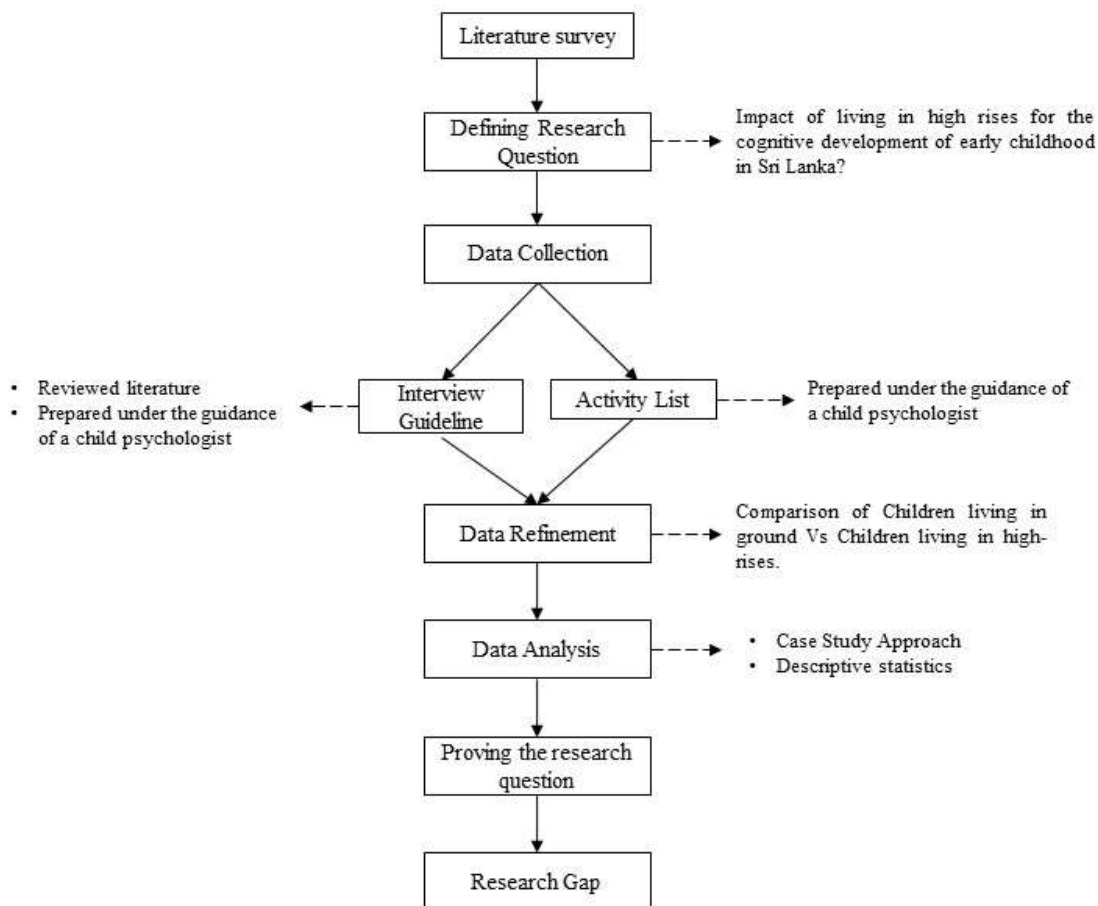


Figure 9 Methodology of the study (Prepared by the researcher)

Data Analysis

The information gathered through interview guideline from 25 teachers in three different nurseries were interpreted by the Researcher. During this process the relevant data initial thoughts and ideas noted down and recorded according to the Interview guideline since this is considered an essential stage in the analysis. The transcribed data was then read and re-read several times and, in addition, the recordings were listened to several times to ensure the accuracy of the transcription. The data researcher gathered from the interview guideline has been interpreted by using Case study approach and Descriptive statistics. This process of “repeated reading” (Braun & Clarke, 2006) and the use of the recordings to listen to the data, results in data immersion and refers to

the researcher’s closeness with the data. Following on from this initial stage and building on the notes and ideas have been generated from 25 teachers of selected 03 nurseries regarding impact of living in high rises for the cognitive development of early childhood in Sri Lanka through answering questions from each case. Researcher managed to conduct set of activities with 15 children living high rises and 15 children living in ground area from each selected nursery. Collected data were tabulated according to each case. Results will be interpreted through case study approach and descriptive statistics. All cases were developed according to the features of the data that the researchers were pertinently collected relevant to the research questions.

- a) Case Study Approach
- b) Descriptive Statistics

Findings and Discussion

During the process of analyzing interviewed data, researcher found out from the group of children from high-rises apartments;

- 60% of teachers agreed that there were language barriers, speech delays.
- 59% of teachers agreed that there was a unique behavioral patterns.
- 60% of teachers agreed on that there were more give up moods.
- 60% of teachers agreed on that there were more hyperactive behaviors.
- 60% of teachers agreed on that there were nervousness than the others.
- 57% of the respondent believes that children are not very socially competent.
- 65% of the teachers believes that children are pretty competent academically.
- 46% of the Teachers believe that target group of children are sometimes has sudden changes in moods.
- 55% of the teachers believe that target group of children do not feel or complain that no one loves,
- 60% of teachers believes that target group of children are too fearful or anxious.
- 44% of teachers believe that target group of children are bullies or is cruel or mean to others.
- 44% of the teachers believe that sometimes target group of children are unwilling to feel sorry after (he/she) Misbehaves.
- 44% of the teachers believes that sometimes target group of children

have trouble getting along with other children.

- 60% of the respondent believes that Target group of children are sometimes are not impulsive, or acts without thinking.
- 76% of the teachers believes that target group of children have lot of difficulty getting mind off certain thoughts.
- 60% of the teacher believes that Target group of children are sometimes are restless or overly active, cannot sit still.
- 72% of teachers believes that target group of children are sometimes are stubborn, sullen, or irritable when comparing to other children.
- 76% of the teachers believes that Target group of children sometimes those children are unhappy, sad or depressed.
- 72% of the teachers believes that Target group of children sometimes are breaking things on purpose or deliberately destroy (his/her) own or other's things.

Psychological and psycho-social components of a child can be considering factors such as language barriers, unique behavioral patterns, give up moods, hyperactive behaviors, nervousness, social competency, academic competency, changes in moods, complaining, being fearful or anxious, being bullies or cruel, unwillingness to apologize, trouble with getting along, acts without thinking, cannot stay still, stubborn and depressed. In above paragraph those factors have been evaluated considering the experiences faced by teachers of selected nurseries. Results show that children living in high rises partially have psychological and psycho-social development issues when comparing to children in ground areas. Hence living in high rises during early childhood stage may negatively impact both psychologically and psycho-socially.

Analyzed data from the set of activities designed for children by the researcher also shows how living in high rises during early childhood would effect for the psychologically and psycho-socially in children's perspectives.

In this research the main objective was to examine to identify how living in high rises would effect for the cognitive development of early childhood in Sri Lanka. Under those objectives other two sub-objectives are connecting with above two research questions. Those objectives are, to find out whether there is an impact of living in high rises in early childhood for the physiological development of a child and to find out whether there is an impact of living in high rises in early childhood for the psychosocial development of a child.

During the process of analyzing interviewed data researcher found out from the group of children from high-rises apartments;

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- 59% of teachers agreed that there was a unique behavioral patterns.
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- 57% of the respondent believes that children are not very socially competent.
- 65% of the teachers believes that children are pretty competent academically.
- 46% of the Teachers believe that target group of children are sometimes has sudden changes in moods.
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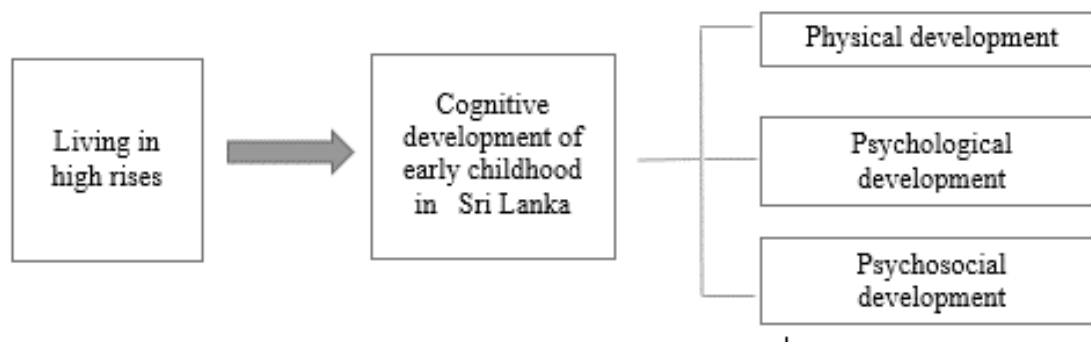


Figure 10 Theoretical framework (Prepared by the researcher)

Psychological and psycho-social components of a child can be considering factors such as language barriers, unique behavioral patterns, give up moods, hyperactive behaviors, nervousness, social competency, academic competency, changes in moods, complaining, being fearful or anxious, being bullies or cruel, unwillingness to apologize, trouble with getting along, acts without thinking, cannot stay still, stubborn and depressed. In above paragraph those factors have been evaluated considering the experiences faced by teachers of selected nurseries. Results show that children living in high rises partially have psychological and psycho-social development issues when comparing to children in ground areas. Hence living in high rises during early childhood stage may negatively impact both psychologically and psycho-socially.

To identify how living in high-rises during early childhood would impact on their physical development was the one of sub-objectives of this research. During the process of analyzing data from the interview guideline for pre-school teachers, researcher found out;

64% teachers agreed that target group of children had not any difficulties in their eye-hand coordination, during activities from target group of children than the others.

76% of teachers believe that children are not very competent physically when comparing to the children living the ground. This proves

that teacher's do not think that living in high-rises would impact negatively on physical development of the child.

Analyzed data from the set of activities designed for children by the researcher also shows how living in high rises during early childhood would affect physically. Researcher evaluated whether sample group can throw a ball between two cones, walking on a straight line and walking while keeping an objective on the head. Results showed that children living in ground areas have more ability to do physical activities when comparing to children living in high-rises.

Even though teachers believe that living in high-rises have no impact negatively on physical development of the child, children reactions towards the activities showed that children living in ground areas have more ability to do physical activities when comparing to children living in high-rises. Somehow the results were quite questionable; it gives a hint that there is a slight negative impact for child's physical development.

The primary objective of this research was to identify how living in high rises would effect for the cognitive development of early childhood in Sri Lanka. Throughout this paper researcher explicit that cognitive development of early childhood consists of three phrases called; Physical, Psychological and Psycho-social. During the data collection covered each and every element and while

data analyzing almost all the elements were evaluated. Those analyzed data proved that there is a negative impact for early childhood living in high-rises physically, psychologically, psycho-physically. That statement proves the main objective and the first research question of this study.

Above theoretical framework made by the researcher helps to prove the validity of above research findings. It shows that living in high-rises would effect on cognitive development of early childhood in Sri Lanka and cognitive development can be measured from physical, Psychological and psycho-social development of the child. Although living in high-rises generate negative impacts for children, still parents would select to live in high-rises due to many reasons. Hence following suggestions may support to overcome the negative impact of living in high-rises during early childhood.

Recommendations

Data that the researcher has collected; proves that living in high-rises generate many consequences for the cognitive development of early childhood. To overcome those issues necessary architectural solutions should be taken. Since it is a huge part that needed to be consider under another topic, those architectural solutions will not be implemented by this study.

Through this essay certain lapses that may occur with living in high-rises during early childhood were explicated and proved under scientific investigation. Recommendations to overcome regarding issues, necessary areas that architects should consider will be introduced. According to the findings of this research;

- Children have physical problems. Lack of space to play to and do physical activities could be a reason, lack of opportunities to build relationships with peers and specially with environment. Also they

might lack of having obstacles to clear during playing and lack of having hard works with environment also a major issue.

- When considering psycho-social and psychological problems, it proved that most children had language barriers, unique behavioral patterns, give up moods, hyperactive behaviors, nervousness, social competency, academic competency, changes in moods, complaining, being fearful or anxious, being bullies or cruel, unwillingness to apologize, trouble with getting along, acts without thinking, cannot stay still, stubborn and depressed. Those behaviors could be a result of lack of subordinates, peers, interaction with people, lack of opportunities to share experience with others, lack of experiences to understand others and work with them, limited exposure to the environment, trees, animals and limited talk time with parents and etc.

Somehow, above issues should be considered and to overcome regarding issues taking necessary architectural actions is a must. Future studies should focus on creating environmental friendly areas, play grounds and necessary architectural spaces should be implemented within future high rises.

Conclusion and Research Gap

High-rise buildings have become a popular strategy to accommodate population growth in Sri Lanka's urban areas. Every building has different characters and personalities that offer a person different experiences in their daily lives, but their home or permanent living space and surrounding characters are the most vivid to sharpen their psychological and social behavioral qualities. Different factors can be considered to categorize people, such as age, gender, educational

level, economic status and social cultural background. The age is the main consideration in this analysis. The four main stages of human life are childhood, adolescence, adulthood and old age. This study was conducted to determine the impact of early childhood living in high-rises. Throughout this study, the age category will be the age group from 1 to 5 years. The aim of gathering information was evaluated in three well-known nurseries under Teacher's Interview Guidelines and Children's Activity List. By the case study method, the collected data were analyzed and presented using descriptive statistics. Findings from this research suggest that early childhood living in high-rises has a negative impact on the child's physical, psychological and psych-social development. Recommended options suggested by future architects at the end of this study to mitigate the above problem.

Most of previous studies have been conducted concerning about people in all ages. But this study specifically limited in to the age group of zero to five which represent the early childhood. According to the Sri Lankan education system at the age of 6 children will start schooling but during the age of 0 to 5 years they have highly restricted to their residences and pre-school. It is the first place that they expose their personality, which has been taken from their home environment to the society.

Child's behavior may depend on Number of members of the family. Maximum members of each selected family was 05 or less than 05. Children of selected pre-schools were coming from the same financial background. According to the researcher's assumption sample group represent the same financial background.

Anyhow, the main intention of this study is to understand the impact of living in high-rises for the cognitive development in early childhood in Sri Lanka. Final outcome of this

research would be an opportunity to enhance the quality of the living in high-rises by identifying basic requirements, parents would be benefited to identify the problems that their children facing and get opportunity to follow necessary solutions and finally, the field of architecture will be also benefited to have clear identification of gaps in high-rises. This research might help to architects to design solutions to overcome those failures and upcoming high rises to have more advancement features. Finally, the end result of this research would be a secondary source for some other researches in both fields of architecture and psychology.

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