



**Developing a Framework of Methodology and Methods in
Environmental Perception Research**



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ABSTRACT

During the whole time of human life span, those who survive longer will have a lifetime of various rich experiences. In order to meet the needs of those people's life experiences, and to improve their environmental quality of life in more applicable and practical ways, it is essential to investigate the general problems of people's daily life as well as their potential roles during their life span. This investigation is the main point of the study of environmental perception. Investigating interrelationships between people's life span and surrounding built environment generates deeper understanding of limitation of people's abilities, and encourages designers to produce more stimulating environmental design elements in order to create more legible environmental comprehension.

The investigation of people's attitudes and perceptions to understand the surrounding daily environment basically focuses on current conditions of living environment areas related to multidisciplinary issues in urban environment design. From this point, it is expanded to proceed to environmental perception tools and methods based on culturally-specific approaches, and to develop the framework of methodology and methods for further details of research investigation

The methods of inquiry employed in this pilot study related to environmental perception principles, basically to seek how people perceive their surrounding environment where they experienced daily living. This includes methods of questionnaire, interview, document review, direct observation and behaviour observation.

The conceptual framework methodology and methods is considered as the most critical stage in the process of environmental perception research. The result said that is mostly influenced by multidisciplinary aspects of people's life experiences such as their social, cultural, economy, and lifestyle.

Key words: environmental perception, people's life span, framework for research methodology and methods

1. INTRODUCTION

The advances in medicine, technology and education, and a good dietary habit now lead to people living longer. Nevertheless, the cultural context and social circumstances, including characteristics of the place and the people's lifestyle, in which the whole life process is going on, are also significant aspects to support for the people survival. During their lifespan, people grow and even change, both physically and psychologically. The stages of cognitive development identified by Piaget are associated with characteristic age spans, they vary for every individual. Each stage has many detailed structural forms (<http://tip.psychology.org/piaget.html>). Human development is defined as the scientific

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study of systematic psychological changes that occur in human beings over the course of their life span (<http://en.wikipedia.org/wiki/Developmental-psychology>). The life cycle of human being consist of: baby born/ infant – childhood – teenagers – adolescence – older adults – elderly people – died. Among those classifications, they interact and communicate, and sometimes interdependence each other.

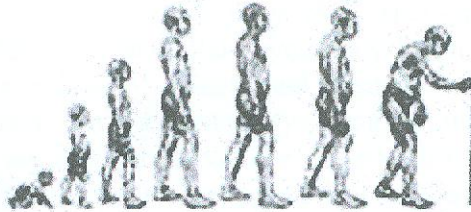


Image 1: Human Lifespan.

Source: <http://breakthroughgod.wordpress.com/category/human-lifespan>

The prolongation lifespan of human being will be supported by surrounding environment where they live in. Hence, the idea of sustainable settlement needs to be known among all generations in the community to stay survive. Interacting with or experiencing different environments will be very useful, as Golledge (1991) noted that the interaction between users and environment could be direct and active, as would be the case when a person lives in, travels through, or otherwise physically experiences a particular environment.

This paper will present firstly the knowledge about environmental perception and environmental experience. Then, it continues with the multidisciplinary issues in urban environment design where the people live. It will be followed by some case studies conducted with the environmental perception approach. Finally it will discuss the advantages and disadvantages of the methods in order to develop a framework of methodology and methods in environmental perception research.

2. LITERATURE REVIEWS

Environmental Perception – Environmental Experience.

The study of environmental perception seeks to understand the impressions of settings and places, establishing an aspect of everyday experience and interrelationships between the built environment and users (Bosselmann, 1987). There are three types of response during the perception process Pocock (1974). First, the designative aspect which concerns description and classification. Second, the appraisive aspect that relates to emotion, in the sense of feeling, value and meaning, and also general evaluation of the aesthetics. Third, after passing both these two earlier stages, the prediction and inference follow. The basic component of the process is the experience. It can be based on past experience, perception of present experience, and future projection.

Environmental perception process involves the interaction of human physiology, development, experience, and cultural sets and values with outside stimuli (Sanoff, 1991, 14). Thus, the process of reactions will be influenced by the first sense such as visual, auditory, tactile, that people receive from the stimuli (Hesselgren, 1975; Canter, 1977; Garling and Evans, 1991). Its process relates to human senses, and is always influenced

by psychological aspects such as emotion, awareness, and attitude, environmental perception is thus also closely related to environmental psychology. Environmental psychology itself can be defined as *'the study of the transactions between individuals and their socio-physical environments'* (Cassidy, 1997, p.4). Another definition is also offered, i.e. *'the application of psychological knowledge and method to understanding the process and implications of the human-environment transaction and applying the insight attained to improving the quality of the experience'* (p.240). In addition, Proshansky (1987) said that environmental psychology has to consider its past, present and future relationship to psychology, behavioural or social sciences, design and physical science disciplines. Similarly, environmental psychology should also address the people-environment relation as an integrated concept of interdisciplinary sciences, and the methodological foundation to theoretical constructs and processes will contribute to the qualitative improvement of future environments (Sime, 1999, 204-205). Therefore, environmental psychology should be concerned with the way in which people construct their world individually and through shared perceptions, cognition and discourse over time. In another sight, Gustafson (2001, 11-15) indicates that a place is not only a physical environment, but also as a symbolic, historical, institutional and geographical environment. As a consequence, the complete knowledge of the environment could be constructed through the whole cognitive processes of the users' experiences in that particular environment. Based on that, a place may not mean the same things to everybody and meanings of place may even emerge from conflicts about how places should be defined. Such conflicts, including a matter of subjectivity, will involve different valuations of meanings and places.

Moos and Lemke (1984) assert, *"... Cognitive appraisal processes mediate some person-environment transactions, and they influence efforts to adapt (coping) and the results of such efforts (outcome). An individual's appraisal is affected to varying degrees by both personal and environmental characteristics..."* (p.163). It can be understood if people have already known their daily living environment well, and they might also have a strong place attachment on it, so that the adaptation effort to handle the stability and changes of the situation would be easier.

Regarding the interrelationship between person and environment, a person may seek, choose, or create an environment in order to satisfy his/her needs and preferences (Lawton, 1990). Whereas, Kitchin (1994) emphasises, a cognitive ability is a mental ability to construct or to enable a person to predict the environment which is too large to be perceived at once, and to establish a matrix of environmental experiences into which a new experience can be integrated. Physical setting of the visual representation of environmental attributes plays an important role in ability to cope with diversity of the environment itself. Consequently, the continuation of people's environmental experiences will be synergically in harmony.

The relation of people-environment will include the subjective experience of environments which connotes action or behaviour within the environment (Bechtel, 1997). Golant (1984), emphasises that every individual will produce different environmental experiences due to various reasons, and the environmental information generated by the behaviour is also processed and perceived in different ways. The person, who has lived longer in the same environment is more likely to have been experiencing

the environmental influence and adaptation level in his/her behaviour style and activity pattern (pp. 241-249).

Wider worldview concept of life are constructed from a basic environmental experience during the childhood, and developed by the improved cognitive ability and structure of intellect over the lifespan. The fact that environment is changing. Human cognitive structures also change through the process of adaptation, which are assimilation and accommodation (<http://tip.psychology.org/piaget.html>). The process of assimilation occurs when new information is introduced to a person. It involves the interpretation of events in terms of existing cognitive structure. While, the process of accommodation refers to changing cognitive structure in order to make sense of the environment. In other words, it occurs when the person recognizes schema to accommodate himself / herself with the environment (<http://facultyweb.cortland.edu/andersmd/PIAGET/5.html>). People respond to the environment through sensory mechanisms that have been triggered by some form of environmental stimulation (Sanoff, 1991, 26). Sensory stimulation plays a significant role in motivating as well as guiding behaviour. Based on the statement from Berlyne (1960), as quoted in Sanoff (1991, 26): *the more complex the stimuli, the stronger the investigatory reflex elicited*, therefore the diversity, complexity, novelty and ambiguity in a composition are conditions which lead to arousal and attention. However, too many stimuli can also lead to confusion or even stress. The continuation process and improvement quality of environmental experiences will support the ease of environmental adaptation process to reduce environmental stress and to cope with all kind of dramatic environmental changes.

Multidisciplinary Issues In Urban Environment Design

Constructing a conceptual framework for qualitative assessment of the design of urban form needs to consider a number of approaches. The most relevant to the context of urban environment is the morphological approach as developed by Conzen (1969), Whitehand (1981), and Moudon (1997). The morphological approach includes the changes of physical elements and transformation of their functions and uses over period of time. This approach is also useful when constructing the conceptual framework to analyse how the urban form of places as well as the meaning and effects of changes of those places, support or not the people in their regular pattern of activities.

The transformation of uses and functions due to the changes of physical morphological elements affect the spatial structure links as well as the whole spatial hierarchy of the urban-region relationship. The city is the accumulation and the integration of many individual and small group actions, governed by cultural tradition and shaped by social and economic forces over time. *"The urban form is a constantly changing entity concentrated in an interrelationship between the producers and the human activities of the people living there..."* ((Moudon, 1997, pp. 3-10). Therefore, beside physical elements, other interdisciplinary fields contributed to the changing process and creative production of the urban tissue such as social and cultural aspects, political and economic forces, and are important to include in the analysis to understand the historical transformation of the urban development.

Based on the morphological theories, further continuing activities and uses of the environment over certain periods of time are incorporated with the social-structural

quality to form the character of the contextual environment. Consequently, multidisciplinary aspects of socio-cultural-psychological human involvement and historical context of the urban experiences, including the pattern and distribution of uses, are significant factors to be considered in order to re-examine the complete urban environment design. Moudon (1997) brings to light that three fundamental components of urban morphological research rely on form, resolution, and time (p.7). The urban morphology approach considers the city not as artefact, but as organism, where the physical world is inseparable from the processes of change to which it is subjected (op. cit., p.9), whether to fill or to complete the development.

3. RESEARCH MODEL:

Summary Issues of The Study Cases

The principles of environmental perception mention the interrelationship between humans and the surrounding environment. The explanation of how people perceive and value their surrounding can be approached through their experience, attitudes, cognition and interpretation, activities and behaviour. Therefore, for the purpose of obtaining qualitative assessment, it emphasises the perceptual experience, attitudes, cognition, and behavioural issues of the supportive living environment for people. This is for the purpose of understanding how the qualities of physical form and spatial structure can generate better functional places to support the *vitality* of people's life. Hence, the interrelationship between urban morphological approaches and the principles of urban design quality provide basic concepts to formulate a more constructive and contextual framework analysis for the urban form pattern, pattern of use and the assessment of the living environment.

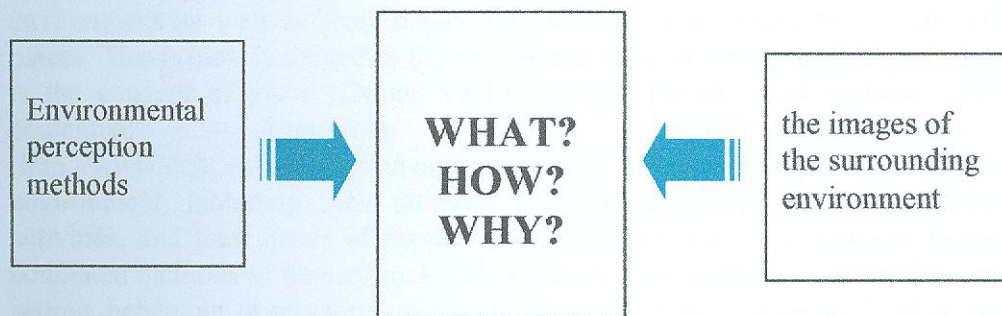


Diagram 1: basic understanding of environmental perception methods

Using the diagram above, the previous study about environmental perception of public spaces in the city of Yogyakarta by the author indicated that some quality aspects of the urban design in Yogyakarta already exist (Rudwiarti, 1994). Although different quality aspects of urban design are important for people, and those important qualities are mostly culturally specific, such as philosophical value of macrocosms and social traditions.

Another study about environmental perception of the elderly people in Yogyakarta (Rudwiarti, 2000, 2003), resulted in some varieties of cultural traditions were found very beneficial to support the ageing life span. For example, regular gatherings of the

community group and the involvement in social and cultural events increase their social interaction. The protection of the social harmony in the neighbourhoods can increase elderly people's perception of safety and the prominent respect towards people who are older or in higher position can also encourage them to build their self-esteem. This study also showed that the attachment of cultural history onto the elements of environmental design is one of the important memorable cues to be easily perceived when constructing the images of environmental comprehension. As the case study settings and the elderly respondents were culturally specific, the inquiry methods had to be contextual and culturally acceptable.

The recent study by the author about "Identification of the changes of physical setting and the activity system on the routes of Trans-Jogja bus" (2009) using environmental perception principles for behaviour setting also noticed that the proses of environmental modification should consider affordance concept of the physical setting, which includes habitability and behaviour comfort as well as physical design alternatives.

Other study projects conducted by the groups of students of the Architecture Department, Atma Jaya Yogyakarta University, in order to fulfil the assignment requirement of the optional subject course of Environmental Psychology and Behaviour indicate that the context of setting and specific profile of the users play important roles in environmental perception study.

4. DISCUSSION

In previous case studies, there is an indication that the application of methodology has to take into action its specific social and cultural context of settings. Whereas, the methods of inquiry employed in the study related to the environmental perception principles, basically to seek how people perceive the surrounding environment where they experienced daily living. It comprises of their attitudes towards the surrounding environment as well as their behaviours to cope with everyday life in certain living places. This is closely related to the conceptual topic in environmental psychology, which is the concept of place (Evans, 1996), looking for the relationships within the full contextual framework in which they occur (<http://www.ucm.es/info/Psyap/iaap/evans.htm>). Eliciting people's perceptions of the environment, including their attitudes and interpretations, their daily behaviour and activities, and their needs of support the quality of life, was achieved through several combined methods of inquiry such as interviews, questionnaires, direct observation of the setting, behaviour observation, and focus group discussion. One study also employed the main idea of the interactive workshop involving various actors in the multidisciplinary urban development process to assess the proposal of the urban design strategy. Each method obtains useful data that can be crossed-analysed to answer the research questions and to fulfil the overall aims. Every method had its advantages and disadvantages. However, they could compensate each other to provide and to construct more comprehensive data resources in order to get better results.

In utilizing the questionnaire and interviews, it is important to consider cultural politeness and social ethics. The process firstly asked for their permission and willingness to be respondents of the study, then confirmed their time availability to be interviewed or for collecting the questionnaires. The interviews and questionnaire methods obtained

enormous data on people's perceptions of the daily living environment, including their needs for supportive independent everyday life. Whilst, the analysis of the existing environmental qualities that can encourage people's independent life was fulfilled by reviewing the written documents, and was also supported by direct observation. Unfortunately, the shortage of documentary reports and formal regulations as well as urban policies, was one of the constraints. Similarly, lack of users' assessment and post occupancy evaluation of the existing urban environment also limited the public quality control.

In some cases, direct observation survey also needs to consider the situational constraints such as unstable political complexity and socio-economic crisis. Unpredictable and unpleasant weather conditions such as heavy rain during suitable times for outdoor activities made people limited their outdoor activities, and it was difficult to manage the survey methods of behaviour settings as well as behaviour mapping of the regular basic uses of the spaces. Those situations above also led to a problem in applying conducted walks, one of the dynamic simulation techniques. Consequently, instead of bringing people for conducted walks to be aware and understand the problems of the setting, the slide/video presentation method was employed to bring the environment images to people. This technique fulfilled the objective of obtaining people's awareness of the environmental problems.

In fact, slide presentation was very effective in bringing to mind the memory and understanding of the surrounding daily environment concerning the 'what', the 'where', and the 'why'. In addition, by comparing the existing condition with other examples, - for instance by presenting the images taken from other cities in western countries -, it simulated participants to think about further enhancement and to articulate their expectations regarding the improvement of their surrounding neighbourhoods and in wider context of urban environment. Wider ideas were expressed in the group discussion. This focus group discussion was more intense in obtaining further detailed information after preliminary outcomes were found out from previous methods such as questionnaires, interviews, and observation.

In practice, selecting participants to get involved in the focus group discussion needs special skill. Time should also be taken into account, and the accessibility to reach the venue should also be carefully considered in selecting a convenient place to conduct the event. In addition, considering cultural context and social tradition, several methods such as interviews and focus group discussion needed to be modified and used special skill of communication techniques with the people, to make the methods more applicable and practical.

In summary, to construct an appropriate framework of methodology and methods of inquiry in environmental perception research, it is essential to take into account a more detail knowledge of social-cultural context of the people, and involving various professionals in multidisciplinary subjects who are concerned with the provision of urban environment where the setting of life takes place.

5. CONCLUSION

In general, people's perception of the immediate environment is one of the manifestations of public participation in assessing the built environment. It is very useful in bridging the

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gap between professionals' views and users' views. This kind of research evidently gives feedback to the urban development actors to review and carry out the post occupancy evaluation of the design environments in order to provide better quality built environment. However, an absence of special appropriate guidelines for such urban design projects sometimes creates a suspension of the quality improvement of the urban areas.

Based on a range of the combined-models of inquiry methods developed in this environmental perception research methodology can be modified and applied to different groups of people in order to encourage people's involvement. A variety of combined model can be generated to obtain people's participation from different groups and for various objectives of the evaluation of urban environment studies. Thus, multidisciplinary aspects in urban system are needed to complement the comprehensive understanding to construct a more responsive urban environment from different perceptions.

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