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Procedia - Social and Behavioral Sciences 42 (2012) 311 – 319

Procedia
Social and Behavioral Sciences

AcE-Bs 2010 Kuching

ASEAN Conference on Environment-Behaviour Studies, Riverside Majestic Hotel,
Kuching, Sarawak, Malaysia, 7-8 July 2010

Exploring Housing Attributes Selection based on Maslow's Hierarchy of Needs

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Abstract

Meeting the user's needs is essential in housing delivery. Therefore, designers are required to consider personal motivations in the housing decision making process. The authors consider that Maslow's theory on hierarchy of needs is applicable in explaining user's motivations in housing. The theory indicates that different levels of user's needs imply different levels of housing expectations, hence different house attributes. This paper discusses a theoretical framework developed by the authors to summarize the relationship between the user's needs and the attributes of housing units. By systematically linking the user's needs to architectural attributes, person-environment congruence (PEC), hence suitability of living environment, will be improved.

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Keywords: Housing design process; human motivations and needs; housing attributes; housing preferences.

1. Introduction

Culture exerts a great influence on the development of living environments. It is often expressed in terms of needs, values, dreams, ideals, images, norms, standards and meanings (Rapoport, 2000) which

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are in fact motivational factors that determine a users' selection of housing design. A householders' self-esteem and self-actualization also motivate them to create a living environment appropriate to their expectations (Barbara Miller, 2007). Several works have been dedicated to the importance of relating housing design to the demands of the aforementioned motivational factors. Schulz (1985), for example, stresses that a house is more than its material structure. Despite the fact that many designers are aware of this, the major shortcomings of current houses remains their inability to fully satisfy the needs of residents particularly in terms of figural quality and spatial images (Schulz, 1985). Although modern houses are practical and healthy, they lack "meaningful" forms, as Gaston Bachelord (1994) has stated. A housing space must be something more than a physical structure, in which the users' various levels of needs can be considered. Designers should learn from vernacular architecture, which implicates local culture on built environment in the form of special environmental characteristics that represent the people of a particular place (Oliver, 2006). Cultural expressions motivated by these factors are in fact filtering agents in determining a user's housing preferences and choices (Rapoport, 2000). Therefore, paying attention to the demands of these personal factors is central to achieving person-environment congruence (PEC) hence a suitable living environment in housing.

2. Lack of attention to human's motivational factors in housing provision and its consequences

Providing a suitable living environment is made possible by meeting users' preferences (Rapoport, 2000), all the more so when they are allowed to personalized their houses (Jusan, 2010). Therefore, it is necessary to investigate the relationships between architectural attributes and user's motivations to achieve person-environment congruence (PEC). This is because PEC is fundamental in creating a suitable place, and is considered central in creating a sense of home (Jusan, 2010). The lack of attention to human motivations in the housing provision process originates from the impact of current life styles and related social facts.

As an example, mobility, as one of most highlighted characteristics of the modern lifestyle, leads to "placelessness," which causes lack of place attachment (Tall, 2007; Fullilove, 2004; Norberg-Schulz, 1988). Place attachment is one of the most influential factors in humans' psychological health, and is therefore powerful in constructing an individual's identity (Tuan, 2007, Oliver, 2006a). Also, individualization or privatization is another phenomenon of the modern community leading to an individual feeling less attachment to the community, thereby weakening their sense of responsibility to society (Utekhin, 2007).

Professionalization or disconnection between users and designers has been regarded as a dimension of the modern era that has also led to the lack of attention given to traditional know-how and its associated skills and innovations (Israel, 2003; Oliver, 2006b). In an architectural context, "specialization" or "personalization" of living environment is weakened because of the impact of professionalization (Israel, 2003). The most important consequence of this phenomenon is the poor level of attention given to user's motivational factors in the design of built-environment (Oliver, 2006b). The impact of professionalization, along with some of the factors imposed by the modern community, i.e. globalization, rapid rate of urbanization, population growth, lack of resources, and technological achievements have changed the definition of housing, and hence decision makers' attitudes, into more economic motives (Gang Meng and Hall, 2006). Consequently, a house has become an economic product, and consideration of humanistic aspects of a living environment has gradually decreased.

The most critical psychopathological consequence of the aforementioned impact of the modern life style is a phenomenon called "uprootedness", or "root shock". "Uprootedness" is a traumatic stress reaction to the destruction of all parts of one's emotional ecosystem interrupting personal identity (Fullilove, 2004; Weil, 1952). All of these imposed issues and their impacts negatively affect a person's

psychological health and well-being. To avoid the negligence of humanistic values in housing and the related damages, the design of the environment must be properly linked to personal factors.

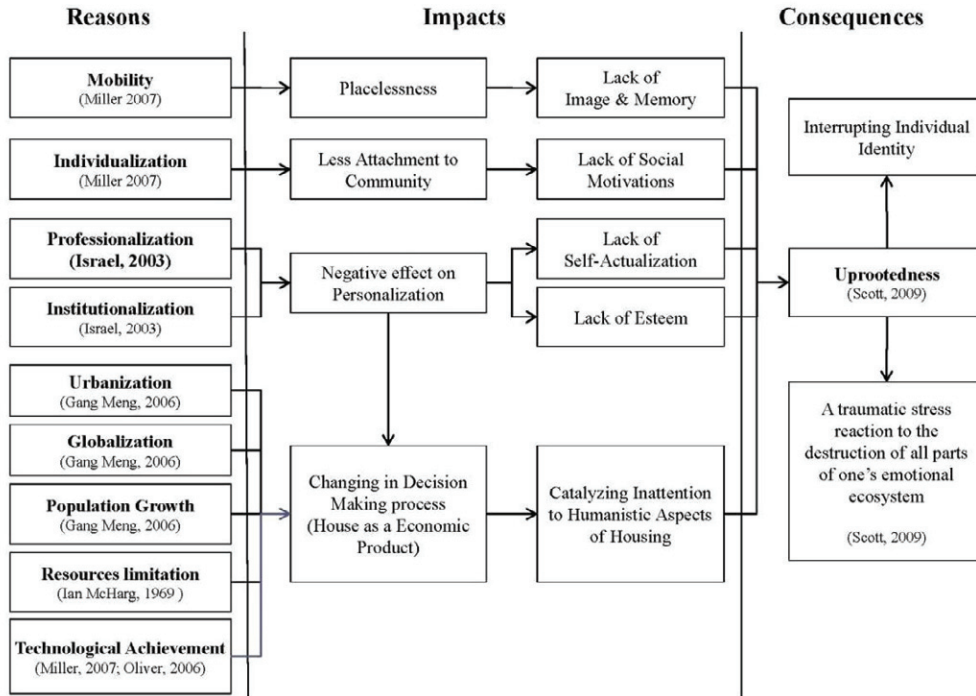


Fig. 1. The reasons behind inattention to human motivational factors and the consequences

3. Maslow's hierarchy of needs

Culture, as viewed by Maslow (1970), is a reflection of a person's motivations in response to the effects of external agents imposed from natural and built environment (Figure 2). According to Maslow (1970), satisfying the basic needs of a person is important for developing and actualizing potentialities and capacities of the person in society. His theory of human motivation explains people's different levels of needs without their superficial differences, using a concrete and tangible approach, and a specific classification. This theory focuses on the origins of human needs by highlighting a pervasive and universal definition of these motivations.

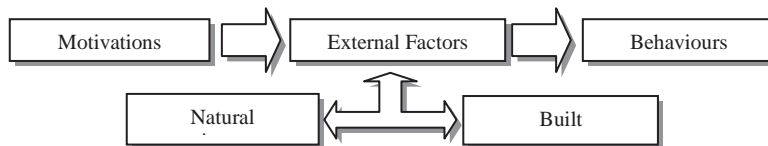


Fig. 2. External fields as a transition between motivations and behavior. Source: Maslow, (1970).

Maslow's (1970) classification of needs consists of five levels of cognitive needs, including physiological needs, safety needs, belongingness and love needs, esteem needs, and the need for self-actualization. In addition, he introduces two interrelated levels of self-actualization needs: the first is a level of conative needs, which he termed desire to know; and the second is a level of both cognitive and conative needs known as aesthetic needs. According to him, a perfect and healthy man is a person who is properly satisfied in terms of these basic needs in equal measure. These motivations are usually unconscious in character, yet can be conscious, with suitable techniques, in sophisticated people. Maslow (1970) considers these basic needs as the origins of every other humanistic issue because he believes every humanistic issue, despite their superficial differences, has the same origin. These basic needs are subject to change due to the impact of external factors imposed from built and natural-environment (Figure 2). As a result, a variety of differences is produced in the form of cultural and social beliefs and values. According to this theory, gratifying one's basic needs plays a significant role in creating prosperous human lives. Thwarting the response to these needs leads to psychopathological results. It can be expected that different levels of needs play important roles in the character formation of everybody. Also, there must be some consequences which result from the gratification of those needs. According to Maslow (1970), some of the most significant consequences of needs gratification are:

- Changing interests lead to changing values, causing reconstruction in the philosophy of the future, utopia, heaven and hell, and the good life, along with the unconscious wish-fulfillment state of the individual in a crudely predicated direction.
- With these changes in values, changes in cognitive capacities such as attention, perception, learning, remembering, forgetting, and thinking must be expected.
- These gratifications play a strong role in personal character formation, and can be helpful for improving and strengthening the healthy development of an individual's personality.
- Some other specific ad-hoc results of basic needs gratification. For instance, all factors being equal, satisfying safety needs specifically brings a subjective feeling of safety.

It can be concluded that fulfilling these different levels of needs has a considerable influence on human characteristics. Gratification of these needs helps to reduce psychological and physiological disorders, contributing to human health improvement and personality formation (Maslow, 1970). It can be argued that understanding these basic needs is also vital in the context of providing housing. The process of producing a living environment from planning and designing to operational stages can be more relevant to users' expectations if decisions are made with reference to their different levels of needs.

3.1. Putting Maslow's Hierarchy of Needs in the Context of Housing Provision

Several studies in the housing field indicate that houses are built to accommodate different levels of expectations. Banham (2007) and Oliver (2006a) suggest that residential spaces can be classified into three levels namely shelter, house, and home. Unlike a house, a home is much more than a physical structure (Oliver, 2006a; Bachelord, 1994). Shelters are provided to protect people, whereas the creation of a home represents deep social structures. It is important to note that the distinctions are not trivial, sentimental or romantic, but fundamental. According to Oliver (2006a), 'house' is a denotative concept, which is a 'small dwelling' describing the physical structure of the building, whereas 'home' is a connotative concept. Home is a symbol of the lives spent within it, which means it is connotative of the deep structures of a social system and how these are reflected in the family's relationships to the domestic space it occupies.

Bachelord (1994) posited that there are personal factors affecting the establishment of a home namely, intimacy, daydreams, imagination, and memories. According to him, a house is a "large cradle" that is a human being's first world. In support to this notion, Schulz (1985) has suggested that a dwelling

functions as a place to meet others for the exchange of products, ideas, feelings, coming to an agreement with others, accepting a set of common values, and also being oneself. For an individual, a dwelling is the small chosen world of the person. This approach highlights that a living environment must be provided by direct connectivity and participation of its occupants in order to reflect their personal and individual needs. By failing to promote connectivity and participation in the production of a house, physiological needs, along with the need for safety and security cannot be properly gratified. As a result, the provided living environment will not be able to respond to complete the more basic needs of the users.

Efforts have been made to systematically link human needs to their living environment, which will be helpful in identifying operable definitions in architectural design. Some works have been dedicated toward understanding the nature and the effects of certain human motivational factors on the living environment. Jusan (2010), and Coolen and Hoekstra (2001) for example experimented with the association of user-values and housing attributes based on the theory of means-end chain. Jusan's (2010) investigation was carried out on renovated houses. Later, Zinas and Jusan (2010) expanded the research model by identifying users' housing preferences. The authors of this article are attempting to expand upon previous studies based on user-values - housing attribute relationship, into investigating the effects of Maslow's different levels of needs on housing attribute preferences.

Research works linking Maslow's hierarchy of needs and the built environment have been carried out by a number of authors. Works by Israel (2003) focused specifically on housing design. The technique "Sociogram exercise" employed by Israel (2003) is an approach - developed based on Maslow's hierarchy of needs - for translating user's images about his/her living environment to a specific type of territory. The process begins by identifying a family's environmental genealogy and its relevance, including facts and fiction, in order to uncover the user's deeper personal and family roots. This is followed by recording the name of large scale settings in which the user had lived, in chronological order from birth to present, uncovering patterns of the user's place choices. Through this exercise the importance of family, material, comfort, education, and beauty issues are represented when selecting a certain category of place to settle. The next process is known as "design psychology" which is conducted by drawing a map of a user's childhood living spaces in order to identify the character of a place from the users' environmental roots and imagination. She suggests a hierarchical classification of different types of housing based on of Maslow' hierarchy.

Her study is one of the first efforts to provide a user-centered approach in housing context by facilitating their proactive participation. This is because she tries to make housing decisions with the participation of the end-users of the space. Israel's (2003) methods are suitable for investigating psychological attributes in design process for a particular user who is in direct communication with the designer. However, the technique may not directly applicable in areas where the users are not known such as in mass housing projects, and where the designers are to represent the user-clients (passive participation) in creating housing units in a mass housing scheme.

McCray and Day attempted (1977) to investigate housing related values, aspirations, and satisfactions based on Maslow's Hierarchy of Needs. The work was carried out on a group of low income rural residents, living in private houses, and a group of low income urban residents, who live in public houses. He discovered that urban public housing units can only provide for the physiological needs of the residents. Deficiencies of this housing type in environmental factors, i.e. location, community services, and social aspects adversely affect the satisfaction of higher level of needs. This suggests that user's satisfaction in a house, although dependent on economic or social status, is related to the gratification of the user's higher psychological expectations such as intimacy, love, sense of belonging and freedom. It is important therefore that investigation into a person's mass housing preferences be undertaken in two important phases of home making, namely, the design phase of the initial housing units, and the future personalization works by the occupants.

4. Developing a Theoretical Framework

A theoretical framework to explain the association of Maslow’s hierarchy of needs and housing preferences has been developed based on the earlier theoretical models introduced by Rapoport (2000), and Jusan and Sulaiman (2005). The model established by Rapoport, (2000) suggests that the evaluation of built-environment depends on evaluative variables that arise from culture (Figure 3). The built-environment is filtered by cultural factors, which include ideals, values, dreams, etc. According to him, housing choice is a consequence of the user’s preferences formed through this evaluation under the imposition of external constraints i.e. economic, political, informational, prejudice, legal, etc.

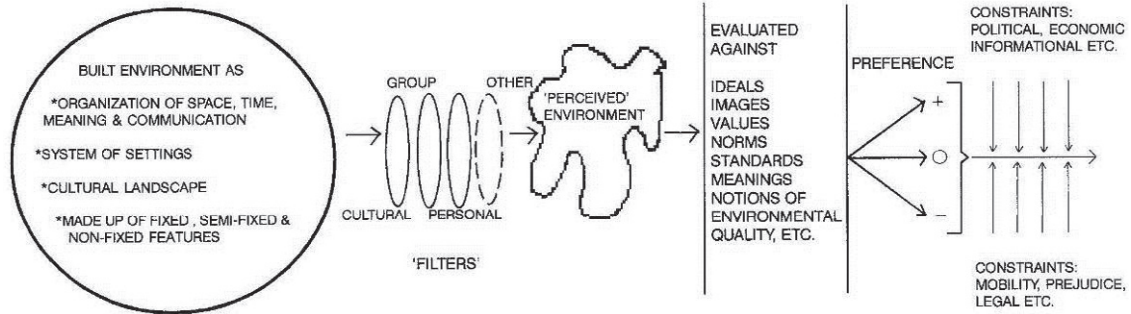


Fig. 3. Model of evaluative process based on user’s perception. Source : Rapoport, (2000)

Expanding on this model, a theoretical framework of personalization has been developed by Jusan and Sulaiman (2005). It is a process of evaluating person-environment congruence which leads to personalization (Figure 4). Both of the concepts systematically explain the relationships between motivational factors and architectural attributes. In addition, Jusan and Sulaiman’s models facilitates the process of categorizing and classifying living environment attributes based on their response to user’s values. In the model developed by Jusan and Sulaiman (2005), “culture” is considered as a filtering agent that determines the suitability of the environment to the user, which is termed as “person-environment congruence.” The element of culture that they emphasize is the user’s value – a personal factor that determines one’s choice process. The state of the environment as being congruent or incongruent to user’s values will determine the corrective measures (termed as personalization) which need to be taken by the user.

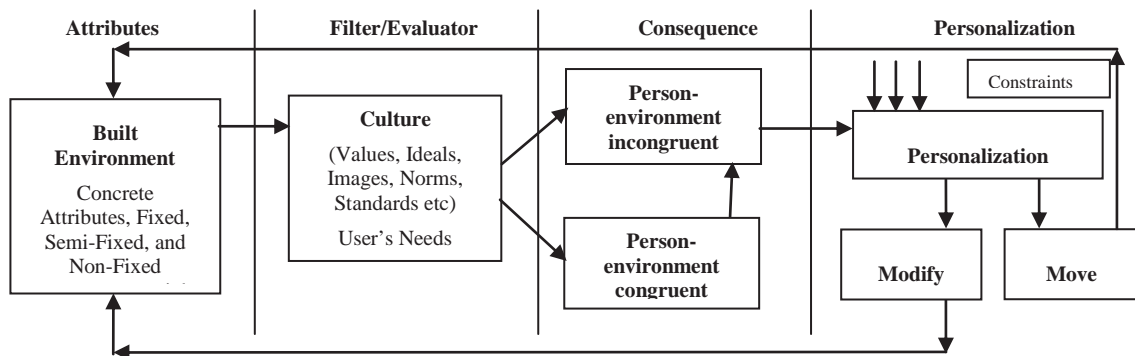


Fig. 4. Theoretical model of personalization in built environment. Source: Jusan and Sulaiman, (2005).

Personalization according to Jusan (2007) is the act of making one’s territory relevant to his/her values. The process of personalization that is in the form of modification or movement tends to be inevitable and is a continuous process, due to the continuous changes of user’s needs throughout his/her life span.

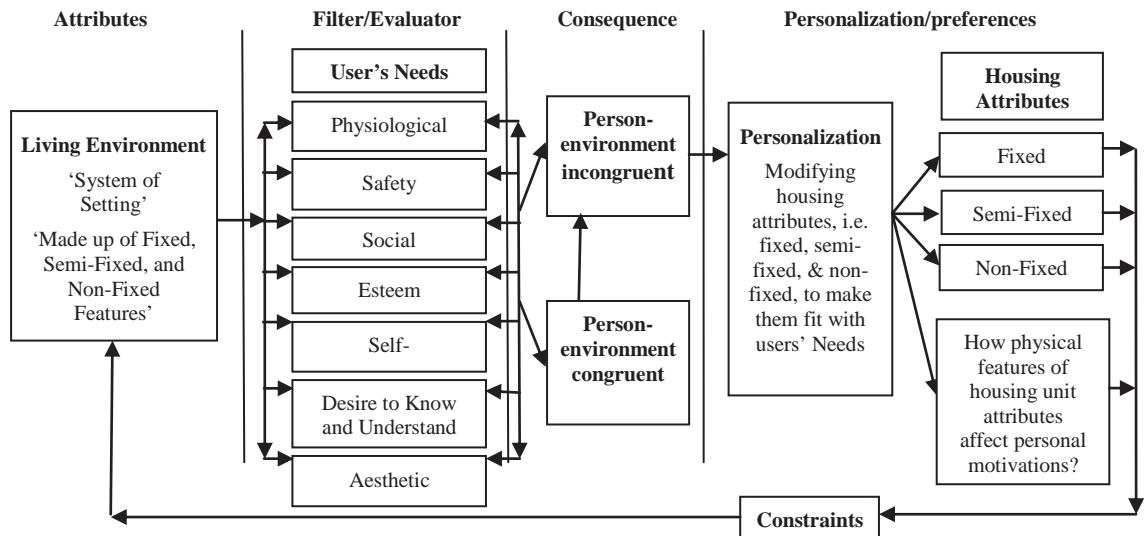


Fig. 5. Theoretical model of personalization in built environment

Considering the above discussions about motivational factors, it is necessary to develop a concept representing the role of different levels of needs in provision of housing. This is because although the user’s cultural values are the most significant determinants of their housing preferences, the most critical and fundamental stage is to specifically highlight the users’ exclusive motivational level and the relation between architectural attributes and the user’s needs. Once the motivational level and the relations were clarified, cultural interpretation leads to identifying a set of tangible and concrete architectural attributes to properly satisfy these motivations. Otherwise, the diversity of the motivational factors and the ambiguity of the relations with architectural attributes make it impossible to apply them properly. As a result, developing a theoretical framework to address the issue from a basic needs perspective is essential. The theoretical framework should be able to explain how the different levels of needs filter the built environment and eventually suggests how architectural attributes i.e. fixed, semi-fixed, and non-fixed, and their physical dimension including their visual composition and appearance can be associated with the users’ motivations.

Both models of evaluation discussed earlier are based on cultural elements which suggest systematic approaches to understanding users’ motivational factors in relation to housing attributes. To the authors, it is possible to consider Maslow’s hierarchy of needs as the origins of cultural elements as a filtering or evaluating agent. Therefore Jusan and Sulaiman’s (2005) model of personalization can be modified to suit the purpose of this study, in which the different levels of needs are shown in the model as evaluating agents. Other filtering elements indicated in the earlier models are considered as still relevant but are not shown in this model (Figure 5). Indeed, the user’s needs are emphasized because it is believed that they are the origins of other motivations, and their definitions are more tangible and concrete, and include a specific classification.

Referring to Figure 5, the outcome of the filtration process is personalization by meeting user's preferences, which are expressed through the housing unit attributes choices. To be more operable in the design process, the attributes are to be defined as "fixed", "semi-fixed", and "non-fixed" (Rapoport, 2000). Jusan (2005) discovered that the attributes for fulfilling a user's design expectations are more likely to be in the form of concrete attributes.

5. Conclusion

In conclusion, this paper suggests that ignoring human motivational factors in home making - which is a common phenomenon in the current trend of mass housing provision - may lead to individual and social dissatisfaction and disorder. Although several studies have been carried out on person-environment relationships, its operable definitions applicable to housing design are still scarce. With the current trend of mass housing delivery, there is an urgent need to establish usable data on preferred attributes for housing unit's design process. It should be usable for designers in designing the original housing unit, and to address user's design expectations in personalizing the provided houses. This also implicates that studies should be done on how the housing unit's concrete attributes (fixed, semi-fixed, and non-fixed attributes, their visual composition and appearance, along with their dimensions and location, etc.) can facilitate the gratification of users' housing needs at different levels. By doing so, adaptability of the architectural attributes by the user can be predicted during the decision making and the design process. Finally, establishing systematic linkages between architectural attributes of housing units and user's motivational factors is considered as fundamental to quality housing unit design, if quality is measured from environment-behavior point of view. For this purpose, Maslow's hierarchy of needs can be potentially useful in establishing data on living environment attributes suitable for the achievement of person-environment congruence in housing.

Acknowledgement

The authors gratefully acknowledge University Teknologi Malaysia for using its various facilities in the research and preparation of this paper.

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