



Iranian household values and perception with respect to housing attributes



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ARTICLE INFO

Article history:

Received 28 December 2015

Received in revised form

26 April 2016

Accepted 27 April 2016

Available online 6 May 2016

Keywords:

Quality housing

User value

Value creator

Perceptual orientation

Means-end chain

Laddering

ABSTRACT

Designing houses matching user's values is essential for delivering quality housing. However, designer-user gap and difficulties in identifying Iranian household values have resulted in developing inappropriate houses. Therefore, this study has been set to investigate user perceptions of value creators in dwelling space design and to clarify user's perceptual orientation toward housing attributes. Data were gathered from the occupants of mass-produced apartments built in Bushehr, Iran through two sequential complementary stages. Examining 15 occupants using MEC model and soft laddering were followed by distributing 150 hard laddering questionnaire surveys. Based on our findings, value creators encompass psychological and functional aspects. Value creators included provision of beautiful environment. Furthermore, designing efficient building which also provides adequate space was vital. Providing occupant comfort and privacy and at the same time enhancing their intimacy and integrity were also seen as crucial. The desired aspects of housing environment also involved a pleasant environment which improves human vitality. Providing designers with occupants' mental process and perception results in enhancing the appropriateness of dwelling space design.

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1. Introduction

Recently, quality has been one of the significant issues in the construction environment and quality and quality improvement have been receiving increasing attention all around the world (Janipha & Ismail, 2013). Quality improvement necessitates creation of value for future would-be users (Åslund & Bäckström, 2013). Siu (2003) believes for the purpose of delivering suitable (appropriate) design solution, designers should prevent themselves from imposing their values on the end-users. Moore (1979) maintains that the values of architects differ from those of the users they purport to serve. However, mass houses are designed disregarding prospective house buyers, hence neglecting user values. Turner and Fichter (1972) opened up the discussion about the value of housing. They argued incongruities between individuals' socio-economic and their cultural situations and the provided dwellings lead to emerging housing issues. Disregarding the values and social aspects affects residents negatively, especially the design of a house (Abbaszadeh, Ibrahim, Baharuddin, & Salim, 2009). Kujala and

Väänänen-Vainio-Mattila (2009) considered users as an essential dimension in value creation. Designers who have forgotten elicitation and incorporation of the real needs and activity patterns of the user have produced unacceptable systems. Kowaltowski and Granja (2011) attribute recent noticeable issues in the delivered houses to mismatches between values of consumers and designers. Failure to meet user values in the context of housing design in Iran has brought forward inappropriate as well as incongruent living environment. Asadi and Tahir (2012) consider this mismatch to be of great concern.

Enhancing the quality of future would be built houses requires identifying factors which create values for users. Perception of value creators as the factors which generate values for users and allowing them to meet their values is highly influenced by user psychological values and user experience. User psychological values are valuable factors in a certain usage situation and context. User experience refers to a comprehensive view to users' in-depth needs and motivations (Kujala and Väänänen-Vainio-Mattila, 2009). Pemsel, Widén, and Hansson (2010) conclude that the foundation of housing design quality depends on a thorough understanding of occupants' needs. In spite of the significance of occupant needs and concern as the factors which set the stage to

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achieve user values, identifying and realizing those needs has not always been successful (Sherif, El-nachar, & Shehayed, 2007; Voelker, Beckmann, Koehlmann, & Kornadt, 2013). Weidemann et al. (1982) attribute failures of many public housing projects in meeting house buyers' needs to lack of knowledge about the physical aspects of housing quality. Morris and Winter (1975) claim that housing needs are seldom explicitly defined. Voelker et al. (2013) conclude that few studies have been conducted that explore the needs as well as requirements of occupants as well as the way that those needs are weighted. Seneviratne, Amaratunga, and Haigh (2011) conclude that based on reviewing the literature, very little data was found on the definition of housing needs. Apart from Kowaltowski and Granja (2011), studies investigating valued aspects of residential living environments are scarce.

Perceiving environmental settings in different manners along with lack of a clear understanding of crucial aspects of housing design perceived by users presented designers with challenges to design appropriate mass houses which meet the occupants' values. The concept of value has a crucial role in the construction industry (Devine-wright, Thomson, & Austin, 2003). The significance of value in the context of housing has been discussed by several authors (Hentschke, Formoso, Rocha, & Echeveste, 2014; Jansen, 2014; Kowaltowski & Granja, 2011). Determination of factors leading to meeting values is key to ensure quality (Schauerte, 2013). Identifying attributes and options that can successfully create value for clients is crucial for housing delivery system organizations (Hentschke et al., 2014). However, determination of value creators as the essential requirement for delivering quality housing has not received enough attention. Therefore, the objectives of this research are to determine factors which create values for the users and also to explore users' perceptual orientation with respect to housing attributes. Data for this study were collected through a mixed methodological approach utilizing a soft laddering and a hard laddering method of the Means-End Chain (MEC) model.

2. Research methodology

2.1. Procedure for getting ladders

MEC model using both soft laddering and hard laddering technique in a complementary way were used to examine the end-users' perception of factors which create users values. MEC model is used as the instrument for examining user behaviour and perception based on their values (Gutman, 1982; Jusan, 2010; Phillips & Reynolds, 2009). MEC has been defined by Gutman (1982) as a model that tries to give details as to how a product or service selection facilitates accomplishment of a desired valued end state. Reynolds and Gutman (1988) describe laddering as a tailored interview which basically uses a group of directed probes, typified by the 'why is that important to you?' question, with the express goal of determining sets of linkages between the key perceptual elements across the range of attributes (A), consequences (C), and values (V). According to this theory, products are chosen because specific product attributes lead to fulfilling their desired values by means of the benefits or consequences of using that specific product (Reynolds & Gutman, 1984). The sequential connections between Attribute-Consequence-Value are known as ladder or means-end chain. Laddering is categorized into "soft" and "hard" laddering technique (Voss, Gruber, & Szmigin, 2007). Originally, MEC was developed in the context of marketing studies to explore the association between users' values and their choice behaviour. However, its application has become prevalent in other domains (Veludo-de-oliveira, Ikeda, & Campomar, 2006). Housing studies is one of the areas which have benefited from this model (Alaraji & Jusan, 2015; Bako & Jusan, 2012; Coolen & Hoekstra, 2001;

Hentschke et al., 2014; Jusan, 2010; Lundgren & Lic, 2010).

Through adopting MEC and hard laddering approach using Association Weight Matrices (AWM), this study aims to investigate value creators in dwelling space design and to determine end-users' perceptual orientation. However, developing the attribute–consequence (AC) and consequence–value (CV) association matrix questionnaires required determination of the significant attributes, consequences, and values. To do so, the important elements of value chains including attributes, consequences and values were obtained through adopting MEC model utilizing soft laddering interview. The qualitative soft laddering interview before conducting the hard laddering provided the elements required for developing the questionnaire survey and structuring Association Weight Matrices (AWM). For this purpose, 15 mass housing occupants through a purposive sampling were selected for the soft laddering stage and interviewed individually. Each house had one representative to participate in the interview session. Perceiving some kinds of inappropriateness of their dwelling design and also willingness to participate in the interview session was the selection criteria. The laddering interview with each interviewee was done in respondents' home. The average time for each interview was approximately one hour. At the first stage, data were gathered through the modified version of laddering approach proposed by Coolen and Hoekstra (2001). Instead of conducting the laddering from the attributes level which is most common, ladders were studied from the level which people conceptualize their preferences motivated by their actual needs known as consequence level. Consequently, the laddering interview did not follow from the bottom up but from the middle out. Efforts were made to determine both values and attributes. During the interview respondents were asked to think about what kind of purpose, functions and characteristics are crucial to them. Identifying the expected factors using "What" questions was followed by asking "How" questions to identify the necessary attributes to meet those expectations and then asking "Why" questions to determine the reasons behind the importance of those expected vital factors. The qualitative soft laddering interview data in MEC were processed manually, and the data analysis was conducted using a content analysis tool. Data were analysed and coded according to the relevant works (Gutman, 1982; Jusan, 2010).

Table 1 shows the found elements of value chains including attributes, consequences, and values from the first phase and also provides the abbreviations used for the elements of Association Weight Matrices (AWM).

2.2. Constructing association matrices

Establishing the value paths and determining the association between attribute–consequences and consequences–values utilizing soft laddering interview served for constructing AC and CV association matrices. In order to establish the association matrices, the attributes were listed in the columns and the consequences in the rows, creating a table of all combinations of attributes and consequences. Each column also contained an importance factor that allowed respondents to specify the perceived importance of each attribute and consequence with value ranging from 1 to 10. In the same way, the CV association matrix listed consequences and values. This type of matrix is defined as the association pattern matrix (Hofstede, Steenkamp, & Wedel, 1999). The Consequence-Value association matrix included in the questionnaire is depicted in Table 2.

2.3. Constructing aggregate association matrices

In order to construct the aggregate association weight matrices,

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