

USING THE MEANS-END APPROACH TO UNDERSTAND PERCEIVED VALUE BY USERS OF SOCIAL HOUSING PROJECTS

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ABSTRACT

The production of social housing projects in Brazil has been criticized for systematically failing to meet the requirements of final users. This criticism comes mainly from post-occupancy evaluation studies carried out by academics. However, most of those studies have focused on the evaluation of housing product attributes, without considering the overall benefits resulting from the project. Due to the complexity of housing products, it is necessary to devise evaluation methods that enable a systematic analysis of the consequences for users. The purpose of this study is to propose a conceptual model that adapts value hierarchy concepts into the social housing context, based on the means-end chain theory. The secondary aim of this study is to propose guidelines for modelling value generation for final users of social housing projects, with the aim of supporting decision making during the product development process. This study was divided into four stages: (a) understanding existing social housing programmes in Brazil; (b) development of the conceptual model for value generation in the social housing context, based on value dimensions proposed in the literature; (c) development of a method for representing value generation in social housing projects; (e) assessment of the proposed solution through the evaluation of a housing project.

KEYWORDS

Value, housing, product development, means-end theory.

INTRODUCTION

Several post-occupancy evaluation surveys (POE), mostly undertaken by academics, have criticized the quality of social housing, pointing out that the information produced in those studies have not been duly considered in the development of new projects (Lima 2009; Ornstein 2005). This fact has to do both with the lack of mechanisms for feeding back the results of evaluations in decision making processes, as well as with the nature of the evaluations that are carried out. In fact, most evaluations conducted in the housing context are focused on the physical characteristics of dwellings, neglecting the benefits that should be achieved by the project as a whole (Coolen and Hoekstra 2001).

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According to Woodruff and Gardial (1996), in the evaluation of a product in use where consumers are asked only about the product's attributes, the understanding of value formation does not become clear. Hence, in order to gain a better understanding about , it is necessary also to explore the desired consequences and objectives of the product in use, clarifying the different levels of abstraction in the perception of the outcomes (Woodruff and Gardial 1996).

Coolen and Hoekstra (2001) proposed a hierarchical approach to model value generation for housing products, applying the laddering technique (Reynolds and Gutman, 1988a), based on the means-end chain perspective (Gutman 1982a). One of the main contributions of that study was to address the need of a research method that facilitates the construction of hierarchical maps, due to the large number of attributes involved in the housing product.

Bonatto et. al. (2011) adopted a mapping technique for modelling value generation for social housing projects, based on the three hierarchical levels proposed by Woodruff and Gardial (1996), attributes, consequences, and desired end states of the product. Kowaltowski and Granja et al. (2011) also organized the results of a survey with social housing users in a hierarchical way, although the relationships between different abstraction levels is not explicitly represented. Both Coolen and Hoekstra (2001) and Bonatto (2011), highlight the difficulty of building hierarchical value maps due to the complexity of the housing product. The large number of attributes that form the product and the large number of relationships among them make it difficult to build a consistent representation. This points out the need for in-depth studies on the modelling of value generation, so as to enable to devise better representations of the outcomes of the research studies, so that these can support decision making in the development of SHPs.

The main purpose of this paper is to propose a conceptual model that adapts value hierarchy concepts into the social housing context, based on the means-end chain theory. The secondary goal of this study is to propose guidelines for modelling value generation for final users of social housing projects, with the aim of supporting decision making during the product development process, considering the tasks performed by different stakeholders, such as funding agents, designers, and developers. This study is limited to the preliminary evaluation of one social housing project from the *Minha Casa Minha Vida* (My House My Life) Program.

PRODUCT VALUE PERCEPTION

Value generation is an issue that has been discussed in different areas of knowledge, including marketing, economics, social sciences and engineering (Salvatierra-Garrido et al. 2010). Despite the fact that the concept of value has been widely discussed, its abstract character and the peculiarities of each field of knowledge have prevented the achievement of a consensual definition (Sánchez-Fernández et al. 2007; Sweeney and Soutar 2001; Woodall 2003).

For Woodall (2003), the existence of different concepts means that this term has been used to express different meanings. However, several conceptualizations imply a perceived experience, derived or experienced by a customer when he/she explains his/her psychological connection with the consumption of a specific product or service. (Woodall 2003).

The first approaches to value were from a utilitarian point of view (Monroe 1979; Zeithaml 1988), which is associated with the functional value of a product or service. This approach comes from neoclassical theory and it is traditionally linked to the price of a product or service and to the income of consumers, who are considered rational beings seeking to maximise the utility of the product (Sweeney et al. 1996). According to Monroe (1979), this definition may be represented by an equation, where the value perceived by the customer is the reason between perceived benefits and sacrifices.

Zeithaml (1988) and Sinha and DeSarbo (1998) also adopts a utilitarian approach, in which value is the “global evaluation of the consumer about the utility of a product, based on the perception of what is given and what is received”. By contrast, there are authors who understand the concept of value as a generator of several interrelated attributes or dimensions (Babin and Babin 2001; Holbrook 1999; Lemmink et al. 1998; Overby et al. 2005), i.e., from a complex phenomenon conceived based on the perspective that value is both utilitarian and hedonist. In this case, the concept is considered from a multidimensional point of view (Sánchez-Fernández and Iniesta-Bonillo 2007), which originated from consumer behaviour psychology. This point of view differs from the previous one mainly for having a cognitive-affective approach.

According to Lemmink et al. (1998), since perceived value includes utilitarian and hedonist factors, it is evident that affective components, which reflect the emotional and entertainment value, are incorporated in the conception of value. Woodruff and Gardial’s (1996) concepts of Value Hierarchy, Hartman’s Axiology of Value (1967, 1973) and Holbrook’s value typologies (2006) fall within this approach.

THE MEANS-END CHAIN MODEL

The means-end chain model was proposed by Gutman (1982) to describe how consumers categorise information about products in their memory, seeking to understand the behaviour that leads consumers to a make a purchasing choice. Subsequently, Woodruff and Gardial (1996) expanded this model, considering not only the desired value upon purchase, but also the value received during use of a product.

The means-chain model was originally created to establish an association between the characteristics of a product-in use and the motivations that lead to consumption. For Gutman (1982), the means are represented by the products or services in which individuals engage, and the ends are valued states of being. According to Reynolds and Olson (2008), the means-end chain model connects the concrete attributes of a product (tangible attributes) with the emotional and personal values (abstract and intangible objectives) through a chain with six levels of abstraction: concrete attributes, abstract attributes, functional consequences, psychological consequences, instrumental values and terminal values.

The concrete attributes are inherent to the product or service that can be directly perceived (for example, monetary value, colour, brand name). Abstract attributes are aspects of the product or service that cannot be measured or perceived through the senses, as they are not a physical part of the product itself (Zeithaml, 1988). They are, by definition, outside it (for example, quality, reputation) (Gutman 1982a; Zeithaml 1988). The functional consequences emerge from the direct relationship between the consumption of a product and the individual and are related to the utility of the

product in a specific use situation (Overby et al. 2004). The psychosocial consequences are related to the ability of a product or service to satisfy intrinsic objectives that are symbolic, self-oriented or other-oriented, i.e., projecting an image that is congruent with the norms of meanings of others (Overby et al. 2004). The instrumental values are intangible goals related to the behavioural means used to achieve the ends (Barrena and Sánchez 2009). The terminal values refer to desired end states (for example, happiness, security, accomplishment) (Barrena and Sánchez 2009; Gutman 1982a).

The representation of these hierarchical levels through a visual device, such as a hierarchical map, can help decision makers involved in the provision of a product to understand the value generation for the users of that product.

THE LADDERING TECHNIQUE

The laddering technique was proposed by Reynolds and Gutman (1988b) with the aim of understanding how consumers translate products' attributes into meaningful associations with regards to self, following Gutman's (1982) means-end theory. Thus it is possible to specify the content and the structure of the outcomes of users' behavior when judging a specific physical characteristic, which originates in the attributes and extends to the objective, going through the consequences and the personal values to achieve an end (Reynolds and Gutman 1988b).

The main source of evidence used in the laddering technique is a one-to-one, in-depth interviewing technique, in which the interviewer uses a series of directed probes in order to elicit a scale with abstraction levels, linking the functional attributes of the product to the desired end states (Reynolds and Gutman 1988a). The term *ladder* expresses the main goal of this technique: to go from the more superficial to the deeper levels, from the more tangible to the more conceptual levels by using open questions and hence obtain a hierarchical structure for the attributes, consequences and values of a specific product in use.

Reynolds and Gutman, (1988a) proposed five steps for the application of the laddering technique: (a) in-depth interviews; (b) individual analysis of the raw data, allowing the conversion of data into separate phrases; (c) identification of key elements through the analysis of the interviews and codification of the elements, originating the summary codes; (d) analysis of the relationship between the elements identified through association in an implication matrix; and (e) construction of a diagram to represent the main implications, named Value Hierarchy Map (VHM).

RESEARCH METHOD

The research approach adopted in this study was constructive research, also known as design science. This approach is concerned with devising artefacts that serve human purposes, which should be assessed against criteria of value or utility (March and Smith, 1995).

Based on the steps proposed by Lukka (2003) for constructive research, this investigation was divided into five main steps: (a) understanding the real problem: that included obtaining an overall view of housing provision in the *Minha Casa Minha Vida* (My House My Life) Programme, and understanding the product development process in projects for families; (b) obtaining a deep understanding on the topic area: the literature review was focused on different value dimensions

proposed in the literature; (c) development of the artefact - a conceptual model was proposed after an empirical study, by adapting concepts from the field of marketing, mainly those about value hierarchy, to the housing context; (d) testing of the proposed model: the model was tested in an evaluation study carried out for a social housing project; and (e) examining the scope of applicability of the solution and analysing the connections with previous theoretical knowledge.

The main sources of evidence at stage *a* were: (a) interviews with technical staff from Caixa Econômica Federal (CEF) – the funding agency; and the analysis documents about the *Minha Casa Minha Vida* Programme.

Stage *b* consisted mainly of an in-depth study of the literature, evidences from stage end the evaluation undertaken in stage *c*. Therefore, this stage was concluded only after stage *c*, which allowed a refining of the conceptual model.

Stage *c* took place in 2012, and it consisted of the evaluation of a housing project from the *Minha Casa Minha Vida* Programme, situated in Canoas, in the metropolitan region of Porto Alegre, Rio Grande do Sul. The evaluation was done through 35 questionnaires. In this case, for the value perception analysis, the answers used were those in the critical incident section. This section presents two open questions aimed at identifying the best and worst characteristics of the project, from the point of view of the users. Each interviewee is asked to mention the five positive and five negative characteristics that are foremost in his mind, without necessarily reaching that number. For each answer, the interviewees were also asked repeated questions about the meanings that a specific attribute or consequence had in his/her life or why it was important. For instance, some interviewees were asked questions like “Why is this important?” “What does it mean to you?” and “What is the significance of the product having (not having) this attribute?”

The answers were organised in a database and converted into separate statements, which subsequently originated a set of keywords. These words were associated by affinity, based on their meaning translated into constructs for the context under study. Finally, the relationship among between those constructs were analysed, and then the Value Hierarchy Map (VHM) of the project was established.

The results of the evaluation led to the identification of a set of constructs that contribute to the value generation from the point of view of final users and also their hierarchy.

RESULTS

CONCEPTUAL MODEL

The conceptual model proposed was based on the value dimensions proposed by Sánchez-Fernández and Iniesta-Bonillo (2007), on the Value Hierarchy proposed by Gutman (1982), Woodruff and Gardial (1996) and on the conceptual model of value hierarchy for SHPs adopted by Bonatto et al. (2011), and its main goal is to establish relationships between the constructs analysed in the literature and the scope of the housing product. The aim of this model is to contribute for the understanding of value generation in the context investigated, as well as be used as a framework for designing evaluation studies focused on the perception of final users.

Based on the model first dimensions of value – economic and psychological (Gallarza and Saura 2006) – it is possible to make an association with the two

perspectives according to Sánchez-Fernández and Iniesta-Bonillo (2007), represented by the uni-dimensional and the multidimensional approaches (figure 1).

In the economic dimension, value is related to the perceived price through what is known as value of operation (Gallarza and Saura 2006), demonstrating the utilitarian aspects. Based on the evolution of the concept, this aspect can be characterized by its one-dimensionality (Sánchez-Fernández and Iniesta-Bonillo 2007), which is related to the rational and functional aspects of a product-in use. When these definitions are aligned with the value hierarchy model by Gutman (1982), Woodruff and Gardial (1996) (Figure 1), the base of the conceptual model can be related to the more concrete aspects of the housing product. These aspects are represented by the scope of the SHP (Bonatto et al. 2011a), consisting of the parts of the SHP (housing unit, common use areas and surroundings), which represent the concrete attributes of the hierarchy, as well as the services (social project and use management) and other abstract characteristics of the unit or common areas, which represent the abstract attributes.

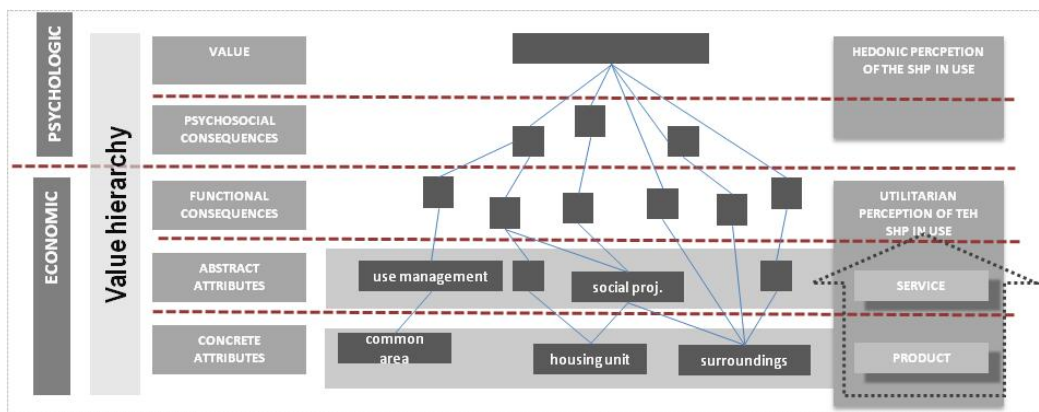


Figure 1 – Conceptual model (done by the authors, following Gutman, 1982)

In the psychological dimension, value is influenced both by emotional and rational aspects (Gallarza and Saura 2006). Therefore, it is characterized by Sánchez-Fernández and Iniesta-Bonillo (2007) as a multidimensional concept, as it relates the rational and functional aspects to the affective aspects that reflect the emotional and entertainment value. Hence, it is possible to associate the higher levels of Gutman (1982), Woodruff and Gardial's (1996) value hierarchy, which represent the terminal values, the instrumental values and the psychosocial consequences, with the emotional, social and psychological value dimensions. The latter are, in turn, associated with the hedonic perception of value of the SHP, as they represent the capacity of the SHP to satisfy the intrinsic objectives of an individual, which are symbolic and can be self-oriented, as, for example, to have privacy, or other-oriented, such as to enhance one's social status by living in a specific place. Moreover, they are associated with the highest level of the value hierarchy, generally represented by the wellbeing of users, representing the instrumental and terminal values of an SHP in use.

GUIDELINES FOR MODELING VALUE GENERATION

The method of representation of value generation in SHPs comprises five steps, based on the conceptual model and on the development of the empirical evaluation of the SHP under study, as described below: (a) formulation and application of the collection tool; (b) preparation of data for analysis: conversion of the answers into keywords and construction of the ladders; (c) data analysis: codification of the elements and analysis of the relation between the elements (implication matrix); (d) construction of the VHM; and (e) identification of dominant perceptions.

First of all, it was necessary to create the data collection tool, based on the proposed conceptual model. It is crucial that the questions allow answers that contemplate the different levels of abstraction. In order to do that, it is recommended that the semi-structured interviews.

In the housing context, it is important to ask about the entire scope of the product. One suggestion is to divide the open questions into three blocks: (a) housing unit, (b) common/condominium areas and (c) surroundings.

After data collection, the answers are organised in a data base. In order to do that, the researchers analyse all respondents and their respective answers to reduce the number of words and allow the data analysis to be conducted. Based on keywords, it is possible to build the ladders, also denominated A-C-V sequences, expressing, in a summarised manner, the cognitive structure of the respondents as they associate attributes, consequences and end values or objectives of a product or service-in use.

The data analysis can be undertaken manually or with the aid of specific software to collect data using the means-end chain method. In this study, only the computer analysis will be presented, according to the empirical study evaluation, which was done on software called MecAnalyst[®].

Finally, the respondents' individual sequences are aggregated in an implication matrix that represents all the relations among the elements. In addition, the dominant connections between the elements can be represented graphically in the Value Hierarchy Map (VHM), which is the main outcome of the laddering technique.

The VHV made it possible to identify a set of constructs that contribute to the value generation by the users of the SHP under study. The map represents the concrete attributes at the lowest level of the hierarchy, which represent the characteristics that are inherent to the housing product and which can be directly measured or perceived, as, for example, the dimensions and layout of the rooms. In the next level of the hierarchy are the abstract attributes, which represent the tangible aspects of the housing product that cannot be measured or perceived by the senses (Gutman 1982a), for example, facilities management, quality of the construction and fixtures.

The psychosocial consequences can be divided into personal and social consequences. The personal consequences are related to the capacity of the housing product to satisfy the intrinsic objectives of final users (Overby et al. 2004), in other words, to satisfy the objectives related to the emotional value, which can be symbolic or self-oriented, as, for example, personal accomplishment, family harmony, socialising. The social consequences are related to the capacity of the housing product to project an image that is congruent to the norms of society (Overby et al. 2004), for example, status.

Finally, at the top of the hierarchy are values that can be terminal values or instrumental values and they represent intangible goals related to the behavioural means used to achieve the final objectives (Barrena and Sánchez 2009) and the desired end states (Barrena and Sánchez 2009; Gutman 1982a) through the use of the housing product.

Figure 2 shows that the hierarchy value map. One important contribution of this kind of model is the identification of the dominant chains of the VHM, represented by the thick lines. These chains represent the sequence of attributes, consequences and values that contribute most to value generation in a specific project. The calculation is done automatically by the software, based on the centrality and on the index of abstractness of each element.

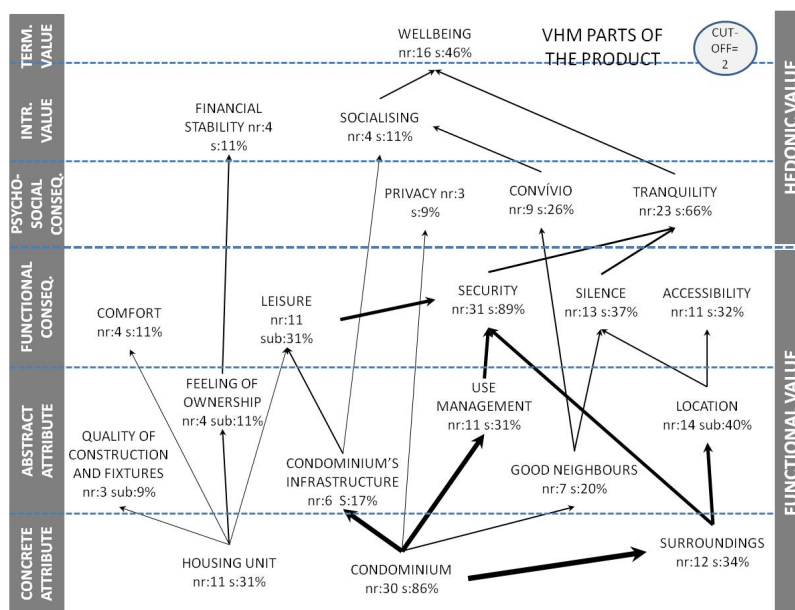


Figure 2: Value Hierarchy Map with the main constructs identified

DISCUSSION

After the empirical study and the construction of the VHM, it was possible to make a more in-depth reflection about the Conceptual Model (Figure 1). In essence, the proposed model considers that the complexity of the housing meaning can be explained based on two categories: utilitarian (functional) and hedonist (emotional). The utilitarian aspect can be represented by the basic need for housing and, in this case, it can be translated by the concrete and abstract attributes and by the functional consequences of an SHP in use. One example of that is evident in the VHM (Figure 2) in the attributes referring to the characteristics of the condominium, *location* and the functional consequence *security*. The hedonist aspect can be represented by the symbolism of the dwelling, and it can be translated by the psychosocial consequences and by the end values of an SHP in use. Examples of that are the consequence *tranquillity* and the value *wellbeing*.

The utilitarian and hedonist division and the constructs mentioned demonstrate that there is a division between the hierarchical levels of the model (Figure 1), represented by the thicker line, i.e., in the lower part are the physical characteristics of

the product and users' requirements, represented by the concrete and abstract attributes, as well as the functional consequences. On the upper part are the psychosocial consequences and the terminal and instrumental values. This conceptual division emerged after a reflection about the constructs, resulting in the empirical study hierarchical value map. The relationships between the scope of the product and the value dimensions proposed in the literature highlight how important it is to consider the evaluation of the housing product from a broader perspective.

This conceptualization may bring an important contribution to value management, since it enables a broader understanding of value generation to be used. It suggests that there is a need for data collection and processing methods for modelling clients' perceived value based both on utilitarian and hedonic characteristics. This is particularly important in the social housing market, due to the roles that such products have in the improving of living conditions of the low-income (or no-income) population.

CONCLUSIONS

The purpose of this study was to improve value generation of social housing projects, by modeling the value perceived by their users, based on the means-end chain theory. The main contributions are concerned with guidelines for modeling perceived value and the proposition of a conceptual model for the housing context, in which different levels of abstraction are used (means-end chain). The hierarchical perspective proposed in the model aims to improve the understanding of perceived value, highlighting the relevance of each component of the housing product and its relationship with the consequences and the objectives in use. Based on this method, visual devices can be created, in order to support decision making by different stakeholders, at different stages of the product development processes. The consideration of the levels of relevance and abstraction in value generation provides useful information that can also support strategic decision-making by funding agents and developers of SHPs.

Further studies are still necessary in order to test the proposed modeling method in real projects, and also on devising ways for expediting data collection.

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