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Original Research Article

A Process Oriented Model of Residential- Housing Congruence (Case Study: Contemporary Housing in Yazd)

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Abstract

Problem statement: Assessing a desirable living environment hinges on the compatibility between human needs and the built environment, making it a crucial factor. Consequently, numerous studies have focused on the concept of compatibility. Despite extensive research, there is still no practical theoretical model for studying the compatibility process in the relationship between residents and their residences. Many studies have focused on the outcomes of compatibility and incompatibility between residents and housing, considering compatibility as both a consequence and a goal within the relationship. However, the compatibility process of residents to their residences is a topic that has received less attention in research.

Research objective: The primary aim of this study is to investigate how Yazdi individuals are compatible with contemporary housing. The ultimate goal is to develop a theoretical, process-oriented model for studying the compatibility of residents with their residences.

Research method: The research primarily employs a qualitative approach, and data analysis is conducted using qualitative content analysis.

Conclusion: The research findings indicate that individuals in middle housing adopt more active approaches in order to establish compatibility between themselves and their residences. They engage with the housing or modify their behavior in the space. However, in new housing, residents are less engaged with their residences, and due to the unresponsiveness of the space, they become indifferent to it. In the absence of restrictions, some even choose to relocate from their residences. Despite three critical factors, including the physical environment, residents' needs, and housing capabilities, data analysis in the study shows that residents' age and generation, participation in the construction process, housing patterns, length of stay in housing, memories, and relationships with neighbors all have a significant impact on how compatible residents are with their residences.

Keywords: *Resident, Housing, Compatibility, Yazd, Process-oriented, Theoretical model.*

Introduction

The compatibility between humans and the built environment is a crucial factor when assessing a desirable living environment. When there is optimal compatibility between the environment and individuals' needs, they perceive their surroundings as satisfying and empowering. This perception arises because the environment provides reinforcing responses for their behaviors. Numerous studies have explored the relationship between humans and their environment, considering it a significant factor in achieving a desirable living space and as a foundation for generating satisfaction with the surroundings (Shin,

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2016; Musiol & Boehnke, 2013; Ann Lodi & Raedene Combs, 1989; Mridha, 2015).

According to studies conducted on the subject of compatibility, while this concept has been investigated in numerous research works, no practical theoretical model is currently available to adequately describe the process of compatibility between people and their homes. Many studies have addressed compatibility as an outcome and a relationship goal, focusing primarily on the results of compatibility or incompatibility between residents and their housing. However, there has been relatively limited attention given to the strategies employed by residents during the process of achieving compatibility. In the present research, a process-oriented theoretical model for studying the compatibility between residents and their housing has been proposed. It connects with the relevant research on human-environment compatibility and draws from theories in the social sciences and environmental psychology. This model portrays compatibility as an ongoing and cyclical process following environmental cognition. Furthermore, the study has examined the compatibility process of Yazdi individuals to contemporary housing, taking into account cultural, social, and climatic factors as constants within a specific time frame. The evaluation has examined the compatibility strategies employed by residents and the housing structures in two prevalent contemporary housing patterns in Yazd. The significance of addressing compatibility in contemporary housing in Yazd stems from the historical context. Traditional housing in this city was constructed using the technology available at the time and in direct response to traditional human needs, frequently under the close supervision of the inhabitants themselves. However, since the Pahlavi era, when urban transformation came under external directives, the pace of physical changes in the city has far outpaced changes in residents' thoughts and lifestyles. Consequently, a substantial gap has emerged between residents' needs and the capabilities of housing, prompting residents to actively seek ways to maintain and establish compatibility.

Research Main Question

- How is the compatibility between residents and contemporary housing in Yazd (middle and new housing patterns) manifested?
- What factors exert influence on the compatibility strategies employed in contemporary housing in Yazd?
- What constitutes the process of compatibility, and what are the key factors that shape it?

Literature Review

In a large body of architectural research, the concept of congruence is used closely related to other concepts, such as "personalization of space" and "sense of belonging" (Jusan & Sulaiman, 2005; Jusan, 2010; Proshansky, Fabian, & Kaminoff, 1983). many recent studies have used it in relation to the interaction of people with limited abilities (such as the elderly) with the environment (Kahana, 1982; Moore, 2005; Kahana, 1982; Lien, 2013; Lawton & Nahemow, 1973). Much of the research on congruence has examined a general approach for defining the concept of congruence and congruence strategies (Brown & Moore, 1970; Baum & Hassan, 1999, 27; Helderman, Mulder, Clara & Ham, 2004; Ferreira, Gyourko & Tracy, 2010; Pickvance, 1973; Angell, 1984; Parrott, 1985; Ann Lodi & Raedene Combs, 1989; Crull, Bode & Morris, 1991, 57; Steggell et al., 2003, 8). In many recent researches, the concept of congruence has been considered in the interaction between residents and housing (Omar, Endut & Saruwono, 2012, 329; Priemus, 1986; Crull et al., 1991; Marchand, 2008; Crull et al., 1991, 57; Baum & Hassan, 1999, 27). little research has studied resident-housing congruence in family life cycle (Riemer, 1943; Morris & Winter, 1975).

In the field of psychology, congruence refers to alignment between an individual's needs and priorities and the data from the environment (Spokane, Meir & Catalano, 2000, 139) . Tinsley (2000) terms it as an appropriate relationship between supply and demand. Within the realm of psychology, compatibility behaviors denote a set of cognitive behaviors utilized to cope with stressful situations (Campbell-Sills et al., 2005; Tinsley, 2000). Another definition characterizes congruence strategies as a collection of actions and behaviors that an individual exhibits in novel situations to provide

appropriate responses to existing stimuli. It is important to note that this compatibility does not necessarily imply conformity and unconscious compliance; it can involve transformation (Amani, Etemadi, Fatehizadeh Bahram, 2012). In the context of the relationship between humans and their constructed environment, the concept of compatibility is defined by Moore (2005) as the degree of alignment between human needs and the capabilities of the environment. Festinger (1962), concerning residential spaces, posits that inhabitants strive to achieve the highest level of compatibility between their idealized mental construct of living space (ideal environment) and the actual living space (primary environment). Generally, in research that focuses on the theme of compatibility, two major approaches are encountered (Table 1):

1) Some perceive congruence as an outcome of a relationship,

2) Others interpret it as a process within a relationship.

In the first approach, researchers have focused on the outcomes of the person- environment congruence. For instance, some consider congruence as the desirable coordination between human needs and environmental capabilities (French, Rodgers & cobb, 1974; Kahana, 1982). Jusan perceives compatibility as a positive outcome of the relationship between humans and the environment. He contends that in the case of residential spaces, congruence is established when housing can meet the basic needs of residents, and the lack of congruence leads to psychological pressures (Jusan, 2010). Lynch defines congruence as the coordination between the physical characteristics of an environment and the patterns of activities within that environment. Popenoe in his research, also considers congruence as the desirable relationship between the environment and human behavioral patterns (Popenoe, 1977).

In the second approach, researchers have concentrated on the behaviors that users exhibit in the process of their relationship with the constructed environment to achieve alignment between their needs and the space's capabilities. For example, Lodi and Combs use the term "housing adjustment" in their research as an equivalent to compatibility behaviors. They consider housing adjustment as behaviors aimed at better fulfilling needs within housing, with the goal of achieving a more desirable living environment (Ann Lodi & Raedene Combs, 1989, 13). Morris and Winter in the context of the relationship between family and housing, define congruence as the behaviors that a family engages in throughout its lifespan to consistently meet its needs from housing (Morris & Winter, 1975, 79). Shin in his research, focuses on compatibility as part of the optimization process in the relationship between humans and space, viewing it as an endless cycle (Shin, 2016, 16).

The review of existing research in the field of congruence indicates that, despite the abundance of studies in recent years and their effectiveness in this area, three key issues remain unaddressed:

1- Despite the multitude of definitions proposed for compatibility, there is still a lack of a practical definition in architecture that can serve as a foundation for research in this domain.

2- Congruence between humans and their environment is influenced by various physical and psychological factors, shaped by past experiences, and anticipates future individual experiences (Kahana, 1982). In addition to the built environment and the user's characteristics (such as gender, personal traits, preferences, user capabilities), external factors (economic, social, and cultural conditions) also significantly impact this relationship (Winkel, Saegert & Evans, 2009). However, there is currently no comprehensive theoretical framework that can introduce compatibility strategies and identify the influential factors within their respective contexts.

3- Congruence is not merely the outcome of human-environment interaction; it is a dynamic process. Understanding this process forms the basis for recognizing the spatial needs of users in housing patterns.

The current research considers Congruence as arising from the dynamics of a relationship, focusing specifically on the interaction between residents and housing. Therefore, the research is grounded in the following definition of compatibility: Compatibility in the context of resident and housing pertains to the actions and reactions an individual undertakes upon understanding their environment. These actions aim to synchronize the

Table 1. Congruence in different researches. Source: Author.

Congruence in Different Researches		
Compatibility as an outcome of a relationship.	Jusan (2010) Moore (2005) Gati, Fassa & Mayer (1998) Tinsley (2000) Holland (1997) Lynch (1981)	Fit
	Jusan (2010) Popenoe (1977) Tinsley (2000) Spokane et al. (2000)	Congruence
	French et al. (1974)	Adjustment
	Tinsley (2000)	Correspondence
	Spokane et al. (2000) Holland (1997)	Congruence
Congruence as a process within a relationship	Altaş & Özsoy (1998) Priemus (1986)	Adaptation
	Ann Lodi & Raedene Combs (1989) Baum& Hassan (1999) Morris & Winter (1975)	Adjustment
	Omar et al. (2012)	Personalization
	Lawton & Nahemow (1973)	fit
	Kahana (1982)	Congruence

individual's needs with the capabilities of the housing or the housing's attributes with the individual's requirements.

Theoretical Framework: Process-Oriented Approach to Resident- Housing Congruence

• Congruence strategies

Various studies on individual strategies to establish congruence with housing indicate that congruence between residents and housing can manifest on two levels: one at the level of physical and material factors of housing, and the other at more abstract and qualitative levels, such as individual characteristics and family behaviors (Riemer, 1943). In this regard, two major behaviors that residents engage in to adapt to their environment are:

Adaptation of housing to individual needs; such as manipulation in space (Omar et al., 2012; Galster & Hesser, 1981; Steggell et al., 2003; Fleury-bahi et al., 2008; Brown & Moore, 1970; Shin, 2016), and or leaving the environment and moving (Omar et al., 2012, 329; Galster & Hesser, 1981; Steggell et al., 2003; Fleury-bahi et al., 2008; Rossi, 1955; Brown & Moore, 1970; Shin, 2016; Eichner, 1986).

Adaptation of individual needs to housing; such as behavior changes (Spokane et al., 2000; Omar et al., 2012; Galster & Hesser, 1981; Shin, 2016), changes in family structure, needs, values, and priorities (Steggell et al., 2003), alignment of mental imagery and ideal environment with the actual environment (Brown & Moore, 1970; Fleury-bahi et al., 2008), change of attitude (Priemus, 1986), and alignment of family norms with housing (Shin, 2016).

• Congruence strategies in the human-environment interaction process

The process of human-environment interaction has been meticulously delineated by Vicker and Ittelson in a step-by-step fashion. The congruence strategies take center stage in this process following the cognition phase. A succinct overview of this process unfolds as follows: in the initial stage of engaging with the environment, individuals exhibit affective reactions towards the environment, and these reactions are contingent upon the satisfaction level the environment provides. For instance, individuals

may perceive the environment as generally pleasant or harbor feelings of displeasure. At this stage, individuals question whether the environment aligns with their needs. In the second stage, individuals explore the physical surroundings to ascertain their spatial position, engaging in a meticulous examination of various elements such as food storage, rest areas, and more. In this phase, individuals ponder on how to harmonize with the environment. The third stage, referred to as the knowledge stage, involves seeking past experiences or acquiring new knowledge to establish connections with the environment. Additionally, individuals categorize and comprehend various aspects of the environment, such as optimal room lighting and quieter spaces. In the fourth stage, users, having categorized relevant aspects of the environment, integrate them into more complex structures and discern the interplay of different factors. At this juncture, users can anticipate feedback from their behaviors within the environment. Beyond this stage, users achieve a comprehensive coherence regarding space and environmental cognition, fostering a sense of mastery over the environment (Ittelson et al., 1974; Wicker, 1984). If users discern a dissonance between their needs and the spatial capabilities of the environment, they initiate the process of adapting their needs to the environmental capacities (Proshansky et al., 1983).

Lang in the realm of person-environment interaction, presents a model outlining the fundamental processes of human behavior. According to this model, in the interaction process between humans and the environment, environmental information is acquired through perceptual processes that are triggered by mental schemata and guided by human needs. Mental schemata take in information and undergo changes under the influence of the acquired data. These schemata not only guide perceptual processes but also emotional responses, spatial actions, and behaviors. Conversely, perceptual processes and emotional responses also impact mental schemata (Ittelson et al., 1974). The interaction process between humans and the environment is controlled, on one side, by human needs and, on the other side, by the affordances of the environment. External factors, such as cultural, economic, and social characteristics of society, also influence the human-environment interaction process. These factors affect both the user and their needs and, simultaneously, the user's understanding of the affordances of the environment. Lang's model emphasizes that after recognizing the environment, humans engage in spatial behaviors. If, after this recognition, individuals find the environment incompatible with their needs and desires, these spatial behaviors essentially become the application of strategies for creating congruence (Fig. 1).

Reconciling the congruence strategies to the Lang's model completes the cyclical model of resident- housing congruence (Fig. 2).

- Adaptation of housing to residents

Moving from the house: Residents may decide to move from one housing to another, initiating a new interaction process with the new residence.

Modification of environmental affordances: By this modification, new affordances are provided for residents and the process of resident- housing congruence continues with modified house.

- Adaptation of residents to housing

Modification of needs and family norms: Residents might decide to alter their needs and family norms due to constraints in bringing about spatial changes and transformations. In this case, with the recognition of the new environment, mental schemata are formed, and existing schemata undergo modification. Residents may even adjust their needs based on the altered schemata.

Adapting the behaviors: After cognition of the

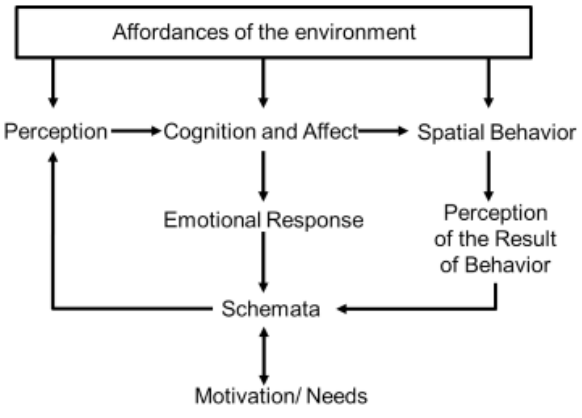

Fig. 1. fundamental process of human behavior. Source: Lang, 2007, 84.

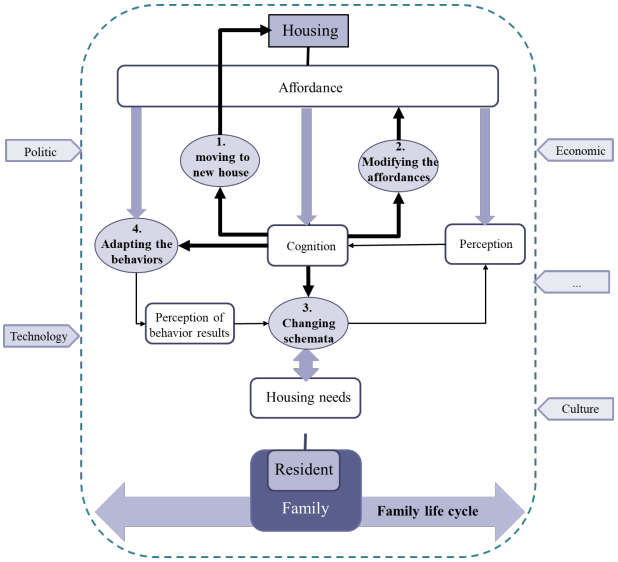

Fig. 2. The cyclical model of resident- housing congruence.
Source: Author.

environment, residents try to align their behavior with the spatial affordances. In this phase, these behaviors generate new experiences, leading to the construction of new mental schemata.

In the human-environment interaction process, as previously mentioned, cultural, social, economic, political, and other external factors influence the user, their needs, and their perception of the environment. Therefore, congruence strategies are influenced by these factors in each community. Time also plays a crucial role in this relationship. When time becomes a factor in the resident-housing relationship, the instability of this connection becomes evident. As soon as congruence is achieved with changing housing patterns, the needs of residents and environmental conditions over time challenge this congruence, prompting efforts to initiate compatibility anew.

Case Study

This research was carried out in the city of Yazd, a central city in Iran. Yazd holds a unique position as an example of a city whose social, cultural, and architectural fabric, despite undergoing significant changes since the late 1940s, still reflects the spatial composition of a traditional Iranian city during the Islamic era (Tavassoli, 2022). This historical continuity was a key motivator for selecting Yazd as the research location. In Yazd, even though various housing patterns have been constructed over different ages, the dominant patterns continue to shape daily life. This enduring characteristic provided an excellent opportunity for a comparative examination of the subject of interest in this study. The research involves Yazdi residents from three different generations: elderly families (grandparents) aged over 60, middle-aged families (parents) aged 40-60, and young families comprising couples under 40 years old with one or two children. These family groups are referred to in the study as the first-generation, second-generation, and third-generation, respectively. Further details about the contemporary housing patterns in Yazd are provided in subsequent sections of this study.

- **Middle Housing**

This housing pattern, which has been subject to the 60% occupancy law since 1942, is characterized by a courtyard that is centrally oriented within the house and typically connected to an enclosed space known as the "Iwan", a semi-open area. In these houses, the courtyard serves multiple purposes. It functions as a gathering place for residents at specific times of the day and often serves as a parking space for cars or as an entrance pathway leading to the parking area, typically through a semi-open space. These houses are customarily constructed based on the preferences and orders of the residents, allowing for a semi-traditional way of living while still adhering to municipal regulations. The architectural pattern of these houses was established during the late Pahlavi era and is still being constructed now with few changes. In the earlier examples of these houses, which represent the prevailing architectural style of the 1960s, the removal of the central courtyard led to the necessity of creating a central space for the residents. This resulted in the formation of a central hall, an enclosed space that gets connected to all rooms. The desire for natural lighting and the presence of greenery within the house led to the inclusion of a passive space adjacent to the central hall. Within these houses, the L-shaped room emerged as a critical space, serving as the reception area for guests and connecting to both the courtyard and central hall. Additionally, a private courtyard was located at the end of the ground floor, near the kitchen, serving the dual purpose of providing natural light to

the kitchen and offering services to it. The primary courtyard, as mentioned earlier, was positioned on one side of the ground floor and was typically connected to the neighboring property or the street via a wall. In more recent examples of this architectural pattern, still being constructed today, private courtyards have been replaced by light wells and passive spaces have been eliminated. In these newer designs, the parking area is situated beneath the building. To minimize the length of the ramp leading to the parking area, the building's chair ramp has been extended by approximately 1. 5 meters. The building typically comprises a half-story (approximately two meters below ground level) and a ground floor (approximately one and a half meters above ground level). This layout has significantly reduced the connection between the Iwan and the courtyard (Fig. 3 & 5).

- **New housing**

This housing pattern comprises apartment buildings or multi-story structures with shared open spaces for residents, which are constructed in a relatively uniform manner in contemporary cities today (Figs. 4 & 5).

Research Method

The data in this study were analyzed using a qualitative content analysis methodology. To establish the research concepts, both inductive and deductive methods were utilized. Initially, general concepts were derived from the theoretical framework. Subsequently, during the data analysis phase, these concepts underwent further refinement, and sub-concepts (subcategories) were deduced from the data in an inductive manner, all within the framework of the overarching concepts (Fig. 6).

- **Sampling method**

The purposive sampling method was employed, and the selection of participants was based on specific criteria derived from theoretical foundations. These criteria included the requirement that interviewees must be homeowners, that continuous communication with the interviewees and the ability to observe their activities in their living environment should be possible, and that the interviewees should be inherently from Yazd. The extremely impoverished and very affluent segments of the population, which often exhibit distinct housing patterns, were excluded from the research population. The selection of samples was carried out incrementally, and numerous decisions regarding sample case selection were made throughout the data collection and analysis process. This approach aligns with theoretical sampling, as described by (Glaser & Strauss, 1967). Data collection continued until the primary data reached theoretical saturation, signifying that further interviews no longer contributed new information or that the discussions did not contradict the existing knowledge (ibid.). The point of saturation was reached with 12 samples for the middle housing pattern and 10 samples for the new housing pattern (Fig. 7).

Data Analysis

In this section, data coding and categorization were performed, and based on the overarching concepts derived from the theoretical foundations the information was organized into tables. Furthermore, concepts were extracted from the data using an inductive approach. The text coding method used for the interviews is detailed in Table 2.

To identify compatibility behaviors, codes related to this topic were extracted from the interviews. In Table 3, compatibility strategies, the focal subject of residents in performing compatibility behaviors, are specified.

The findings from Table 3 reveal the following:

One of the primary strategies employed by residents to foster compatibility is the manipulation of space. In newer residences, this manipulation often involves modifying, removing, or adding non-fixed furniture to the space. Rearranging the furniture in the home, putting indoor plants or picture frames in pots, eliminating large furniture, and other similar tasks are included here.. Subsequently, changes in interior surfaces, such as altering flooring, wallpaper, and wall paint, as well as manipulating fixed-space furniture like wardrobes and cabinets, are commonly practiced. However, in middle housing, a greater emphasis is placed on altering the building's shell, which entails actions like removing walls between the kitchen and living room or relocating entrances. Following alterations to the building's shell,

Fig. 3. Middle housing pattern (right and middle represent the initial pattern, and left represents the recent middle housing pattern. Source: Author's archive.

Fig. 4. New housing pattern. Source: Author's archive.

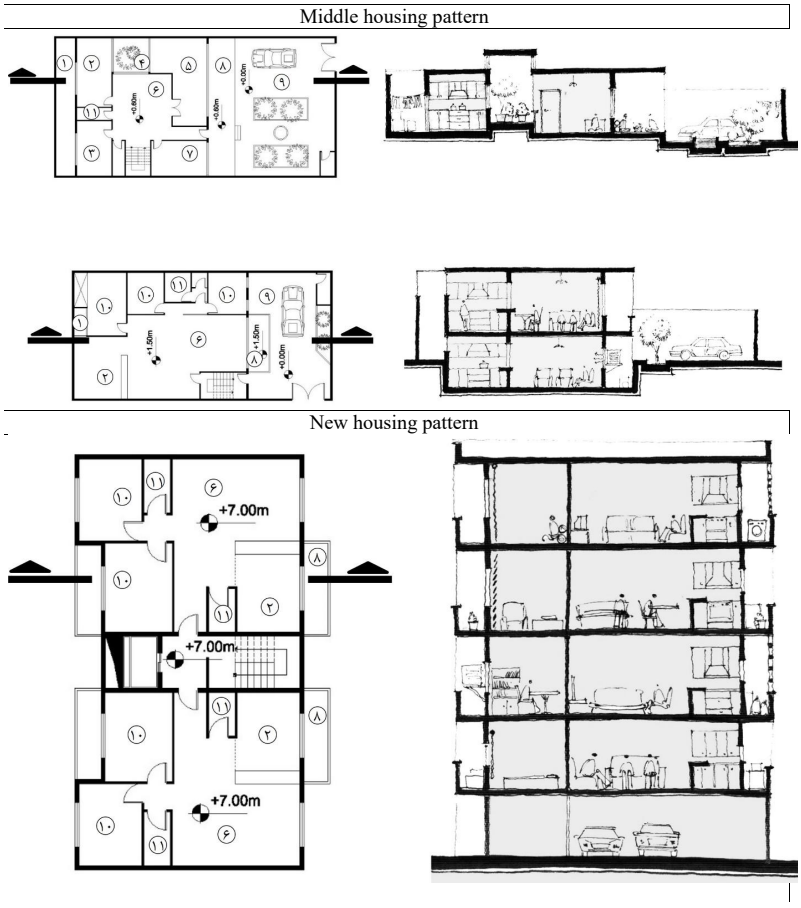

Fig. 5. Contemporary housing patterns of Yazd: (1. Backyard and lightwell, 2. Kitchen, 3. Back room, 4. Patio, 5. L Room, 6. Living Room, 7. Front Room, 8. Porch, 9. Yard, 10. Bedroom, 11. W.C and Bathroom). Source: Author.

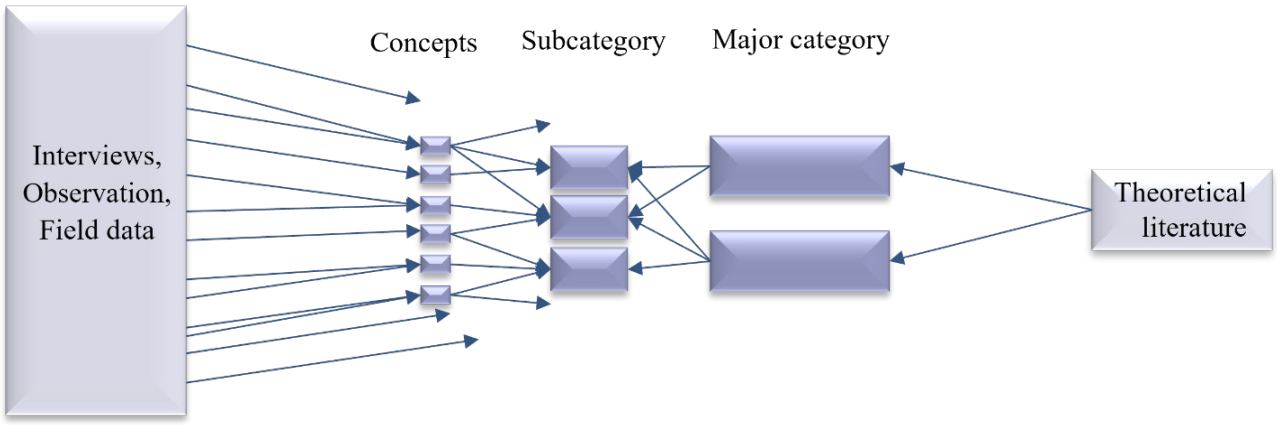

Fig. 6. Stages of research conceptual framework using deductive and inductive methods. Source: Author.

the most significant manipulations, in descending order, occur in non-fixed furniture, interior surfaces, and fixed-space furniture. In some middle housing cases, renovations to building facilities have also been undertaken, indicating that manipulations in this context tend to involve deeper modifications to the building. In contrast, in new housing, these changes are generally more superficial. Beyond manipulation, the strategy of altering the use of spaces is more prominent in middle housing. Key factors influencing this strategy include changes in family structure, seasonal variations, and various family ceremonies.

In new housing, it is rare to observe changes in how spaces are utilized, as residents tend to use them for a single function. However, the architectural and spatial attributes of middle housing offer greater flexibility in terms of space functionality. Conversely, the physical characteristics of new housing do not readily lend themselves to diverse space utilization. In the context of new housing, the predominant strategies observed after space manipulation are relocation and a sense of indifference towards space usage. Among the ten individuals interviewed, eight expressed their intention to relocate. Many residents in new housing, particularly those from the third-generation and younger families, hold an idealized vision of housing. They envision housings with courtyards, gardens, and fountains, identifying material constraints as the primary impediment preventing them from currently residing in such housings. They often convey sentiments such as, "Once I have the financial means, I intend to move to a house with a courtyard. We plan to leave this place. This house holds no value", or "I would rather relocate to a house with a courtyard and more spacious accommodations, a superior living environment in general. I am not fond of apartment living". Inhabitants of new housing, even when considering its idealized form, often view it as a temporary residence due to material constraints that currently bind them to these buildings. This perspective significantly impacts their compatibility with the space, as they may not actively seek to modify their housing or the way they utilize spaces. Consequently, they may become indifferent to their immediate environment, overlook some of their needs, or contemplate relocating. The inherent inflexibility of the housing itself can further constrain residents' efforts to establish compatibility effectively. As one interviewee expressed, "I sold my dining table and purchased a three-person table to create more space in the living area, but it didn't help. I attempted to rearrange my furniture to make the house feel more open, but it proved unsuccessful. I wanted to move the washing machine from the balcony to inside the kitchen to expand the balcony space, but it wasn't feasible. I tried everything to enhance my living space, but it didn't yield any significant changes".

The findings regarding the motivations and reasons that drive residents to make compatibility efforts reveal the following:

In middle housing, the primary incentive for compatibility efforts stems from changes in family dynamics over time. Most residents in this category have been living in their

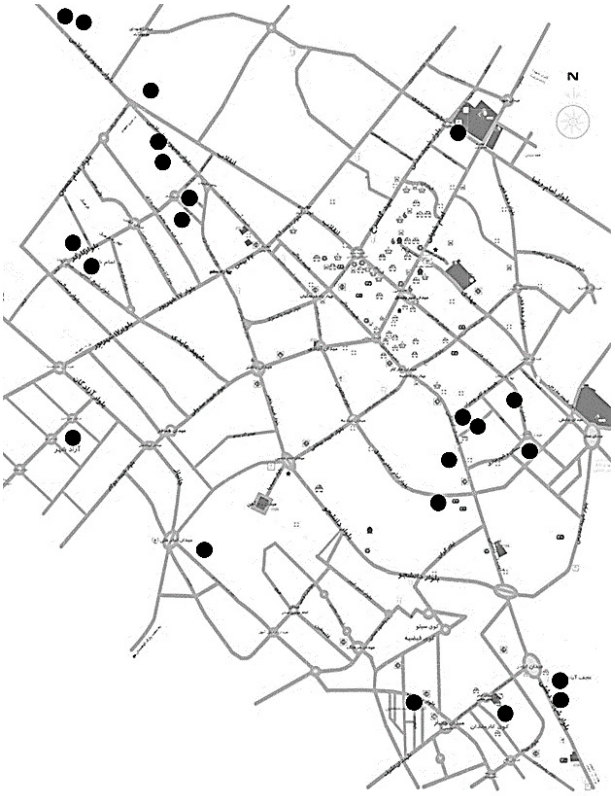

Fig. 7. Sample distribution map. Source: Author.

housings for 30- 40 years, constituting first and second-generation families. Over this period, children have grown up, married, and additional family members have joined the household, including grandchildren. Consequently, additional rooms have been added to accommodate these changing family structures, or the utilization of existing spaces has been modified. As one resident noted, "After 12-[13] years, we added a room to the house because my sister and I had grown up and needed separate space". Another resident mentioned, "My parents have aged, and it's challenging for them to navigate the courtyard stairs. That's why they use the parking lot stairs, which have carpeting and lower height". Following family dynamics, many compatibility strategies are geared toward altering the size and layout of the hall and living room spaces. Most of these modifications involve removing partitions between the hall and the L-shaped room or between the hall and the bedroom. Residents of middle housing prefer a spacious, rectangular, and integrated living area, which they find highly suitable for hosting guests, holding mourning ceremonies, and hosting various events. As one resident articulated, "We removed the doors between the L-shaped room and the patio and opened up the kitchen to create a more open and interconnected space, making the hall and reception area larger and more inviting".

In middle housing, another significant motivator for residents to make compatibility efforts, particularly concerning changes in space utilization, is the changing seasons. Families living in this type of housing, often with experience in traditional housing, have distinct seasonal behaviors. During the summer, they congregate in the courtyard, spend nights outdoors in the courtyard, and opt for the warmest room in the house for relaxation and gatherings during the winter. The behavioral territories of residents in middle housing are highly compatible, and in most of the cases studied, family members do not have designated separate rooms. Instead, space usage varies depending on the season and various situations.

In new housing, the primary motivation compelling residents to make compatibility efforts is the housing pattern itself. They prefer to relocate to a house with a middle housing pattern. However, after the housing pattern, the next driving factor motivating residents to make compatibility efforts is the size of the house's spaces. The bedrooms, living rooms, kitchens, and terraces in these houses are often quite compact. Residents' strategies for compatibility with these conditions may involve relocating to a larger house, decluttering and removing excess items, or adopting an attitude of indifference towards space. In essence, the primary sources of residents' dissatisfaction with new housing are challenges that are not easily resolved without considering a change in residence.

The analysis of data obtained from the case study reveals that the following factors influence compatibility strategies:

Duration of residence in the housing: The findings suggest that the longer residents have lived in a housing, the more challenging it becomes for them to consider moving. people who have lived in the same place for an extended period tend to have more memories connected to it, stronger ties with neighbors, and a deeper emotional attachment to their residences. In the studied samples, the

Table 2. Statement coding guide. Source: Author.

Interviewee's generation			Data collection method		Interviewee's gender		Family generation			Interview number	Type of housing	
3 Third generation	2 Second-generation	1 First-generation	O Observation	I Interview	F Interview	M Interview	3 Third-generation	2 Second--generation	1 First-generation	X1,2,3…	H Middle housing	A New housing

Table 3. Extraction of concepts from compatibility strategies. Source: Author.

Code	Extracted statement	Focus topic on performing compatibility behavior	Type of compatibility behavior
A13FI3	I added curtains, a chandelier, and some natural flowerpots to improve and beautify the house.	Beauty Nature Daylight	Space Entry and Use
A13-O-	The cabinets were added after purchasing the house, according to the residents' taste.	Functional Needs	Space Entry and Use
A13FI3	We intend to move; we want to move to a larger courtyard house.	Housing pattern Area of space	Relocation
A13FI3	The balcony is the least important space. I don't do much with it because it's small, always windy, dusty, and not very clean.	Space quality Architectural space Features Area of space	Inattention to space
A13FI3	The house space is very small, and we don't have much room for hosting guests. We usually host parties outside the house, in restaurants and parks.	Area of space	Behavior change
A23FI3	The house entrance is not great; there is no space for shoes, and when the door is open, it exposes the entire house. I placed a shoe rack by the entrance for shoes, but it didn't turn out the way I wanted.	Privacy Functional needs Space relationships	Manipulation in space
A23FI3	The balcony is small and cluttered with items (cooler, laundry rack, washing machine, etc.). If I want to give it importance, it's not possible. It's quite useless, and there's not even enough space for me to go inside it.	Area of space	Inattention to space
A23FI3	We changed the flooring of the house and wallpapered the walls to make our home look more stylish.	Beauty	Manipulation in space
A23FI3	I moved the dining table away from the open space to make the area more spacious.	Area of space	Manipulation in space
A23FI3	I added some potted plants and nature-themed picture frames to improve the ambiance. We also rearranged the furniture a few times to make the space larger and more appealing.	Area of space Beauty Nature	Manipulation in space
A23FI3	The walls of this house have become dirty, and its dimensions are smaller than what we need. We prefer to move to a house with a yard as soon as possible.	Space quality Area of space Housing pattern	Relocation
A33FI3	An air conditioner and a washing machine are located on this small balcony. It is hard to clean, and a larger one would be preferable. I would never go in if there wasn't a washing machine there.	Area of space	Inattention to space
A33FI3	An air conditioner and a washing machine are located on this small balcony. It is hard to clean, and a larger one would be preferable. I would never go in if there wasn't a washing machine there.	Functional needs	Manipulation in space
A33FI3	We removed the dining table, buffet, and mirrored candlestick table from the hall to make it larger.	Area of space	Manipulation in space
A33-O-	To enhance the quality of the space, we added natural potted plants and an aquarium to the area.	Nature	Manipulation in space
A33FI3	We are building a house with a yard, and we have planned to move there.	Housing Pattern	Relocation
A43FI3	I would like to go to a larger house with a yard that is close to my mother's.	Area of space Housing pattern Housing location	Relocation

Rest of Table 3.

Code	Extracted statement	Focus topic on performing compatibility behavior	Type of compatibility behavior
A43FI3	We have rearranged the furniture in our home several times to improve the space and create variety.	Space quality Diversity	Manipulation in space
A43FI3	We customized the wallpaper and cabinets to our taste after buying the house, and it has made our home look more stylish.	Space quality Functional needs	Manipulation in space
A43-O3	There are numerous potted plants inside the living room and on the balconies, along with large paintings of flowers and nature on the living room walls.	Nature	Manipulation in space
A53FI3	We converted all the beds in the bedrooms into foldable ones to make more use of the space. Now, our rooms have become multifunctional. For example, when we have guests, the bedroom becomes a guest dressing room.	Area of space Functional needs	Manipulation in space
A53FI3	We removed much of the furniture like the buffet and bookshelves because they took up too much space.	Area of space	Manipulation in space
A53FI3	We added natural flowers and several chandeliers with bright bulbs, and we decorated the central column in the house with decorative stone.	Beauty Nature Lighting	Manipulation in space
A63FI3	Since we moved into this house, we have only slightly changed the home decor. Interior design is important to me, but apart from changing the furniture, there isn't much else to do.	Beauty	Manipulation in space
A63FI3	I prefer to move into a larger house with a yard, a better place. I don't like living in apartments in general.	Space quality Area of space Housing pattern	Relocation
A73FI3	We converted the bathroom into a closet and built a closet in the hallway for clothes and shoe storage.	Functional needs	Manipulation in space
A73-O-	They installed a curtain in front of the terrace to prevent it from being visible from the outside.	Privacy	Manipulation in space
A73FI3	I would like to move to a larger house.	Area of space	Relocation
A83FI3	We bought land ourselves and are building a larger, yard-equipped house, and we are planning to move from here.	Area of space Housing pattern Design and construction to residents' preferences	Relocation
A83FI3	Since we moved into the house, we built several wall closets.	Functional needs	Manipulation in space
	We covered all the balconies with windows, both for the safety of the children and to utilize the space without it getting dusty and dirty.	Functional needs Area of space Security	Manipulation in space
A83FI3	We did the wallpaper and drywall ourselves to make the space more beautiful.	Beauty	Manipulation in space
A93FI3	In the guest bedroom, I placed some potted plants, but half of the room has a cooler, and there's no space left, not even for spreading out clothes.	Area of space	Inattention to space
A93FI3	Since we moved into the house, we installed wall closets, changed the lights, and added a chandelier and curtains.	Functional needs Lighting	Manipulation in space
A93FI3	I placed some potted plants, changed the furniture in the house, and added an aquarium that gives us a lot of peace.	Nature Tranquility Space quality	Manipulation in space
A93FI3	As soon as we have the money, we will move from here. I want to go to a house with a yard.	Housing pattern	Relocation
A103FI3	I placed some potted plants, and I kept changing the furniture to make the space more diverse.	Nature Space diversity	Manipulation in space
A103FI3	We installed a drywall ceiling, did wallpaper on the walls, and made the house look fancier.	Beauty	Manipulation in space
H12MI3	We changed the garden and the flooring in the yard and created a traditional style with brick and blue tiles.	Courtyard pattern	Manipulation in space

Rest of Table 3.

Code	Extracted statement	Focus topic on performing compatibility behavior	Type of compatibility behavior
H12MI3	When we moved in, the house was half-finished, and we completed it, including ceramic tiles, rooftop railing, and finishing the basement.	Completing the building	Manipulation in space
H12MI3	We've changed the furniture in the house several times. My mother likes to change it a lot, and she scatters things around and says it makes the house look fancier.	Elegance	Manipulation in space
H12MI3	I want to leave this place for a better one; I don't like it here. However, my parents like this house and have no intention of moving.	Housing interest	Relocation
H22FI2	The bedroom has dim lighting, and we only use the basement as storage, and I sleep in a different mood at night.	Daylight and warmth	Changing the use of space
H22FI2	I placed flowerpots on my stairs and increased the number of pots on the patio to make the space cooler.	Nature	Manipulation in space
H32FI2	Our house has only one bedroom, and we have to sleep in different corners at night. Only my eldest son sleeps in the bedroom.	Area of space	Changing the use of space
H32FI2	We sold our house and are moving because we wanted to live in a larger house in a rural area.	Area of space Housing location	Relocation
H41FI3	When my sisters got married, the upstairs bedrooms became unused and turned into spaces like storage. They only use it if they stay overnight.	Family changes	Changing the use of space
H41FI3	The family living room is cozy, but it doesn't have good heating and cooling, so it is not used much. However, if the house is crowded, that space is also used.	Heating and cooling Home congestion level	Changing the use of space
H41FI3	We sit on the terrace in the summer evenings, and in the winter, we stay indoors.	Changing needs with the seasons	Changing the use of space
H41FI3	When there are weddings or religious ceremonies at home, all the spaces are used differently. The ground floor, which is my workspace, has all the furniture gathered and used as a men's space, while the upper floor serves as a women's space, and the rooms become changing rooms.	Collective ceremonies	Changing the use of space
H41FI3	My parents have gotten older, and climbing the stairs in the courtyard has become difficult for them. That's why they use the parking lot stairs, which have carpeting and are lower in height.	Changing needs with aging	Changing the use of space
H41FI3	To create a more open and spacious atmosphere, we removed the wall between the rooms and the living area.	Openness	Manipulation in space
H41FI3	I changed the furniture arrangement in the space and managed to create a cozy corner for myself.	Creating a personal space	Manipulation in space
H41FI3	We are planning to relocate because this place is too far from the city center. Initially, we moved here because it was close to my grandmother's, but now my grandmother lives with us, so we can consider moving to a different part of the city.	Housing location Family changes	Relocation
H52FI3	After 12-13 years, we added a new room to the house because my sister and I had grown up and needed separate spaces.	Family changes	Manipulation in space
H52FI3	We redesigned the kitchen entryway to have better connectivity with the living room.	Space relationships	Manipulation in space
H52FI3	Since the old cabinets and flooring had become worn out, we replaced them with new ones.	Renovation	Manipulation in space
H52FI3	We have changed and updated the curtains several times to give the space a fresh look.	Renovation	Manipulation in space
H52FI3	As our book collection grew, we added large bookshelves to accommodate them.	Functional needs	Manipulation in space
H52FI3	We brought some antique items from our grandparents' basement and arranged them around the house, which brought a sense of nostalgia.	Creating memories	Manipulation in space
H52FI3	We filled some areas in the garden to provide more parking space for our cars.	Functional needs	Manipulation in space

Rest of Table 3.

Code	Extracted statement	Focus topic on performing compatibility behavior	Type of compatibility behavior
H52FI3	Now that our parents have aged, the significant height differences within the house are not suitable for them. However, they both appreciate and cope with these height variations, as it has both positive and negative aspects.	Space preference	Reducing the importance of needs
H61FI3	Previously, we used to have meals in the kitchen and behind the dining table, but now, with my sisters all married and our family size increased, we spread out a wide dining cloth in the hall for meals.	Family changes	Changing the use of space
H61FI3	The terrace is not frequently used as it overlooks the street, and sometimes we use it for drying clothes. We don't have any other specific use for it, so it remains locked most of the time.	Privacy	Inattention to space
H61FI3	The furniture and the artwork we placed on the walls have significantly improved the ambiance of our home.	Space quality	Manipulation in space
H61FI3	We have some needs that this house couldn't fulfill, but we love it so much that we've accommodated it. We haven't forgotten about those needs, but maybe we've prioritized them lower.	Interest in housing	Reducing the importance of needs
H71FI1	During winter, I sleep in the room facing the courtyard because it's very warm, while during summer, I sleep in the hall since it's cooler.	Changing needs with the seasons	Changing the use of space
H81FI1	My newlywed lives on the ground floor, and because their space is limited, my living room also becomes theirs. However, if there's a gathering, wedding, or a large event, we open up the space and use it for that purpose.	Collective ceremonies	Changing the use of space
H81FI1	In the summer, we sleep in the courtyard, in spring and autumn, we sleep in the hall, and during winter, we sleep in the cozy and very warm room.	Changing needs with the seasons	Changing the use of space
H81FI1	The lighting in the house is insufficient, so I installed some pendant lights to make the house brighter. This room was too hot, so I installed a fan.	Lighting Cooling	Manipulation in space
H91MI1	If there's a wedding, the cozy room, which is used for carpet weaving, and my daughter's room become dressing rooms, and we arrange chairs throughout the house for the guests.	Collective ceremonies	Changing the use of space
H91FI3	In the summer, I come to the room near the door because it has air conditioning, and in the winter, I go to the cozy room because it has a heater.	Changing needs with the seasons	Changing the use of space
H91MI3	We removed the wall between the hall and the living room to create a larger and more open space.	Area of space Space openness	Manipulation in space
H91MI3	The basement entrance used to be from inside the house, but we didn't like that, so we removed it and created an entrance from the courtyard.	Space relationships	Manipulation in space
H102FI2	During the construction, we made changes to the floor plan. We turned a room into a patio so that the house got lighter. We also changed the location of the bathroom entrance to ensure it's not visible from the living areas.	Space relationships Privacy Daylight	Manipulation in space
H102FI2	We removed the doors between the L-shaped room and the patio and opened up the kitchen to create a more open and interconnected space. This made the hall and the living room larger.	Openness Space relationships Area of space	Manipulation in space
H102FI2	We renovated the house, installed new flooring in the courtyard, and replaced the doors	Daylight	Manipulation in space
H111FI3	The room next to the courtyard was connected to the hall to make it brighter.	Daylight	Manipulation in space
H111FI3	The basement used to be a storage area, but now we've converted it into a living space for my brother after his marriage.	Family changes	Manipulation in space
H111FI3	We installed a ceiling in the secluded courtyard behind the kitchen and used it as a storage area.	Functional needs	Manipulation in space
H111FI3	There's a room without heating, which we used for studying during exams, but now that we've gotten married, it has become a storage room.	Family changes	Changing the use of space
H121FI3	Two years ago, we connected the reception area to the L-shaped room because the number of people had increased, and there wasn't enough space for gatherings.	Family changes Area of space	Manipulation in space

duration of residence in middle housing could extend up to 40 years, whereas, in new housing samples, the duration of residence was generally less than ten years.

Memories: Residents of middle housing highly value their housing as repositories of cherished memories. These memories encompass significant life events such as the birth of their children, various ceremonies, anecdotes, and weddings held within the confines of their housings. They strongly believe that hosting various celebrations and gatherings at housing is essential for creating lasting memories. As one resident eloquently puts it, "I love hosting parties at housing; it creates precious memories for me. My daughter's engagement took place at housing, along with numerous other celebrations that bring vibrancy to our household. The essence is to sprinkle joy and celebrate together at housing". Many of these individuals are unwavering in their commitment to remain in their housing due to the profound emotional significance of these memories. To them, these memories hold such immense value that the thought of leaving their houses is inconceivable. In contrast, memories are scarce in new housing. When residents of these houses were questioned about their memories associated with their homes, only a few could recall a handful of instances, while the majority stated that they had no specific memories. The scarcity of memories in these individuals can be attributed to the relatively short duration of residence, typically less than eight years, which allows for fewer opportunities to create lasting memories. Additionally, many of their activities and ceremonies, such as birthday parties and wedding anniversaries, are held outside the housing. In this housing type, often occupied by third-generation families, mothers are employed, and children tend to grow up in daycare centers or with their grandparents. Consequently, family members are primarily present at housing during the evenings and at night, resulting in new housing lacking the richness of memories that characterizes middle housing.

Neighborly relations: Long-term residents of a neighborhood frequently cultivate strong, close-knit relationships with each other. In some cases, these connections become so profound that certain interviewees regard their neighbors as an extension of their own family. They perceive these strong ties with neighbors as the primary reason for their reluctance to relocate from their current homes. For instance, a resident of middle housing articulated, "If I ever have to move from this house, I'd want my next housing to be in the same neighborhood and alley. I know everyone here." This pattern is more prevalent among first-generation families and certain second-generation families. For these residents, the boundaries of their housing extend beyond their residence to encompass several neighboring houses and even the entire neighborhood. They often emphasize the qualities of their housing, including their relationships with neighbors. In contrast, third-generation families tend to place more emphasis on the interior features of their homes, and the boundaries of their housing are typically confined to the physical limits of their residence. Many of them either have minimal interaction with their neighbors or live next to neighbors who maintain a level of privacy and self-sufficiency, which they perceive as a positive aspect of their housing.

Age: Age is another significant factor influencing compatibility strategies. The findings suggest that older first and second-generation individuals are less inclined to consider relocation. They highly value their familiarity with the neighborhood and their strong relationships with neighbors, which they view as highly positive aspects of their living environment, making them resistant to the idea of changing residences. This perspective aligns with studies by Lien, which also underscore that for elderly individuals, housing represents a repository of memories, experiences, relationships, personal identity expression, and, fundamentally, a biography of their lives (Lien, 2013). Therefore, older individuals prefer to remain in the housings where they have spent a significant portion of their lives, as they have formed emotional attachments and sentimental bonds with these residences (Greenfield & Russell, 2011; Wagnild, 2001; Wahl & Lang, 2003; Lien, 2013, 37). Even in the face of housing-related inconveniences and incompatibilities, they may endure these conditions and resist attempts to relocate (Helderman et al., 2004; De Groot, Mulder & Manting, 2011; Fattah, Salleh, Badarulzaman & Ali, 2015).

Participation in the construction process: This process is highly regarded by residents as a significant and positive aspect of their living experience. One resident encapsulates

this sentiment by stating, “We constructed this place according to our preferences, and despite its limitations in fulfilling all our needs, we cherish it so much that the thought of selling it never crosses our minds”. Many apartment dwellers also aspire to purchase land and engage in the process of building their houses. Individuals who have actively participated in the construction process tend to form a stronger emotional attachment to their housing and find it more challenging to contemplate leaving. As one resident expresses, “I have a deep affection for this place because I endured the hardships of its construction. I don’t want to entertain the idea of moving”. Residents who have actively participated in building their houses engage in a dynamic interaction with their living space. They often employ strategies such as manipulation in space, as well as making behavioral and utilization changes within the space to foster compatibility. The majority of residents in middle housing have been involved, to varying degrees, in the design and construction process of their housing. In contrast, residents of new housing typically opt for this type of dwelling due to financial constraints and do not have the opportunity to participate in the construction process. Consequently, their attachment to their housing is less pronounced, and they tend to employ temporary compatibility strategies, such as inattention to their needs, inattention to space, and considering the possibility of relocation.

Housing pattern: Middle housing presents a more compatible architectural structure that affords residents greater autonomy and ownership of their living spaces. Furthermore, the versatility of these spaces is designed in a manner that enables residents to employ them for various purposes (multi-functional) and adapt their utilization based on their specific requirements.

Conclusion

The research findings concerning the compatibility strategies of residents in contemporary housing in Yazd reveal that a mutual harmony between residents and their housing exists in middle housing, mainly occupied by first and second-generation families. Within this housing pattern, individuals actively employ strategies to establish compatibility between themselves and their homes. They engage with various aspects of their residences, manipulate spaces, and adapt their behavior accordingly. In this situation, it is less likely to witness strategies like ignoring spaces, moving, and neglecting demands.

Conversely, in new housing, primarily inhabited by young families and the third generation, there is a prevailing sense of indifference and occasional frustration between residents and housing. To achieve compatibility within this context, residents tend to adopt more passive strategies, such as making limited alterations to the interior and furniture, displaying inattention towards spaces, or considering the possibility of relocation.

The research’s emphasis on compatibility and its theoretical framework underscores the idea that designing a living environment extends beyond physical and functional considerations. Architects must understand that they are creating spaces for people who actively engage with their surroundings rather than having a passive relationship with their homes. These individuals both influence and are influenced by their housing, constantly striving to establish compatibility with them. The effort and determination to achieve compatibility represent a testament to human resilience and the establishment of a reciprocal interaction between residents and their housing. Nevertheless, the physical design of housing must facilitate this mutual compatibility between the resident and the dwelling. If the physical attributes of a residence do not allow for compatibility with its occupants, individuals may be compelled to vacate the dwelling or continually adapt themselves to it. In the long term, this is not an ideal situation and can result in psychological and social consequences. Therefore, it is essential to comprehend the evolving lifestyles of residents at various stages of their lives, from childhood to adulthood, and offer spatial capabilities that enable the dwelling to be explored,

experienced, and tailored to their needs throughout each phase of their lives.

Conflict of Interest

The authors declare that there is no conflict of interest in conducting this research.

Reference list

- Altaş, N. E. & Özsoy, A. (1998). Spatial adaptability and flexibility as parameters of user satisfaction for quality housing. *Building and Environment*, 33 (5), 315–323.
- Amani, R., Etemadi, O., Fatehizadeh, M. & Bahrami, F. (2012). The Relationship of Attachment Styles and Social Adjustment. *CPAP*, 2 (6), 15-26.
- Ann Lodi, K. & Raedene Combs, E. (1989). Housing Adjustments of Rural Households: Decisions and Consequences. *Housing and Society*, 16 (3), 13–22.
- Baum, S. & Hassan, R. (1999). Home owners, Home renovation and Residential Mobility. *Journal of Sociology*, 35 (1), 109–117.
- Brown, J. & Moore, E. (1970). The Intra-Urban Migration Process: A Perspective. *Geografiska Annler Series B*, 52 (1), 1-13.
- Campbell-Sills, L., Cohan, S. & Stein, M. (2005). Relationship of resilience to personality, coping, and psychiatric symptoms in young adults. *Behaviour, Research and Therapy*, 44 (4), 585-599.
- Crull, S. R., Bode, M. E. & Morris, E. W. (1991). Two tests of the housing adjustment model of residential mobility. *Housing and Society*, 18 (3), 53–64.
- De Groot, C., Mulder C. H. & Manting, D. (2011). Intentions to move and actual moving behaviour in the etherlands. *Housing studies*, 26 (3), 307- 328
- Eichner, M. M. (1986). *A model of household housing adjustment: confronting analytical issues.* Unpublished doctoral dessertation. Ames: Iowa State University.
- Fattah, H. A., Salleh, A. G., Badarulzaman, N. & Ali, K. (2015). Factors Affecting Residential Mobility among Households in Penang, Malaysia. *Procedia - Social and Behavioral Sciences*, 170, 516–526.
- Ferreira, F., Gyourko, J. & Tracy, J. (2010). Housing busts and household mobility. *Journal of urban Economics*, 68 (1), 34-45.
- Festinger, L. (1962). *A Theory of Cognitive Dissonance, Stanford*. CA: Stanford University Press.
- Fleury-bahi, G., Felonneau, M. L. & Marchand, D. (2008). Processes of Place. *Environment and Behavior*, 40 (5), 669–682.
- French, J. R. P., Rodgers, W. & Cobb, S. (1974). *Adjustment as person–environment fit.* In G. V. Coelho, D. A. Hamburg,&J. E. Adams (Eds.), Coping and adaptation. New York: Basic Books.
- Galster, G. C. & Hesser, G. W. (1981). Residential Satisfaction. *Environment and Behavior*, 13 (6), 735–758.
- Gati, I., Fassa, N. & Mayer, Y. (1998). An Aspect-Based Approach to Person-Environment Fit: A Comparison between the Aspect Structure Derived from Characteristics of Occupations and That Derived from Counselees Preferences. *Journal of Vocational Behavior*, 53 (1998), 28.
- Glaser, B. G. & Strauss, A. L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative research*. New York: Aldine.
- Greenfield, E. A. & Russell, D. (2011). Identifying living arrangements that heighten risk for loneliness in later life: vidence from the U.S. national social life, health, and aging project [J]. *Journal of Applied Gerontology*, 30 (4), 524-534.
- Helderman, A., Mulder, C., Clara H., & Ham, M. V. (2004). The changing effect of home ownership on residential mobility in the Netherlands, 1980–98. *Housing Studies*, 19 (4), 601-616.
- Holland, J. L. (1997). Making vocational choices: A theory *of vocational personalities and work environments* (3rd ed.). Odessa, FL: Psychological Assessment Resources.
- Ittelson, W. H., Proshansky, H., Rivlin, L. & Winkel, G. (1974). *An Introduction to Environmental Psychology.* Holt: Rinehart and Winston.
- Jusan, M. (2010). Means End Chain, Person Environment Congruence And Mass Housing Design. *Open House International*, 35 (3), 76–86.
- Jusan, M. & Sulaiman, A. B. (2005). Personalization as a sustainable approach to mass housing conference proceeding of Sustainable Building South East Asia. *Conducted by university of technology malaysia institutional repository*, 11–13.
- Kahana, E. (1982). A congruence model of person-environments interaction. in P.G. Windley and T.O Byerts, F.G. Ernst (Ed), *Theory development in environment and aging.* washington: Wiley.
- Lang, J. (2007). *Creating Architectural Theory.* New York: Van Nostrand Reinhold.
- Lawton, M. & Nahemow, L. (1973). *Ecology and the aging process in C Eisdorfer and M P Lawton (eds) Psychology of adult development and agin*g. Washington, DC: American Psychological Association.
- Lien, L. L. (2013). *Person-Environment Fit and Adaptation: Exploring the Interaction between Person and Environment in Older Age.* United States: Unpublished doctoral dissertation Oregon state university.
- Lynch, K. (1981). *Good city form. Massachusetts Institute of*

technology. Massachusetts institute of Technology. Retrieved from http://www.amazon.co.uk/Good-City-Form-K-Lynch/dp/0262620464

- Moore, K. D. (2005). Using Place Rules and Affect to Understand Environmental Fit: A Theoretical Exploration. *Environment and Behavior,* 37 (3), 330–363.
- Morris, E. W. & Winter, M. (1975). A Theory of Family Housing Adjustment. *Journal of Marriage and Family*, 37 (1), 79–88.
- Mridha, M. (2015). Living in an apartment. *Journal of Environmental Psychology*, 43, 42–54.
- Musiol, A. & Boehnke, K. (2013). Person-Environment Value Congruence and Satisfaction with Life. *International Journal of Humanities and Social Science,* 3 (9), 57–65.
- Omar, E. O., Endut, E. & Saruwono, M. (2012). Personalisation of the Home. *Procedia-Social and Behavioral Sciences*, 49, 328–340.
- Parrott, K. (1985). *Critical factors affecting consumer satisfaction with the home remodeling process*. Unpublished doctoral dissertation. Lincoln: University of Nebraska.
- Pickvance, C. (1973). Lifecycle, housing tenure and intra-urban mobility: a causal model. *The Sociological Review,* (1973), 29–50.
- Popenoe, D. (1977). *The Suburbun Environment: Sweden and the United States.* Chicago: The University of Chicago Press.
- Priemus, H. (1986). Housing As a Social Adaptation Process: A Conceptual Scheme. *Environment and Behavior*, 18 (1), 31–52.
- Proshansky, H. M., Fabian, A. K. & Kaminoff, R. (1983). Place-identity: Physical world socialization of the self. *Journal of Environmental Psychology*, 3 (1), 57–83.
- Riemer, S. (1943). *Sociological Theory Of Home Adjustment. American Sociological Review*, 8 (3), 272–278.
- Rossi, P. (1955). *Why Families Move: A Study in the Social Psychology of Urban Residential Mobility Glencoe.* Glencoe: The Free Press.
- Shin, J. (2016). Toward a theory of environmental satisfaction and human comfort: A process-oriented and contextually sensitive theoretical framework. *Journal of Environmental Psychology,* 45, 11–21.
- Spokane, A. R., Meir, E. I. & Catalano, M. (2000). Person–Environment Congruence and Holland's Theory: A Review and Reconsideration. *Journal of Vocational Behavior*, 57 (2), 137–187.
- Steggell, C. D., Binder, S. K., Davidson, L. A., Vega, P. R., Hutton, E. D. & Rodecap, A. R. (2003). *Exploring Theories of Human Behavior in Housing Research. Housing and Society,* 30 (1), 3–32.
- Tavassoli, M. (2022). *Urban structure and architecture in the hot arid Zone of Iran*. Tehran: Payam.
- Tinsley, H. E. A. (2000). The Congruence Myth: An Analysis of the Efficacy of the Person–Environment Fit Model. *Journal of Vocational Behavior,* 56 (2), 147–179.
- Wagnild, G. (2001). Growing old at home. *Journal of Housing for the Eldery*, 14 (1/2), 71-84.
- Wahl, H. W. & Lang, F. R. (2003). Aging in context across the adult life course. *Integrating physical and social environmental research.* 23(1).
- Wicker, A. W. (1984). *An introduction to ecological psychology.* London: Cambridge University Press.
- Winkel, G., Saegert, S. & Evans, G. W. (2009). An ecological perspective on theory, methods, and analysis in environmental psychology: Advances and challenges. *Journal of Environmental Psychology*, 29 (3), 318–328.

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