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Original Research Article

Investigating the Role of Walls in the Dialectic of Rupture and Connection in Contemporary Houses Based on Users' Lived Experience*

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Abstract

Problem statement: One of the main tasks of architecture is to regulate indoor and outdoor communication. Lack of attention to this communication and coexistence between them is one of the problems that architecture faces today and the result is the lack of quality in living spaces and dissatisfaction of humans in residential spaces. The walls, as the first mediator between outside and inside, regulate this dialectic between man and environment, which have taken different forms in different periods. How walls affect the user's perception of space from the dialectic of rupture and connection is a question that the present study seeks to understand.

Research objective: This study aims to investigate the role of walls in the dialectic of rupture and connection, to develop a model based on the perception of users and explain how different factors interact in this process.

Research method: The present study is qualitative with an interpretive paradigm Grounded theory method. Key informants has been selected with snowball method and sampling method is purposive theoretical with semi structured interviews.. Data collection proceeded until reaching to theoretical saturation and was analyzed and three step coded in Max QDA software with the systematic method of Strauss and Corbin and presented in the form of Creswell paradigm model.

Conclusion: The obtained model showed that the dialectical change of rupture and connection, is dependent on the time-space context and is the result of the interaction of various factors. In this regard, the central phenomenon of the obtained model, called the wall monologue, reflects the fuzzy perception of the users from the role of walls in the dialectic of rupture and connection. This means that in the range of rupture and connection of today's houses, the perception of users, is in the range of "more rupture than connection", while the individual parameters, were recognized as the most effective parameter in the perception process.

Keywords: *Contemporary Architecture, Fuzzy Logic, Users Perception of Space, Indoor and Outdoor, Grounded Theory Method, Lived Experience.*

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Introduction and problem statement

Iranian Contemporary Architecture, in the last 100 years, has been influenced by the rapid and large trend of urbanization in metropolises reflecting fundamental changes (Haeri Mazandarani, 2016). The pattern of houses has been completely transformed in a mass and accelerated scale since 1961 and this, has created a new structure in the architecture of houses. In the meantime, several issues have caused a lack of attention to human needs and his living environment has lost its perfect quality, so its consequences have effected the soul and body of the residents. Providing human spatial needs such as the need for spatial security, social relations, relationship with nature, privacy, clarity, etc. In the living environment, is generally possible with organizing the spaces (Einifar & Aghalatifi, 2011, 18). In the first stage, it requires proper definition of the outside and inside and the relationship between them. The correct definition of external and internal communication enables man to choose whether he wants to interact with the environment or seek refuge in solitude (Skinner, 2003). Skinner also believes that the topic of outside and inside communication is a kind of extension and not a dichotomy, such as home and garden, architecture and landscape, art and nature, family and city, individuality and the world. The main elements that make up a space, namely the ceiling, the floor and the wall, are the most basic elements for defining outside and inside, which have taken different shapes at different times (This-Evenesen, 1997). Some believe that in defining the outside and the inside, the facade is the most important element as the intermediate between these two spaces, which is both the face of the city and the interface of space (Jurgenhake, 2006). The use of these elements has created different space, quality and power which has changed the relationship between man and the environment in the range of rupture to connection.

Today, inattention to the topic of space, has led to more attention to the organization of spaces

based on their functions and forms more than to the presence of man and the way he perceives space. Understanding is a process through which humans obtain information from their environment. In perception, the stimulus object or event is outside the observer, but in the perception of the environment, the perceiver is a part of the observed environment and has an effective role in defining its boundaries and other characteristics by his behavior and movement in space. Since man uses the perception tools (sensory powers) to understand anything, or in other words, through sensory powers, human beings, understand one space in relation to another space, this subjective and objective connection is established in relation to any artificial and natural environment (Pakzad & Bozorg, 2016, 45). In the present century, the issue of human-environment relationship and its conversion to the language of environmental design and architecture has Received much attention from researchers in architectural field. Van Dorst has stated that humans constantly want to be able to intervene in the environment and they also try to have their own boundaries and territories and preserve them, because humans always need to communicate with the environment (Van Dorst, 2005, 85). In design and construction of space, it is possible to achieve spaces which has the capacity to connect man and his environment or, by ignoring this issue, cause the rupture of this relationship, because the definition of space by dividing it into inside and outside is one of the solutions that user can recognize his position in relation to the environment (Shahlaei & Mohajeri, 2015). Designing outside and inside is always essential to define and limit human living spaces. But today, this issue has been overlooked. Lack of attention to the relationship between outside and inside and their coexistence is one of the problems that today's architecture faces. As stated above, one of the main factors in defining outside and inside are the walls. Understanding the effects that man perceives from the dialectics of rupture and connection due

to the presence of walls and understanding the relationship between them has been the subject of the present study, which has been followed up with the question of what is the relationship between the user's perception of the wall and the dialectic of the rupture and connection.

Research background

Few studies have focused on the way of inside and outside communication. Most research has pointed to the role of the in-between spaces in inside-outside relationships. Researchers have not specifically focused on wall element as an inside-outside mediator. About the space between inside and outside, a space that is neither inside nor outside and essentially plays the connector role of these two areas, various interpretations have been presented. Many researchers, including Gehl (2008), Anderson (1991), Hajer and Rejindrop (2001), Hillier and Hanson (1984), Stevens (2007), Skjaeveland and Garling (1997) have researched this issue (cited in Sasani, Einifar & Zabihi, 2016). They have used interpretations such as intermediate space, buffer space, private-public boundary, between, threshold, edge, threshold space, intermediary zone in relation to the category. This section seeks to review the research on topics related to walls, how to connect outside and inside, also in the field of contemporary houses and architecture in Tehran, which is described in Table 1.

The researches, which are part of internal and external studies, have focused on different dimensions and used different approaches. What necessitates the present research in order to complete previous researches is that this research, in the field of architecture and social sciences, extracts the parameters of rupture and connection based on the criteria of users' use of space to understand how they perceive the environment and relying on the presence of human beings in space and his lived experience, as well as the dialectic of rupture and connection transformation,

has read the developments in the dialectics of the rupture and connection based on The role of the wall in contemporary Architecture of Tehran. Therefore, there are fundamental differences with previous researches in methodology which is based on grounded theory method and has a special look at the role of walls in creating rupture and connection dialectic.

Theoretical bases

The history of the importance of the discussion of human perception of the space around him in architecture dates back to the 18th century when Gustav Fechner attempted in 1860 to find out the relationship between a sensory stimulus as a message and its analysis by the recipient and discover the laws governing this relationship (Grutter, 2014, 111). Fechner is one of the first to establish a relationship between mental effects and physical stimulus changes along with Weber and Wundt (Iravani & Khodapanahi, 2004, 27). In this way, the study in the principles of perception became a new discipline of science and since then, a term was introduced as the principle of message transmission. According to this principle, human beings are constantly exchanging information with their surroundings and constantly receiving messages from their surroundings through the five senses (Grutter, 2014, 2). Of course, it should be noted that the discussion of perception had been discussed before in the field of psychology, but the person who entered it into the applied field was Fechner. Many psychologists, philosophers and architects have worked in this field. Among the psychologists, in addition to Fechner, Bartlett, Gregory, Latto and among the architects are Ching, Lawson, Pallasma and Zumthor. Understanding is a process through which humans obtain information from their environment. In the perception, the object is the stimulus or even outside the observer, but in the perception of the environment, the Perceiver is a part of the observed environment and with its behavior and movement in space, it

Table 1. Previous research in the field of home - external and internal communication - walls. Source: authors.

Researcher	Title of research	Achievement
1 Memarian (2008)	Ashnayi ba Me'mari-ye Maskouni-ye Iran: Gouneshenasi-ye Daroungara [Introduction to House Typology in Iran: Courtyard Typology]	He has studied the typology of different types of houses in Iran, based on various characteristics, including spatial formation and communication.
2 Haeri Mazandarani (2016)	House in Culture and Nature of Iran	In analyzing the architectural and cultural characteristics of Iran's historic houses and adapting them to contemporary architecture in the last fifty years, it has examined the types of space organization on a micro and macro scale.
3 Ghasemi Sichani & Memarian (2010)	Typology of Ghajar era house in Isfahan	The results of this study have shown that Isfahan houses have been built mainly introverted using the components of the semi-hot and dry climate and they can be divided into three types of the first, second, and third periods of the Qajar period based on the characteristics of architectural space, structures, and decorations.
4 Soltanzadeh (2011)	The role of geography on formation courtyards in traditional houses in Iran	The results of this study show that the formation of open space or courtyard in traditional Iranian houses has been influenced by geographical phenomena.
5 Naghizadeh, Zare & Hariri (2012)	The nature in the courtyard, a comparison approach in Kashan residences	They have studied the houses in the central courtyard of Kashan and have compared the ratios of the occupancy levels and various elements such as the fountain, the green space, and the courtyard and have proposed a model for the formation of the courtyard in the new houses.
6 Parto, Salehi, Akbari & Tanhaei (2019)	Explaining the dialectic of discontinuity and continuity in Tehran's contemporary residential architecture, based on the revolution of open and closed spaces	In this research, with a quantitative analysis of the qualitative parameters of space in the dialectic of rupture and connection, it has been determined that in-between spaces, are the most effective variables in creating the dialectic of rupture and connection.
7 Nikghadam (2013)	Patterns of semi-open spaces in vernacular houses of Dezful, Bushehr and Bandar-e-Lenge considering climate attributes	In relation to the components of local climate, open and semi-open spaces are considered as effective factors in shaping the climatic patterns of vernacular houses and the use of these patterns in the design of contemporary housing in this climate promotes the level of thermal comfort.
8 Asefi & Imani (2016)	Redefining design patterns of islamic desirable contemporary housing through qualitative evaluation of traditional homes	The results show that there is a significant relationship between the quality of traditional houses, humans, architecture, and past lifestyle, which originates from the old traditions and values.
9 Aghalatifi & Hojjat (2019)	Impression of meaning of home from physical transformation in Contemporary Era of Tehran	He describes the developments that have taken place in the contemporary era on the concept of the house among the residents of Tehran and states that the meaning of house has been more a manifestation of semantic concepts than material and body. Also, the quality of the house has been degraded in the past decades and the concept of the house has become more dependent on the quantity.
10 Tabatabaei Ebrahimi & Tafazzoli (2019)	The narrative of home: a method for interpretation and representation of the desirability of the lived experience of being at home	The results of the study indicate that features such as the continuity of internal and external time in the lived experience, its tangibility and imagination make narrative a suitable context for research on the desired lived experience on the home.
11 Kiaee & Soltanzadeh & Heidari (2019)	Measure the flexibility of the spatial system using space syntax, case study: houses in Qazvin	In this research, with space syntax technic, the effect of space system on creating flexibility of traditional houses has been evaluated much more than traditional-contemporary. And also Most contemporary homes, with any area, have the same flexibility in their space system.
12 Norberg Schultz (2015)	The Concept of Dwelling on the Way to Figurative Architecture	In this book, the author offers philosophical insights and an in-depth analysis of the relationship between man, artificial space, and nature. He considers the love of place and earth as part of being-in-the-world and prefers it to technical matters.

Rest of Table 1.

13	Bachelard (2018)	Poetic of Space	In the phenomenology of imagination, he introduces the house as a tool for the analysis of the human soul and seeks to show how the immaterial parts attached to the material and objective parts of space function.
14	Ross, Winters & Cooper (1996)	Mabani-ye Falsafi va Ravanshenakhti-ye Edrak-e Faza	He presents the house as a symbol of self and a reflection of the inner selves, thoughts, values, and worldview of the inhabitants.
15	Rappaport (2016)	House, Form and Culture	In this study, he stated that the dimensions of the culture of houses are more important than other dimensions.
16	Mahboobi, Mokhtabad & Attarabbasi (2017)	Realization of the symbiosis of interior and exterior in the architecture of mosques in Iran, with an emphasis on fuzzy method	Revealing the communication of internal and external of mosques with spatial, physical, and semantic analysis
17	Bronberger (1991)	Habitat, Architecture et Societe Rurale Dans la Plaine du Gilan [Habitat, Architecture and Rural Society in the Gilan Plain]	Provides a cultural analysis of the relationship between residents and space and depicts the role of the mental system in the production of objective spaces of the house.
18	Einifar & Aliniay Motlagh (2014)	Explaining the concept of outside-inside in in-between spaces of apartment housing	The relationship between outside and inside of residential spaces and its relationship with the social status of residents, can be explained in the framework of the proposed model by examining the factors mentioned in the research.
19	Badiei (2002)	Jedare-ha: Hareem-e Vesal	The author states that during the formation of an idea in the mind of the designer, he is able to create more functions beyond the independent and individual functions of each space. This can be the factor of architectural communication and the interpreter of the design and lead to the pursuit of mastery of a single idea in the design.
20	Fakouhi & Qaznavian (2013)	Barresi-ye ensanshenakhti-ye tanavvo'-e fazayi-ye kheloub az manzar-e sakenen-e khane-ha-ye shahri-ye Tehran, Alborz va Qavin [Anthropological study of desirable spatial diversity from the perspective of residents of urban houses in Tehran, Alborz and Qazvin]	It shows that houses built between 1970-1990, are still culturally responsive to the needs of their occupants. In contrast, homes built in the last decade, which are generally engineered and have design drawings, are far less desirable.
21	Sasani & Einifar & Zabihi (2016)	An analysis of relation between quality of in-between space and human-environment concepts in residential complexes	By examining the effect of the quality of in-between spaces and its effect on the quality of life on residential complexes in Shiraz, they have shown that at the same time with the high quality of in-between space as a variable , the amount of dependent variable is much higher
22	Qobadian (2015)	Theories and Styles in Contemporary Iranian Architecture	Explain the theoretical foundations and styles of Tehran architecture from the early Qajar period until now, which has been considered from a social, urban, and architectural point of view and states that Iranian contemporary architecture has indicated three important meanings.
23	Janipour (2001)	The evolution of Tehran's housing architecture in the Pahlavi period	In this doctoral dissertation, with a historical perspective, the architecture of Tehran in the Pahlavi period and its evolution in the transition from tradition to modernity has been studied.
24	Beheshti (2016)	House from the beginning of the first Pahlavi to the 1940s	He believes that at first, the decline of the quality of today's homes is manifested in mind and then in today's homes. And for half a century, human beings have not demanded quality, and the perception of quality has completely changed, leading to the reduction of all human standards, which is due to the civil crisis, land reform, and the collapse of urban and rural society.
25	Soltanzadeh (2018)	House in Iranian culture	He states that architecture, like written language, has visual aspects and can more or less play the role of a medium on a small scale.

plays an effective role in defining its limits and other characteristics. In the species of space, Grutter says:

“Space, in its English meaning, can be divided into two species: mathematical space and perceptual space. In terms of perception, the first space cannot be undersighted. This space is an abstract space, such as city and country, etc. Because it is directly identified in the mind with a set of information and can be identified using auxiliary devices such as maps or models. The second space, which is objectively understandable, is a space that is felt direct and is recognized through its defining elements” (Grotter, 2014, 225). Several scholars and philosophers have talked about the nature of space. Bernard Tschumi considers space to be objective and subjective. Cohen separates space into physical and social components. Space alone does not pose any special characteristics in its existing sense, but as soon as a human group raises activity in place, the symbolic meaning of space emerges. From now on, space becomes a platform for expressing human activity and behavior, a place for imagination and reality.

The concept of space is one of the fundamental concepts in architecture. About this concept, architects and theorists of the architectural world have long presented various concepts. In some of these definitions, the role of human beings in the perception of the surrounding space and in others on the role of the effect of the quality of the design of the surrounding space on the level of human perception of the surrounding environment has been noted (Sohangir & Nasir Salami, 2014). What is more acceptable among scholars is the definition of space that includes both the human and the space around it. That is the definition in which space results from the interaction between man and his surroundings or the interaction between subjectivity and objectivity (Nasir Salami & Sohangir, 2013). According to this definition, the topic of human perception of space is very important, which has led scholars to think about

presenting patterns to improve the quality of architectural space design.

There are three elements in our experiences of the environment, first, visual observations, meaning successive reveals and visions as we move in and out and between places. The second place is related to various physical and psychological influences in the inside and outside spaces. At this stage of consciousness, one encounters a set of experiences that come from external and internal effects and the person soon discovers that as soon as one imagines it here, it should be created automatically there. Third, it is the content that examines components of the structure of the environment such as its color, texture, scale and uniqueness. Of course, it seems necessary to pay attention to this important issue that spatial experiences are necessarily time-based and reminiscent and since one's personality is blended with the place and people, losing any of these can affect the way they communicate with the other (Colin, 1998 cited in Partovi, 2013). Unlike Schultz, who has identified the natural environment as the basis for the experience of the place, Relp has shown that the main factor in the experience of the place is being inside or in the inner are and this is due to the extent to which people belong to the place and identify themselves with a place (the same). Ralph emphasized the essence of the concept of place in one's unconscious experience from within as a distinct range from the outside (sense of introspection). The experience of the place is described in seven levels due to the varying degrees of being inside and outside, which forms different identities in relation to different places for different people and human experiences achieve the different quality of meaning and feeling. In another similar division, inside in one place, based on the anthropological method to make anthropologists one with the cultures they study, are categorized by Peter Berger, which includes the first, behavioral level (physical presence in one place), second, the level of emphasis (emotional and behavioral participation with a place with the

knowledge that they are not complete members of that community) and third, the cognitive level (complete and unconscious commitment to a place) (Relph, 2010, 66). Of course, these levels represent all experimental states in place. Also, the levels of place experience and outstanding characteristics of each of them are in accordance with the Relph category, which includes a wide range of senses of alienation and homelessness to belonging to the place and feeling of identity with it. In the experience of the place, another important point should be noted that although physical presence may be necessary, it is not enough to realize the experience (ibid., 71). This emphasizes the importance of an individual's emotional and empathetic partnership to perceive the place and the desire to accept its meanings. Also, while insisting on dialogue and dialectic of inside and outside as the core of the experience of place, it must be examined in all details and the infra-structural relations of place.

Factors affecting the relationship between inside and outside are the same factors affecting the formation of architecture. Architecture has two less compatible tasks. On the one hand, it should provide shelter for residents against undesirable environmental forces and create a safe and pleasant indoor environment, on the other hand, it should create an environment that is visually influential and carries messages such as inviter, deterrent, informative and alarming. Realms inside and outside architecture are not collectible in practice and cannot be on both sides at the same time, although they are similar to each other. Therefore, the elements and interface spaces reconcile two contradictory objectives. There are two approaches to designing outside and inside. Some consider it to be white and black and believe that its boundary is quite clear, but others believe that the boundary of the two is a gray space that will be achieved by adding layers between the two spaces and can no longer be easily detected (Krstic, Trentin & Jovanovic, 2016). Arnheim quotes Bachelard, that existence can only be circular in

looking from the inside and regardless of the outside (Arnheim, 2007, 127). The concept of inside and outside and the way the interior and exterior of architecture interact vary in different cultures. The built environment on any scale is a cultural code that represents the social institutions that create and nourish that environment (Lang, 2009 cited in Naghizadeh & Ostadi, 2014). Rappaport, quoted from Gutman, believes that the lack of distinction between cognitive categories has led to a lack of definition of precise boundaries between the inside and outside the house and the village of Maya, something that has precise and specific definitions in Islamic and Indian villages. Perhaps the two factors of culture and climate have the greatest impact on the formation and quality of this relationship (cited in Mahboobi, Mokhtabad, Etesam & Attarabbasi, 2018). Unlike the western who considers the inside and the outside as two contradictory things, the Japanese, consider their home to be a unit that includes his garden and housing (Grutter, 2014, 176). Components except for culture, climate and function can identify the coexistence of inside and outside, including construction technology, architect's creativity, willingness to economical-political possibility can be named, which the effect and role of each of these factors are a function of the time and place of the work and at the same time are interdependent.

The relationship between the concepts expressed is summarized in the form of Fig. 1 and shows that human beings, through the tools of perception in his hand, go through the stages of feeling, perception and cognition and enter into interaction with the environment which includes three areas of natural, artificial and social. This interaction with the outside and inside the building, displays itself as the dialectic of rupture and connection, which is changed by the elements of space, namely the ceiling, floor and wall and how they are used, dialectical range, changes from complete rupture to complete the connection. What is being questioned is what is the relationship between human

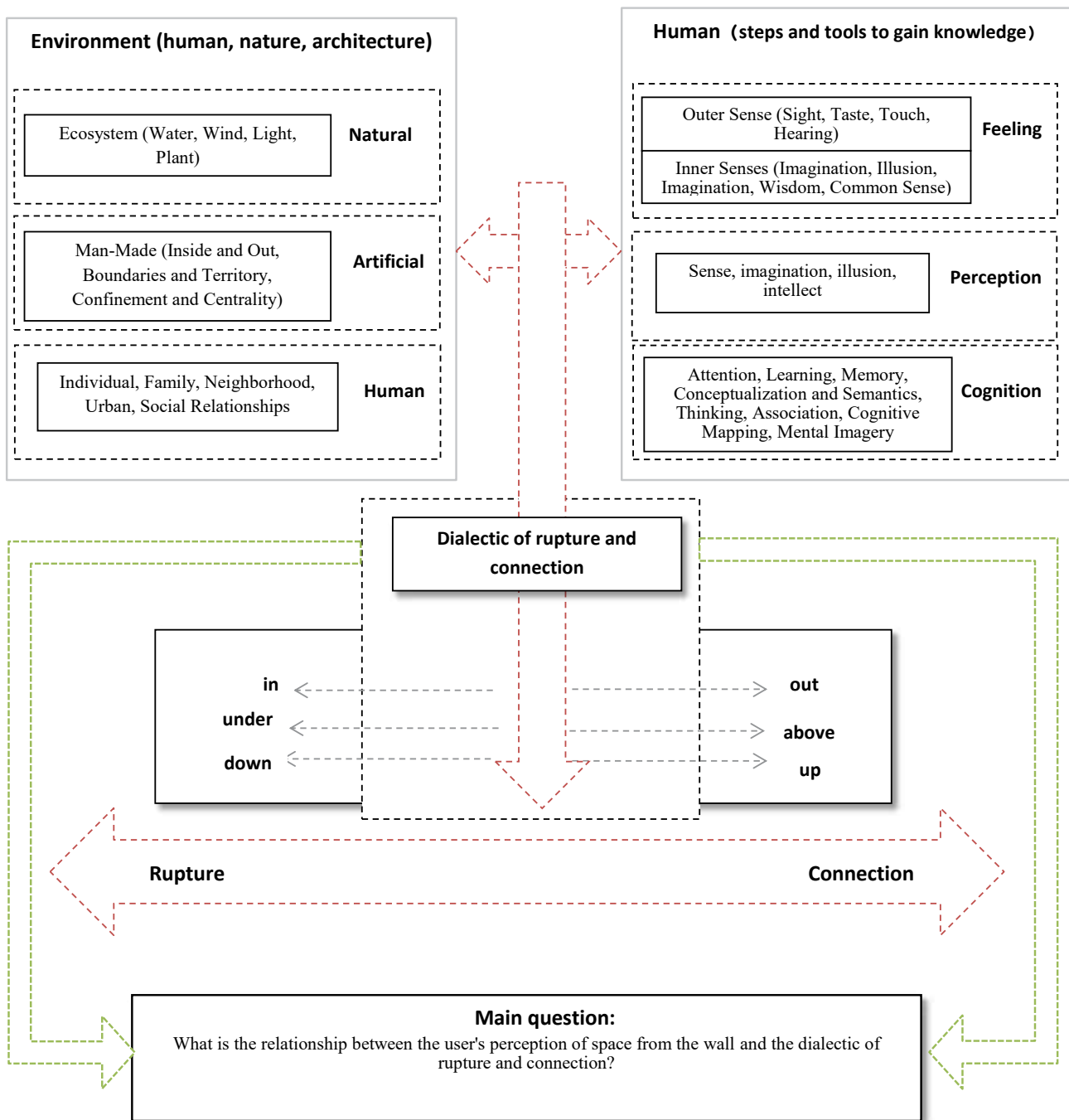


Fig. 1. Conceptual model of reading dialectic of discontinuity and connection based on the role of the wall. Source: authors.

perception and dialectics of rupture and connection due to the presence of walls in the definition of the outside and the inside?

Methodology

The research method is qualitative and interpretive and the grounded theory method was selected for

conducting the research for two reason: 1) due to the emphasis on the user's perception of the role of walls in the dialectics of rupture and connection; 2) the lack of sufficient theoretical foundations in this field.. Because, it was not possible to achieve the research response using proof-based process and also the purpose of the

research was not to test theory and did not seek to reject or confirm a predetermined hypothesis. Rather, it seeks to find the relationship between the user's perception of the role of walls and the dialectic of rupture and connection. We are usually allowed to use the grounded theory when there is gap in science (Strauss & Corbin, 2019, 30) or we are not even looking for a new theory and we just want to produce new hypotheses for quantitative research and subsequent researchers. The root of the grounded theory is in symbolic interaction theory (Farasatkah, 2019, 15). The social theory of symbolic interaction considers human perceptions and interpretations of external realities as different. External reality is not so pure, but it is mixed with people's interests and values. Accordingly, researchers of the grounded theory method should see what humans and perpetrators and activists and stakeholders say in every situation. This allows the phenomenon in a particular context to be represented in a polyphony way based on perceptions and interests from different perspectives (Glaser, 2002). Among the five main approaches in the grounded theory method (Asgharzadeh, 2017 cited in Farasatkah, 2019) the systematic method of Strauss and Corbin was selected for this study. Strauss and Corbin's systematic method is exploratory and the researcher's focus is on the process, action and reaction and data coding takes place in three stages of open, axial and selective coding, which is nonlinear and constant comparison of data. This method can produce conceptual relationships through continuous adaptation. To collect data, different methods such as interviews, watching and reviewing written documents and texts were adopted and in each section according to that section, the utilization rate of the method became more and more pronounced. Asgharzadeh (2017) quoted from Houman (2006) that one of the useful methods of data collection in qualitative research is interview that leads to deep review of sample thoughts and makes semi-structured interviews

more flexible. The sampling method was purposively conducted using the snowball method. Purposive sampling is a non-random sampling method in which samples with the most information about the main subject of the research (Strauss & Corbin, 2019 cited in Patton, 1999). Purposive snowball sampling is taken from a relatively hidden statistical population and each sample will guide the researcher to the next informed sample. The data collection of the present study focused on semi-structured and in-depth interviews of key informants (residents) and experts in the academic and professional fields who were selected in three levels and frameworks, according to Table 2. Data were collected and analyzed simultaneously. Thus, after each interview and transcription, three-stage coding was performed and analyzed using MaxQDA software. It should be noted that qualitative data analysis software, like quantitative software, is not automatically able to analyze, but also helps the researcher with data storage, simplify the analysis process, categorize data and having easy access to codes. The systematic method described can be seen in the process described in the form of Fig. 2.

Discussion

According to the research question, the process of conducting interviews began and at the same time with each interview, data analysis was

Table 2. Typology of the framework sample of interview participants
Source: authors inspired from Farastkhah, 2019.

Participants	Symbol
University professors with related research background	IN-F
Architectural designers with a background of designing and building residential projects	IN-D
Users present in the case study samples	IN-U

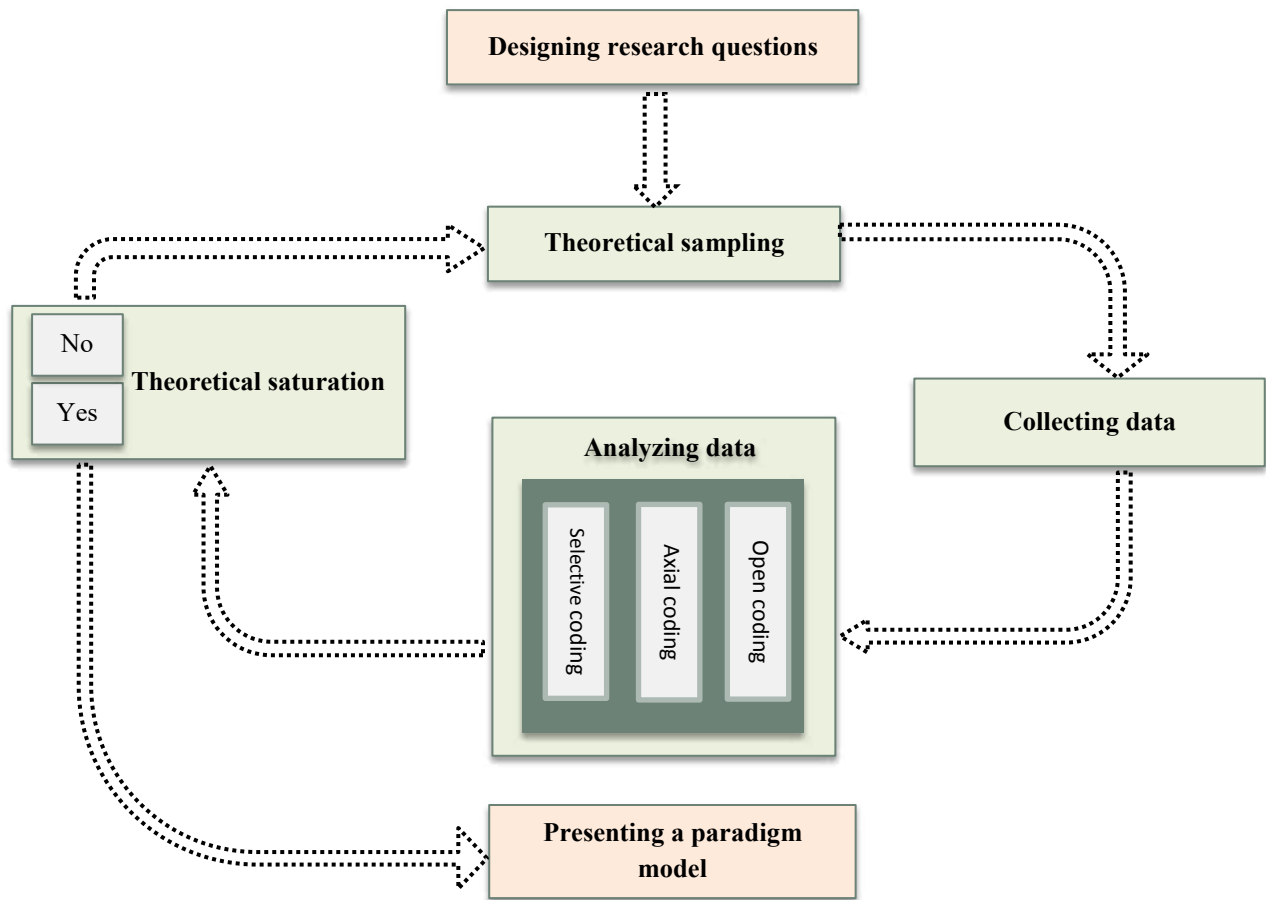


Fig. 2. Important steps in developing the paradigm model based on Grounded theory. Source: authors.

conducted simultaneously from the first interview . In this process, new questions were raised for the researcher. Questions such as understanding causal, contextual and intervening conditions in creating dialectics of rupture and connection, as well as strategies and consequences of this change. According to each of the questions raised, a group of key informers were analyzed and coded from open codes to axial codes and then into selective codes. An example of the process, in Fig. 3, can be seen that the first level categories have been extracted from row to row of interviews and have been transitioned to higher levels over time and the relationship between them is also based on Creswell’s proposed model (Creswell, 2012). In the first stage, 463 open codes were identified, some of them were deleted or merged into other codes while

continuing the interviews and coding process, until theoretical saturation stage that 12 interviews were conducted, the number of codes was reduced to 64 codes and the interviews continued until the 15th interview to ensure the dimensions and properties. The results show 16 categories of 64 open codes which were identified and in the last step they were placed in five selective codes. To summarize the text of this study, the obtained codes are presented in Table 3.

It was in the reversal process, between data and coding that the researcher noticed the change in the role of walls in the perception of the user due to dialectical interaction of rupture and connection. The contrasts that emerged from the interviews somehow spoke of a variety of factors in the user’s perception of the role of walls in dialectics and the

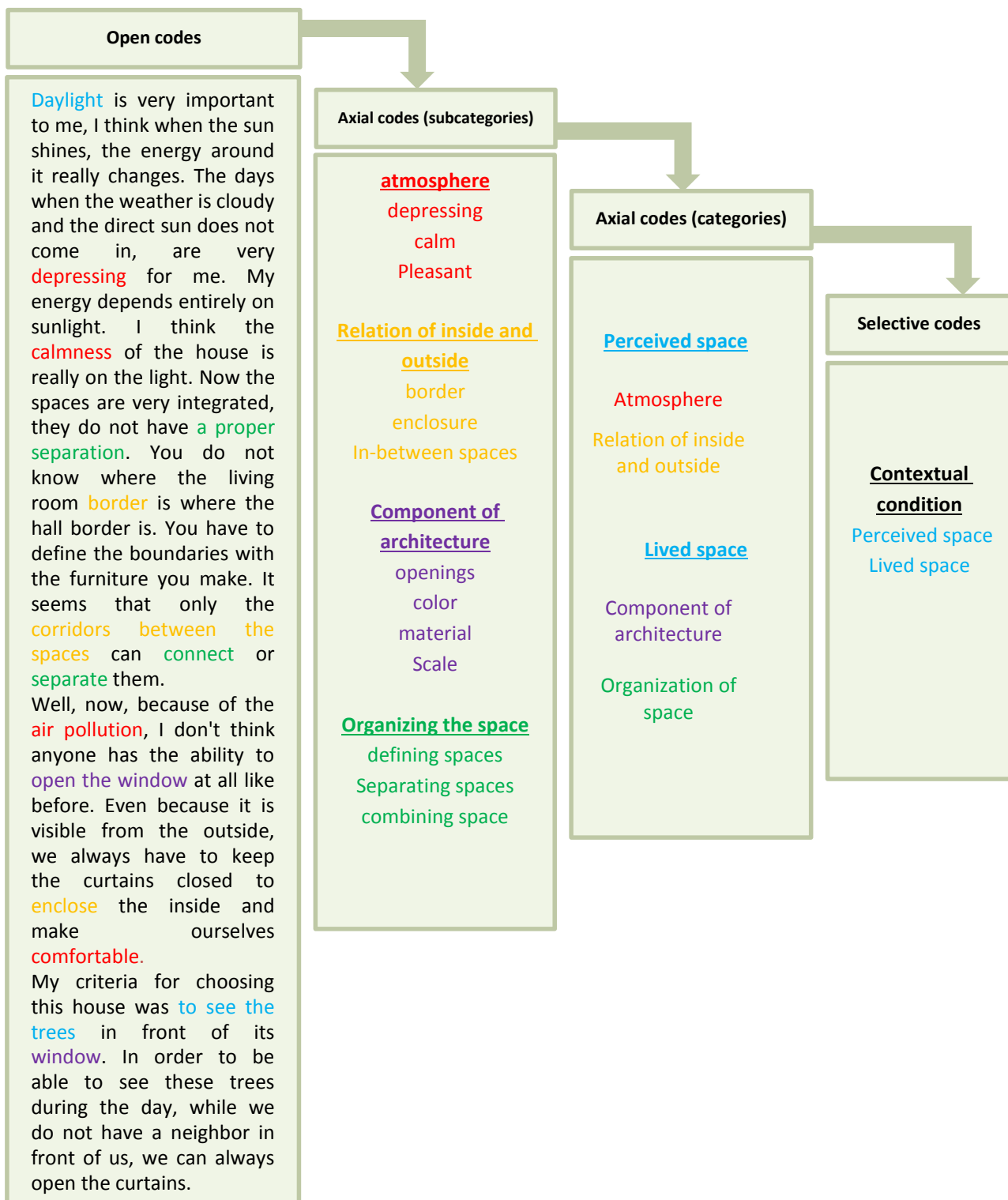


Fig. 3. Example of three-step coding on data from interviews. Source: authors.

researcher concluded that people in the past had a different understanding of the role of walls due to different types of dialectics. In other words, what experts had addressed was that many factors, along

with architecture, have underlies the dialectical range between rupture and the connection, based on the role of the wall in the inside and outside relationships. The round-trip between the data

Table 3. Extracted Codes from the interviews and their categorization. Source: authors.

Row	Open codes(subcategories)	Categories(first level)	Axial codes	Selective codes
1	Formal changes Spatial relation changes Construction method changes	House pattern changes	Fundamental changes in the present age	Causal conditions
	Individual needs Social needs	Human needs changes		
2	Air pollution Noise pollution Visual pollution	Environment changes	Lived space Perceived space	Contextual conditions
	Intimate, depressing, cozy, suffocating, comfortable, clear	Architecture atmosphere		
	Enclosure Inside originality Border territory In-between spaces	Relation between inside and outside		
	Materials, colors, scales, proportions, textures, forms, openings, installations	Component of architecture		
	Separation of space, definition of space, arrangement of space, composition of space	Spatial organization		
3	Light, air, temperature, view		Natural conditions	Intervening conditions
	Population growth, urban growth, urban migration, communication technologies Population growth, urban growth, urban migration, communication technologies	Society	Artificial conditions	
	Disruption of the homogeneous texture of neighborhoods, changing human needs over time	Culture		
	Changes of governments, change in construction policies, land reform, land fragmentation	Politics		
	Constructors benefit, Turning house into a commodity	Economy		
4	Respecting each other, respecting nature	Field of residents	Attention to residents needs	Strategies
	Construction engineering organization, municipality, employers	Management and executive fields		
	Light qualities and shadows, allowing the user's interaction with the facade, the ability to combine spaces, spatial diversity, landscape adjustment	Designers field		
5	Developing a sense of belonging to place, not belonging to space	Sense of place	Positive and negative sequences	Sequences
	Mental health, physical health	Residents health		
	vanishing the concept of housing, correct definition of housing concept	Definition of residence		

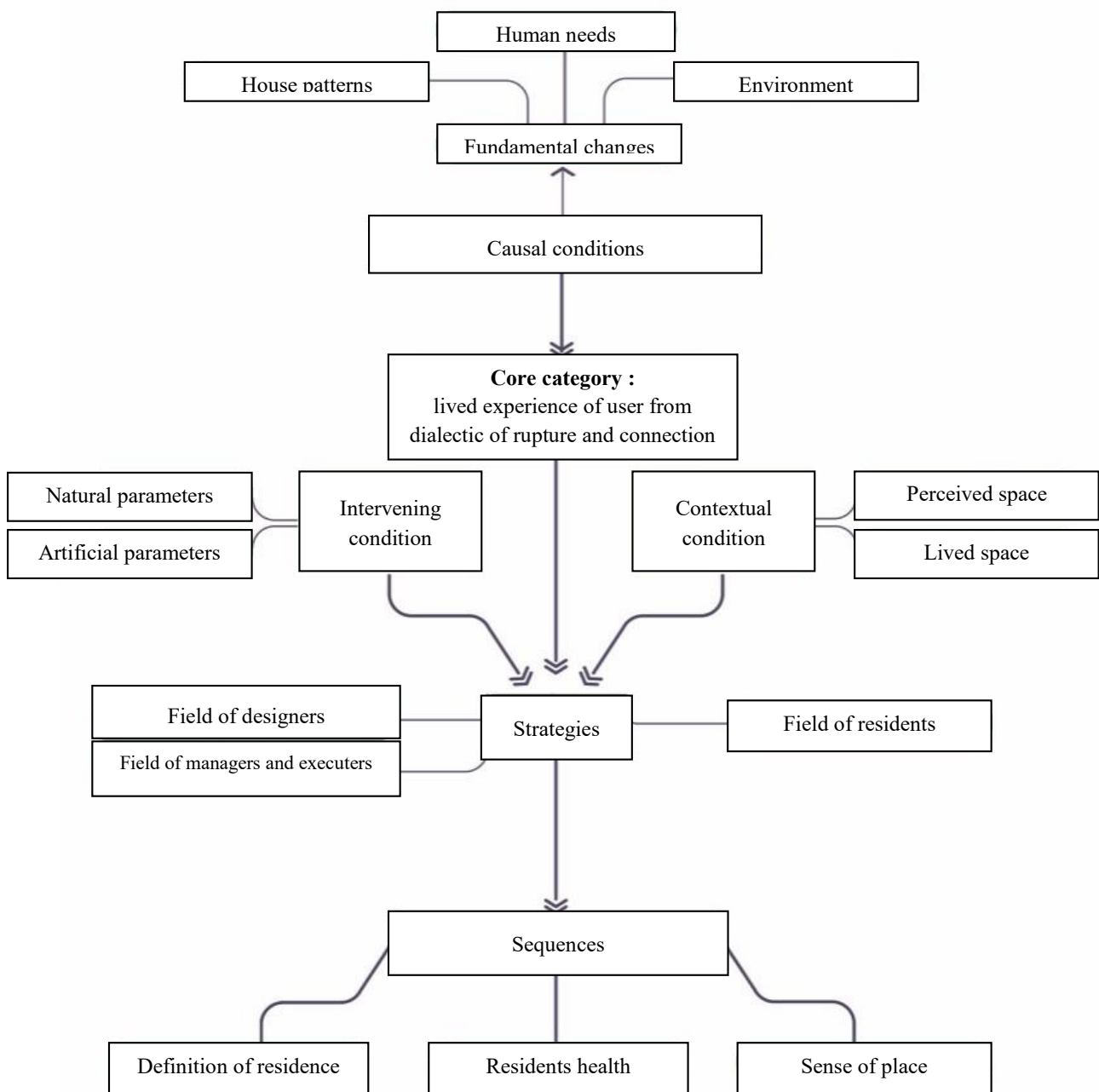


Fig. 4. Paradigm model of research, according to Creswell (2012) model of grounded theory in a systematic method. Source: authors.

continued until theoretical saturation, until the researcher achieved a conceptual model derived from the contrast of elements and how they communicate each other. The causal factors of this phenomenon have been, changes in the pattern of houses over the last 100 years, environmental changes and changes in some human needs. The consequences of this are the lack of proper understanding of the

environment, lack of belonging to the place and the loss of the correct concept of residence. Also, the contextual conditions pointed to the components that were specifically related to the role of the wall as an intermediate between inside and outside and the intervening condition also indicated factors that, out of the issue of architectural body and the wall, are effective on the dialectics of the rupture

and connection. In other words, based on the obtained model, presented in the form of Fig. 4, by recognizing and considering the change made in this dialectic, the relationship between the user's perception of space from the wall as an intermediary between the outside and the inside and the dialectics of the rupture and connection can be explained. Among the codes described in the interviews, the parameters affecting the user's perception of the walls were categorized in the dialectic of

rupture and connection. These parameters were divided into four main categories. Environmental parameters consisted of variables such as light, air, sound and view, individual parameters included age and gender, physical parameters of the wall comprised wall form, wall ratios and wall openings and space parameters involved surface extensions, activity extensions, rhythms, axis, transparency and in-between spaces. Combination of the subjects are stated in Fig. 5.

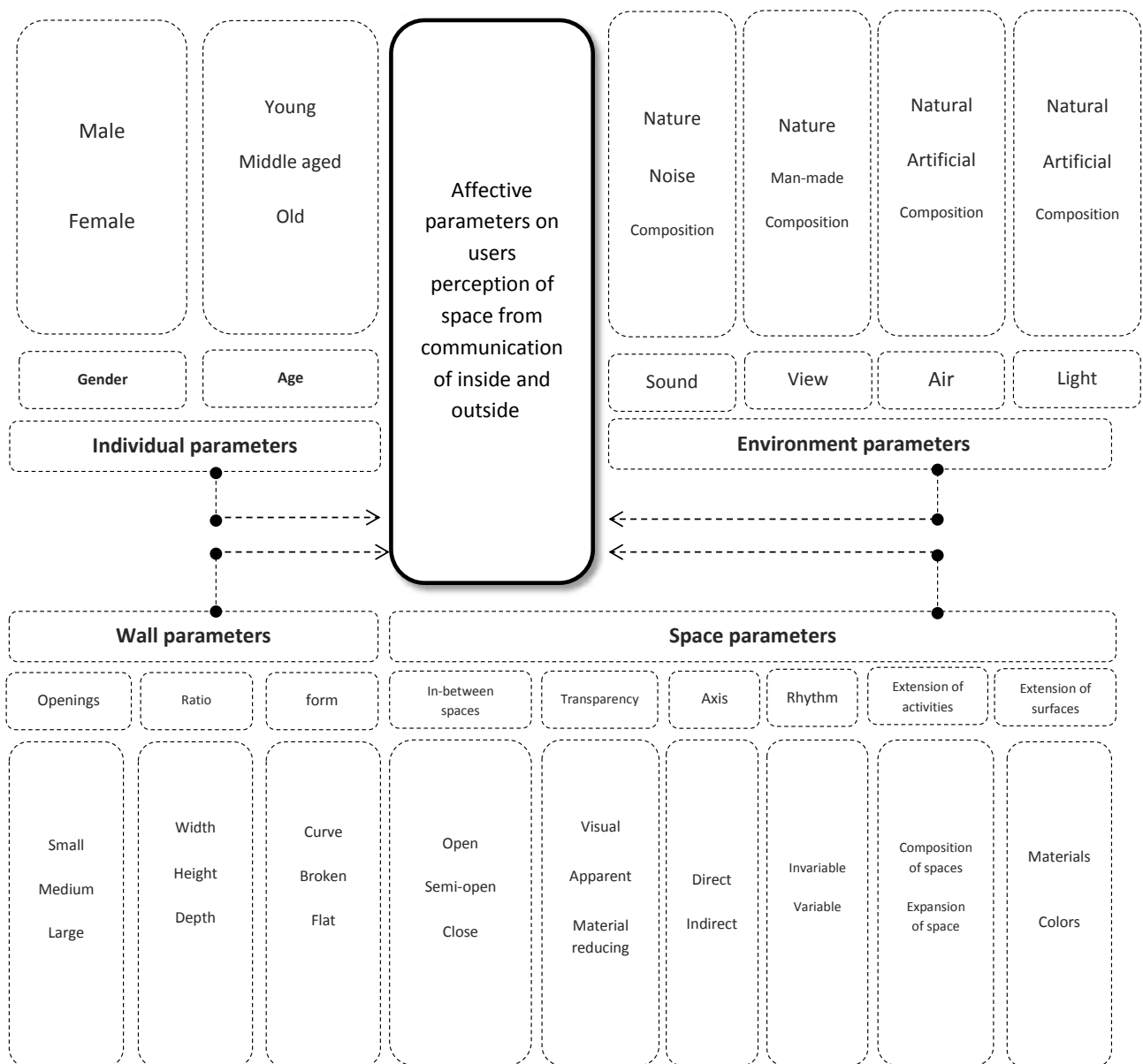


Fig. 5. Parameters affecting the user's perception of space from outside and inside communication. Source: authors.

The frequency of codes extracted from the interviews in MaxQDA software showed that the effect of the four main categories of identified parameters, based on the lived experience of users. According to Fig. 6, is that the individual parameters are the most and the space parameters have the least impact on the user's perception of the dialectic of rupture and connection.

Also, each of the mentioned parameters had some components, which based on the frequencies

obtained in MaxQDA software, have different weight, which is shown in Figs. 7, 8, 9 & 10.

Therefore, the effective components in the main parameters, including age, in-between spaces to create the possibility of spatial continuity, natural view and landscape for the possibility of increasing communication with nature and increasing the opening of walls, through transparent materials or structure of the walls. Paying attention to each of the mentioned components as well as other

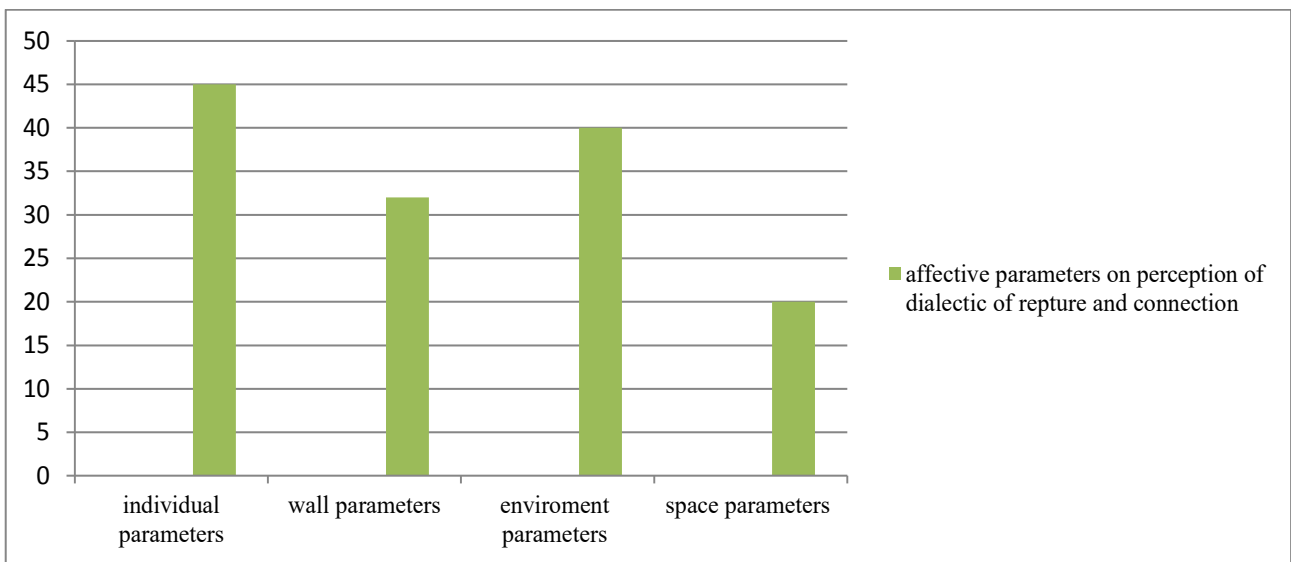


Fig. 6. Comparison of the effect of parameters on the user's perception of space based on the dialectic of rupture and connection. Source: authors.

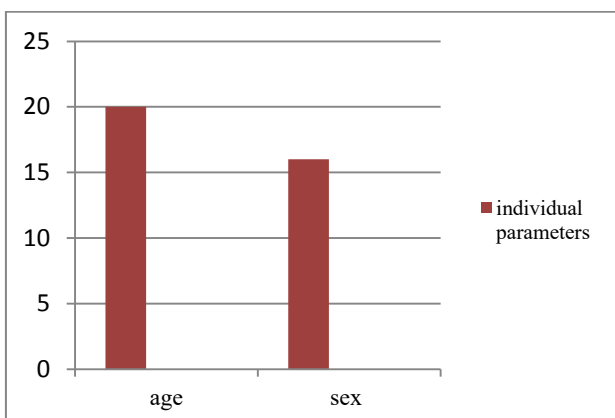


Fig. 7. The comparative analysis between individual parameters. Source: authors.

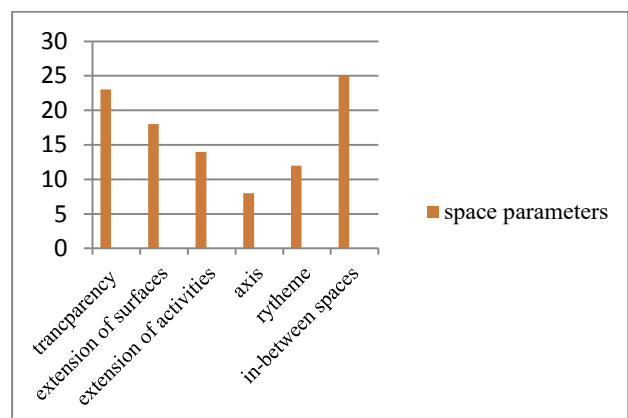


Fig. 8. The comparative analysis between space parameters. Source: authors.

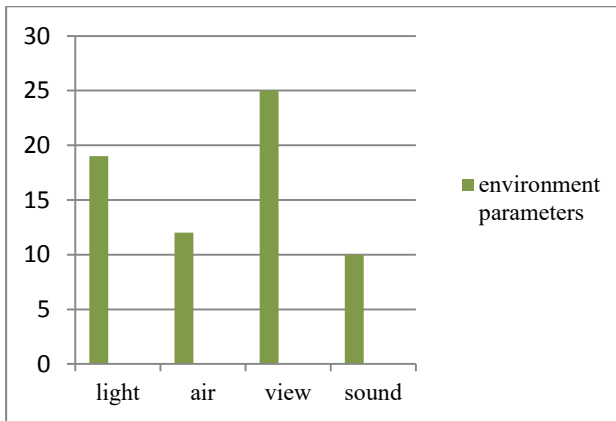


Fig. 9. The comparative analysis between environment parameters. Source: authors.

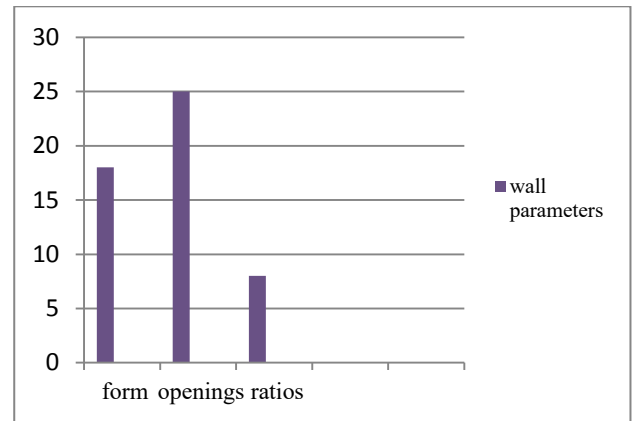


Fig. 10. The comparative analysis between wall parameters. Source: authors.

components can change the user’s perception in the range of rupture to connection.

Conclusion

The obtained data show that the four main parameter categories influence the user’s perception. The frequencies of the codes in MaxQDA software indicate the weight and importance of the parameters from the perspective of users. According to these frequencies, individual parameters were identified as the most effective parameter among the four categories. This means that people’s characteristics have the greatest impact on their perceptions so that in the same space, people have different perceptions of the dialectics of rupture and connection. Therefore, to achieve the appropriate dialectics, special focus of designers in the first stage should be on the individual characteristics of the people for whom the space is designed, due to the limitations in identifying future users of many residential spaces, it is better to focus on the appropriate use of environmental parameters in the second stage. For example, playing with light and shadow or in other words, diverse optical quality can be considered as one of the solutions. Flat windows do not create any optical variations and greatly reduce the way we use a variety of optical quality. As a result, designing some shells on facades or using various

forms of windows depth or frames or even various colors in glass can help to create a variety of optical quality. The residents can also be considered as a solution by their discretion to adjust some of the possibilities for using the amount of light in the entrance. Because it is not possible to consider the same pattern for everyone in the same building, individuals should have the possibility to make decisions in adjusting the amount of light entering the space and establish an interaction between the user and the façade in this way. Such a possibility should be made in a coherent whole that does not cause chaos in the façade. Also, paying attention to the angles of people’s view from the inside or the design of the landscape that is seen from inside and in general, setting the perspectives based on what people see and how they see, should be considered by designers.

In the third stage, paying attention to the physical solutions of the wall can be useful. For example, considering that today the interior walls are no longer responsible for bearing the weight of the ceiling, solutions can be used to increase the ability of combining spaces or separate them when needed. In the last step, paying attention to the parameters of space, the components of which were previously described, can help to create a suitable dialectic. For example, the use of in-between spaces that can facilitate the connection

between outside and inside and use them when necessary or attached to the main spaces can be considered. Also, according to most interviews, the main problems of today's buildings are the lack of diversity in amount of opening and confinement of spaces, providing solutions to increase the diversity in the confinement of spaces can be considered by designers in this field, To take steps to create the right dialectic. Paying attention to the creation of spatial continuity is another solution that can be considered by designers. In this regard, it should be noted that the purpose of space continuity is not merely visual and physical continuity and it includes spiritual continuity, as has always been considered in Iran's past architecture and today, in the face of modern architecture, the role of this continuity has been reduced, which needs to be re-considered by designers to improve the quality of today's living spaces.

Also, since the user perception of space cannot be evaluated numerically and is presented in a completely qualitative and fuzzy range, according to the data obtained from the user's perception, the seven ranges presented in Fig. 11 were identified. The transition are is exactly located in the middle of this rang. which has an equal degree of rupture

and connection perceived by users and shows the most fuzziest situation. Other degrees in the following range, represent the user's perception ranges of rupture and connection dialectics.

In the last step of the study, the parameters extracted from the interviews were again provided to residents and participants and asked to express their perception of the degree of rupture and connection in a five-point scale which are a) very low; b) low; c) medium; d) high; e) very high. The received responses were analyzed on the following seven-point scale (by eliminating complete connection and complete rupture that does not occur in residential land use).

The result of analyzing the participants' responses indicates the fact that in today's public houses in Tehran, despite the ability of walls to be present in the shape of a complete seperator, to empty vertical frames with transparent glasses, people consider the walls to be more in the role of internal and external separator, not linker. This is quite the opposite in the architecture of the central courtyard houses, according to interviews with the residents of these houses, as well as reviewing the existing documents, people considered the walls as the linking role of the spaces. The results showed that the residents of

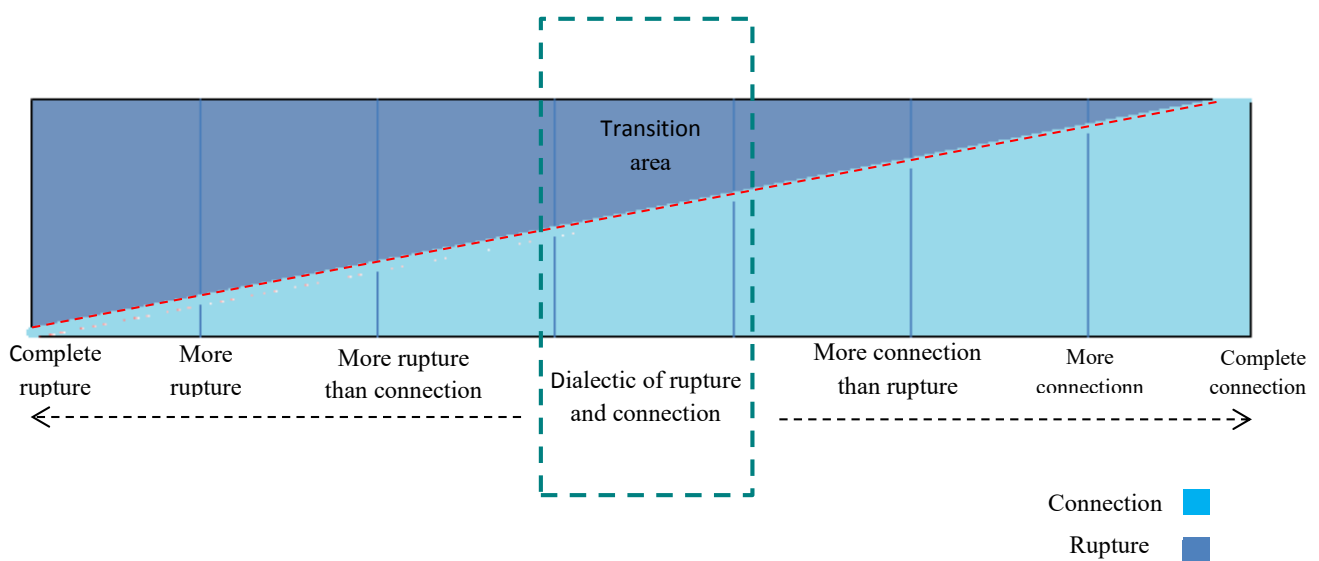


Fig. 11. Seven area of rupture and connection dialectic, in user perception of space. Source: authors.

the central courtyard houses, perceived the degree of “more connection than rupture” in accordance with the qualitative expression of “high”, while the residents of apartment, perceive the degree of “more rupture than connection” in accordance with the qualitative expression of “low”. The main reason can be in limiting the possibility of spatial expansion, landscape expansion and light expansion of today’s houses, because of its proximity to the streets, which is in contrast to the principle of confidentiality in Iranian culture and its incompatibility with the extroversion of houses due to changing the pattern of central courtyard to an apartment passing from tradition to modernity. Therefore, the researcher has chosen the title of “wall monologue” for the central phenomenon of the created theoretical model to explain the user’s perception of the walls of today’s walls in residential buildings.

It should be noted that despite mentioning the general solutions in establishing appropriate dialectics, precise and executive solutions and careful investigation of its consequences requires other researches that are considered as suggestions for future research at the end of this research, with the hope that living spaces can provide more suitable environments literally for the residence.

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