Transformation Types of Transitional Spaces in The Local Dwelling in Iraq

J H Alanbaki¹, A M Almoqaram²

¹Department of Architecture, college of Engineering, Uruk University, Baghdad, Iraq.
²Department of Architecture, University of Technology, Baghdad, Iraq.

*jinanhassan@uruk.edu.iq

Abstract. Transitional space was considered as one of important parts in any different building types. These spaces contributed to the connection between many parts of spaces like (inside-inside or inside-outside), even in relationships between parts to parts or the whole building to the parts –and also to the urban context. Previous knowledge that focused on this space among limited types of functional patterns led to surfaced the research problem identified as “the need to identify the Transitional Spaces patterns in domestic houses in Iraq among different period times”. The research hypothesis is “The patterns of transitional spaces in domestic Iraqi houses varied according to the function and location and the number of these spaces and these changed over time by drop in their types, in addition to reduce in its functional diversity”. The research methodology was consisting of three stages, first: building theoretical framework about characteristics of these kind of spaces in houses, second: select samples of Iraqi domestic houses from different periods times, third: analyzed finding and drawing conclusions. The research conclude that Transitional spaces are affected by many local environments forces, and by social, economic and cultural activities.

1. Introduction

The concept of Transitional space related to the Transition vocabulary, its origins go back to the Latin word (transition) [1] and it is mean “a going across”, also it is referring to the moving from one event, place, act to another as a changing from many things and satiations. The term of Transition was described by Bridges as not just connect to the changing in situations but it is as adaptation in internal psychological changing process, it makes a Turbulence in changing incident [2]. On the other hand, the transition term linked to liminality and Threshold terms. Liminality was described as a stat of moving from two situations or two entities or two images and it shows itself as an edge or interval or identified space While Threshold described as a transference element between contrast situations and jointing them also[3]. To conclude, the Transitional and Transionality concept could be a state of transmission or shifting and changing from one condition to another.

2. Transitional space in previous Studies

2.1. The relationship between indoor spaces and outdoor spaces

Nooraddin has showed the relationship between indoor spaces and outdoor spaces at the level of urban context specifically in old Arab city through the concept of between space which be closed with the concept of the transitional spaces in his research “In-between space”. The space is working as an intermediary and it’s an area of overlap between the inside and outside and to link this relation in
gradation of spaces from public to private. Where this space dependence in planning of the contemporary Arabic [4].

2.2. *Interface of Indoor and Outdoor Spaces in Buildings*

The transitional space is an interactive and communicational space in some Studies like "Interface of Indoor and Outdoor Spaces in Buildings: A Syntactic Comparison of Architectural Schools in Istanbul". This characteristics is founding inside the building (such as intermediate transitions, yard and green yard) or outside the building such as yard in universities, the importance that shown in this area is determine the social and behavioral specialized so the effected of those area on social interaction among students and their behaviours [5].

2.3. *The Transitional Locations of Nomadic Narratives*

Ana Luz in her research (Places In-Between: the Transit(onal) Locations of Nomadic Narratives” talked about The transitional spaces in urban context and became more expanded such as transport and communication transit sites like airports, train stations and buses as well as: tunnels and highways. the subway Tube in transition between space show as a position connecting the starting point with the access point and during that, another reality is created [6].

From the above...there is overlapping in transitional spaces concept and complexity in their application levels and their embodiment in architecture and the urban context, this research had focused on transitional spaces within residential building in Baghdad city cross different period. So the problem of research, purpose and approach is defined as follows:

The research problem: identified as the need to identify the Transitional Spaces patterns in domestic houses in Iraq among different period times”.

Objective of the research: determine the types of transitional spaces for domestic houses from several variables associated with type, characteristics, location and it’s sequence.

The research hypotese is: The patterns of transitional spaces in domestic Iraqi houses varied according to the function and location and the number of these spaces within the whole building layout. and these changed over time by drop in their types, in addition to reduce in its functional diversity.

The research methodology was consisting of three stages after identifying Transitional spaces concepts:

* Building theoretical framework about characteristics of these kind of spaces in houses.
* Select samples of Iraqi domestic houses from different periods times and determination the measurements scales for practical study.
* Analyzed finding and drawing conclusions.

3. *Theoretical framework: Characteristics of the transitional space in domestic houses:*

3.1. *Transitional Space*

3.1.1. *Specialized of transitional space:* The most important features are considered as between space giving an explanations and new means to communicate with spaces to change the static zones into dynamic spaces through connectivity and communication [3]. One of the features of transitional in-between spaces is create a continuous communication and change, that the transitional space is characterized by ambiguity that (the part that leaves behind to part that heading toward) [6]. And the other specialized is from the type of hybrid due to it’s hold the characteristics of the opposite sides [3].

3.1.2. *Transitional Space Location:*

*Public space:* This space is appear on the level of urban context within squares (public squares- parking- areas- green spaces), Also, the spaces between the buildings that appear in a
neighboring or backward, side or front…ets. like streets (roads, sub streets, corridors, pavement, canals) and alleys (corridors and alleys).

- Public and private space: The concept of transitional between public and private spaces is agreeing with the concepts of liminality and threshold these concepts contributed by crossing moment and transition between two part or situation like (entrance-entryways-doorways -entry or exit points), and this show by some elements such as(doors- Windows-gates, fences, walls, steps, door steps, as well as the distributor lobby and many others, or in non-physical spaces like local/global, Inside/outside[6].

- private space: One of the Characteristics of transitional space is (gathering space). in the same time, the accessed to spaces is through them such as courtyard (al-hosh). The benefit of this space is collects all, when used it as a seating place, eat the food and meeting and gathering place. So It’s considered as a point of connect which linking between the other of the house space. There is another type of the transitional spaces called (atrium) which look like ”courtyard” but with having a glass roof, also the sunspace, which considered of transitional spaces. The sunspace is the same form of atrium, but the glass walls are close it completely[7]

3.1.3. 

Transitional Space Sequence:

- Transformational sequence: Is based on rules and discrete architectural elements. Passage through this sequence becomes its own theoretical object. The process must become the result, with the sum of transformations being at least as powerful as the ultimate transformation, Transformational devices include pressure (access doors), limited liberation (atrium), opposition (atrium walls), very short pressure (basilica doors), total liberation (transversal of nave), and final contemplation (space of central system) [8].

- Spatial sequence: It is (a family of spatial points linked by continuous movement). Spatial sequences may be closed or open arrangements [8] with several type of spatial configurations linear, Radial, Grid, Centralized, Clustered[9 ]‘figure 1’.

![Figure 1. Organizing principles and common spatial configurations](9)

3.2. 

Features of Traditional domestic houses (Baghdadi)

The Baghdadi’s house is still a mirror that reflects the values and the privacy of society, where the Arab and Islamic moral values confirm, which give morality in planning city then district, alley, and home important values. the city closed itself in planning city, district, alley through the relationship between inside and outside, and also form house level by closed the House into inside and protection from outside in affirmation of the principle of non-balcony[10]

3.2.1. Baghdadi’s house (planning and its transitional spaces):

The origins of Baghdadi’s type extend to Sumerian house, that product an advance model which consort environment, building techniques and developed over thousands years where Basra and Kufa adopted on model on which traditional domestic Baghdadi’s house relied [11] (The heritage houses was formed a cohesive building block, with contiguous building from all side and with just one front view that overlooking the alley. The building planning, from other side is characterized by homogeneous growth with narrow irregular alleys. The alleys are gradating in the length, the width and number of houses, all this are reach to (CAL-DE-SA), it’s represent the smallest and narrowest unit of the alley with associated by small residential unit, where this unit follow to same family. The residential unit borders of the Baghdadi’s house are specialized by irregular with inner spaces according to geometrics perspective.
The central transitional space with irregular geometric shape is essential role in organizing of surrounding spaces [12]. The house was specialized by important and distinctive transition space, called as "broken Doorway", which opening on the one hand directly to the Alley and on the other hand to transition space with considered inside the house. The broken Doorway is provide many benefit, the first benefit, that the person who pass as in the way couldn’t see who was in the house, So this benefit keep the independence the family. The other benefit is that the broken doorway is led to transition space is called vestibule or corridor in the form of standing angle called (Majaz) than to inner courtyard (hosh), another second entrance that leads to transitional space called (Dolan) than to the guest lounge[13].

The planning of the Traditional domestic Baghdadi and Islamic house is based on important transition space Where Intermediate the house as a central part that open on it most of units of house (the rooms, tarma, corridors and health facilities, etc.), from two, three or four sides depending on the capacity of the House this transitional space called (hosh al-Baghdadi), it's form square or rectangle. Arcade is considered as transitional spaces in Baghdadi’s house, which located in the houses at the front of iwan, the iwan build consists of three walls it’s roof exposed on the front view that overlooking the transitional space(hosh). also Tarma considered as transitional space between iwan and hosh [13]. Baghdadi’s shanasheel is protuberance the floor and the outer wall of the alleys ‘figure 2’, Which contain wooden clamps. The Baghdadi’s shanasheel are equivalent with the moucharabiehs in Cairo’s houses, and are also equivalent to the Jeddah's Rawashin houses. hierarchical balconies are transition spaces (public/private) with existing angles. finally, "The stairs " is considered transitional space Vertical.

**Figure 2.a** Al-Shanashel for the upper floors of two opposite domestic homes in the same alley – Bab al-Seif – Karkh-Baghdad

**Figure 2.b** courtyard (the hosh) as a transitional space in a domestic house in district of Qember Ali – Rusafa

**Figure 2.c** An alley in district of aged al-qushel- al- Rusafa – Baghdad, where the entrances to the domestic houses.

**Figure 2.d** shanaseel for the upper floors of one of the houses – the Torah – the Rusafa – Baghdad

**Figure 2.** Different transition zones in heritage domestic houses in the karkh and Rusafa area of Baghdad.
3.2.2. *Traditional Baghdadi’s house between the public/private*:

There is forth assented element in plan of Baghdadi’s house such as: functional-protection and safety-society private- environmental limiter), the above-mentioned principles have been made available to these aggregates of space through the organization and relations between them through the joint (transitional space), where the house's spaces are grouped as follows [10]:

- Public/Private spaces: such as guest rooms.
- Private spaces: such as different family spaces (enclosed, semi-enclosed and open spaces).
- Private/Private spaces: such as bedrooms.

Transitional spaces are including many spaces which located withen private and public spaces follow:

- Public/Private transitional spaces: such as wall/entrance/lobby/vestibule/al-Majaz/ al-Dolan/Balcony / shanasheel.
- Private transitional spaces: such as Hosh/tarma/Arcade/stairs.

4. Description of the samples of Baghdadi domestic houses from different periods times

4.1. *First sample(A)*: This period belongs to the second decade of the twentieth century. In that's times the Iraqi community was specialized as conservative society, emphasizing the principles of privacy, protection and security within the planning of the organic urban fabricard in the design of the domestic house[10]. This sample appears in the house in the AL-Kadimiya area ‘figure 3’ where the boundaries of the area are irregular form, with regular geometric distribution of the inner spaces that gathering around central transitional space (Hosh), and the main entrance is broken and indirectly.

4.2. *Second sample(B)*: This period belongs to third decade, where different structural pattern of the Baghdad domestic was appeared by entering the car into some Baghdad's area, all of this affecting on neighborhoods, and also effect on the form of the domestic unit. This sample appears in AL-sinak area; which established in 1927 ‘figure 4’ In this plan shows the openness outward through the direct entrance of the hosh, and appears anew transition space, which called balcony, and also have windows on the ground floor, which open directly on the street, as well as kept the transition space (Al-hosh) as especial space in this period, which opens it AL-Iwan and private house rooms. from this the kept on principle of total isolation between the public and the private is beginning to reduce in this third decade [10].
4.3. Third sample (C): This period belongs to the fifth decade, where Baghdad has seen a big growth in natural increase rates in population and intensive migration from other governorates and the surrounding villages all this had effected on the planning of The general planning pattern of district residential are specialized as a noncontiguous block. The important advantage in the domestic units pattern is disappearance of the main transition space (AL-hoshe) and change it with inner roof space (hall), and also appearance a transitional space like a back garden which the family members used it. The sample(C) has been appeared in 1947 year, and ‘figure 5’ located in AL-shamasiya area, which specialized by having a front garden with AL-tarma as a roofer space located between the garden and the main entrance, also having back tarma and back garden and exit corridor side, This corridor opens all the spaces that attached with the house like garage, store and the rest of the spaces that attached with the house. Toward The corridor of the house there is a kitchen[10].

4.4. Forth sample (D): This sample had been chosen for the eighth decade, in this time's the economic growth, was increased all that because the national of oil that reflected in the large size of the domestic units and also reflected in the vastness and multiplicity of its size, so the transitional spaces become increase. This Sample shows in plans that proposed from Ministry of Housing and reconstruction in 1974 ‘figure 6’. The most important advantage is attachment of the Transition space (outer courtyard) or as called "AL-tarma" with garage of the car, so that well make the transition space bigger, addition to deleted back garden and kept the front garden big [14].
4.5. *Fifth sample*(E): This sample had been chosen in 21st century, during of this period, it happens many event like wars, migrations from the provinces and residential growth, all that led to big change and uncontrolled in the houses planning. in this century specialized in divide the single house into small houses, so all that change effect on residential area to become a several houses with small spaces ranging from (40-100) m. A local residential had been chosen in Baghdad in the AL-Jadiriya area as ‘figure 7’ with an area of 100 square meters and three floors. The main points of influence are the proximity of the residential unit of the street and the depth of its relationship with it.

5. *Method of measurement and data analysis, and measurement variables:*

The practical phase of the theoretical framework came through the direct recording of detailed single, and the method of statistical analysis will be adopted numerical to analyse recorded data that record the degree of compatibility with its detailed variables, where the degree of compatibility has been classified to:

- weak or non- degree of compatibility
- Medium degree of compatibility
- High degree of compatibility

![Figure 6 Sample (D) plan house in Baghdad in 1976](image)

![Figure 7. Sample (E) plan house in Jadiriya, Baghdad, year of built, 2014 Ground floor/The first floor/The roof](image)
6. Discussion and analysis of results
When applying the measurement scale to the five elected samples for practical study, the result that are related to each individual of vocabulary of theoretical framework first, then the degree of compatibility of the variables that related to the transition space in the local house, as in table 1 (The table shows the main and secondary variables Which was extracted from the theoretical framework and selected for the application and comparing results in terms between the five samples elected and the degree of compatibility of each variable).

6.1. The Result for first single of type of transit space: The result that related with crossing of transitional space, whether moment or as identifier, confirmed that first sample (A) was crossing of the transitional space which are in a way of moment a crossing a solid wall to express that the house, street and on-balcony become more separation and segregation for each other. The other fourth sample (B, C, D, E) The result had shown that the transitional space as a cross-identifier for samples through the entrance defined on the balcony and steps of the stairs to entrance as the sample (B) or through the outer courtyard pre-space, Tarma and the back garden like samples (C, D) and through garden and the garage like sample (E) to make separation and communication more visible.

6.2. The Result for second single of sequence of transformational transition space: For the result that related with the first and second samples (A, B), have been achievement all the reason of change to transition space with high degree of compatibility and be a sequential from pressure to limited liberation and then to the opposition to Total liberation of contemplation, where the pressure of the wall is being first then the limited liberation of a corridor or lobby. the both walls from the two side are opposed to the house (central courtyard) with a view toward sky (contemplation), the samples (C, D) have been achieved a moderate degree of compatibility, because there was no transform tool which is mean a total liberation, contemplation all that comes because decreased of transition spaces so the change is the middle yard open to the sky, while the fifth Sample (E) had achieved a low degree of compatibility because there are not enough transition spaces.

6.3. The Result for third single of space-based spatial sequence: For the result that related with the first sample (A) had came with high compatibility that means that the transitional spaces are a lot, so the diversity of relationship between transition spaces where provides three types of The relationships between the transition spaces are radial, grid and centralized, the samples (B, C, D) are achievement a moderate degree of compatibility with the different relationship between transitional spaces, while the fifth sample (E) has achieved a low degree for consensus as to the diversity of the relationship between the transition spaces, This due to The lack of transitional spaces that adopted in the design of the house.

6.4. The Result for fourth single of the number of the transitional spaces of the local house: The individual number of transitional spaces in the local dwelling, the first three samples (A, B, C) had recorded a high degree of compatibility to exceed the number of their transition spaces for more than nine transition spaces, while The fourth sample (D) had achieved a medium degree of compatibility, this mean that the transition spaces do not have nine spaces. But the fifth sample (E) had achieved a low degree of compatibility, which the transition spaces don’t exceed less than five spaces, and this of transition spaces in the periods that close to end of the twentieth century.

6.5. The results for the fifth single home orientation: The first and second samples were recorded (A, B) an intermediate degree of compatibility relative to the public and the private, as the number of their transition spaces was less than 6 public/private transition spaces, while achieving a high degree of compatibility As the number of their transition spaces were five spaces for the orientation and this shows their propensity towards privacy, immunization and protection with the beginnings of opening up towards public in the sample (B) with the presence of the balcony but with some kind of embarrassment.
because this space was not used in this sample period, the third sample (C) lost achieved a high degree of compatibility for both the orientation of transitions towards the public/private and your shows the opening up towards the public/private more there is an open space for the public through the presence of the outer courtyard and the tarma, and the fourth and fifth samples (D, E) Both of these samples have achieved a degree High compatibility in the orientation of their transition spaces towards the public/private while reduce this degree to come to an intermediate degree of compatibility in the orientation of their transition spaces towards this shows a greater openness to communication between the public/private and private in sample (E), which is more public-oriented than to private.

Table 1. Comparing results in terms of the secondary variables between the five samples elected and the degree of compatibility of each variable

| The variable | Samples Elected | Second values | Sample A | Sample B | Sample D | Sample C | Sample E |
|--------------|-----------------|---------------|----------|----------|----------|----------|----------|
| Type of transit space | moment cross Solid wall | * | * | * | * | * | * |
| Type of transit space cross ID As a zone | | | | | | | |
| Transformat sequence | pressure Limited liberation | * | * | * | * | * | * |
| Transformat sequence | Opposition Total liberation | * | * | * | * | * | * |
| Transformat sequence | Final contemplation | * | * | * | * | * | * |
| Spatial sequence | liner Radial Grid Centralized Clustered | * | * | * | * | * | * |
| Spatial sequence | | | | | | | |
| Number of types of transitional spaces in domestic housing From No. (1-5) | | | | | | | |
| Number of types of transitional spaces in domestic housing From No (5-9) | | * | * | * | * | * | * |
| Number of types of transitional spaces in domestic housing From No. (9-16) | | * | * | * | * | * | * |
| Traditional Baghdadi’s house between the public/private From No. (1-3) | | * | * | * | * | * | * |
| Traditional Baghdadi’s house between the public/private From No. (3-6) | | * | * | * | * | * | * |
| Traditional Baghdadi’s house between the public/private From No. (6-10) | | * | * | * | * | * | * |
| Traditional Baghdadi’s house between the public/private From No. (1-3) | | * | * | * | * | * | * |
| Traditional Baghdadi’s house between the public/private From No. (3-5) | | * | * | * | * | * | * |

7. Conclusions
Transitional spaces, especially in domestic house are an interactive space, where it is not merely a movement and passing space but a dynamic, interactive and communicational space through which
family members connect to be considered as the future culture of society. Maintaining the principle of isolation between private space from the public is essential in traditional housing through the introduction of more transitional spaces to minimize the problems that occur.

Change in the number of transition spaces, which we note in the first decades and the sixth decade of the twentieth century the number of transitional spaces is high while reduce in the eighth decade, but in an Ineffective way, the diversity of its spaces has been reduced in the first and Second decade of the 21st century, affecting the direction Dwelling about a public more. The limited number of transitional spaces in most domestic house in the twenty-first century has led to problems such as lack of privacy and lack of protection and balcony from public to private this creates problems at the level of family members and at the level of society as a whole.

Effect The limited number of transitional spaces in the first decade of the 21st century has been limited by communication and family interaction there is no necessary transitional space for such communication as the central courtyard or a roofer distributor space that works to communicate among family members.

The traditional domestic Baghdadi housing solutions must be consulted in order to regulate the relationship between public and private spaces through the transition spaces studied and in keeping with modern times.

8. Future Studies

- Preparing a study on the importance of transitional space within interior spaces design if the building.

- Preparing a study on the importance of transitional space and keep in mind the designs of future technologies.

- Prepare a detailed study on the transitional space as a separation and connection space and how effect on user behaviour.

9. References

[1] http://www.dictionary.com/browse/transition
[2] Kralik D, Visentin K and Van A 2006 Transition: A Literature Review Senior Research Fellow University of South Australia P 221.
[3] Alanbaki J 2013 In-Between Space in Architecture: A Study in The Nature of Active In-Between Space Master of department architecture University of technology in Iraq P 49 58 75 76.
[4] Nooraddin H In-Between Space University of Oslo Norway GBER Vol.2 No.1.p 50 56.
[5] Alper U, Erincik E, Fitnat C and Mehmet E 2009 Interface of Indoor and Outdoor Spaces in Buildings: A Syntactic Comparison of Architectural Schools in Istanbul Proceedings of the 7th International Space Syntax Symposium
[6] Luz A 2004 Places In-Between: the Transition(lial) Locations of Nomadic Narratives , International Conference Culture Nature Semiotics, Locations IV-Tartu, Estonia, P 147 148 194 150.
[7] Mohammad T , Martin T and Andy D 2012 The Effect of Different Transitional Spaces on Thermal Comfort and Energy Consumption of Residential Buildings Proceedings of 7 th Windsor Conference: The changing context of comfort in an unpredictable world Cumberland Lodge, Windsor, UK, 12-15 April 2012. London: Network for Comfort and Energy Use in Buildings .
[8] Repenning S 2003 An Architecture of Liminality University of Cincinnati Design Architecture Art and Planning : Architecture p 47.
[9] Ching F, D K 2007 Architecture Form, Space, and Order Publisher John Wiley & Sons 3rd edition ISBN-10: 0471752169.
[10] Albeirouty F 1992 *The Evolution of The House in Baghdad During the 20th Century with Special Emphasis to Cultural and Social Influences* Ph.D. thesis in architecture College of engineering university of Baghdad in Iraq P 96 101 102.

[11] Alhaidary A 2008 *Das Hofhaus In Baghdad* IKO-Verlag f. Interkult,ISBN-13: 978-3889398284.

[12] Hussain A 1996 *Order in Islamic Architecture* Master of Department architecture University of Technology in Iraq.

[13] Aloubaydi S Alyawar T 1988 *Arab Islamic House Planning and Terminology* Research presented Course (Authenticity of Arab City Systems) Center for the Revival of the Arab Scientific Heritage University of Baghdad P 6 7.

[14] Abdalahad N 1987 Residential *Houses Models* Ministry of housing Baghdad Iraq.