An Investigation into the concept of Privacy in Contemporary Saudi houses from a Female Perspective: A Design Tool

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Copyright Statement

Abstract

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An Investigation into the Concept of Privacy in Contemporary Saudi Houses: A Design Tool

This research investigates the concept of privacy in the context of Eastern region houses of Saudi Arabia. This concept had been explored in numerous fields in literature, such as psychology and internet security, where literature referred back to individual's personal preferences that translated social and cultural needs. As a concept, privacy is one of the social elements that needed to be considered within the scope of spatial design, an element that filled some of the gap between architects and clients' needs as expressed by literature. This research investigated the factors that shaped privacy inside the environment of the 'house' from the perspective of female users. Also, it looks at female perspective because of their role inside the house, interior spatial patterns in the house that reflect social patterns. For that, a qualitative ethnographic methodology was employed to help in the investigation process of the concept of privacy. Observation and interviews were the methods selected to communicate with a selected sample to get an insight of what privacy means to female users and the way they represented that meaning in the house design and patterns of use. The investigation was to study and analyse designs from traditional and contemporary houses supported with ethnographic data to document privacy interpretation inside the Saudi house. From that, spatial design elements were addressed in both traditional and contemporary houses that led to the developed design tool. The design tool, functional and spatial relationship guide, aimed to assist interior architects and interior designers in their design process of houses that respect social needs of privacy. That tool was evaluated by multiple focus groups taken by professionals from the field. The research contribution lies in identifying the meaning and boundaries of privacy in the perspective of Saudi female users of contemporary houses in the Eastern region. Moreover, the development of the design tool which helps produce house designs that are socially acceptable and respect privacy needs of users.

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Chapter 1. Introduction

A fascination with rapid technological and architectural development has led the researcher's interest in exploring the factors which have assisted those developments. Also the effect of globalisation on the status of architecture in the Arabian Gulf countries, in Saudi Arabia in particular, has been an influential factor for this research. The fascination with architecture followed its role in recording history, reminding people of what happened (Al Naim 2013). Yet, interior spaces reminded people of lifestyle and represented values of the time of the creation of the space. That and the fact of the researcher being a female interior architect in Saudi Arabia, the researcher has experienced the built environment as a designer and an end user and this has fostered an interest in the design of contemporary Saudi houses and the impact of those designs on the lifestyle of users.

Saudi Arabia has gone through a number of different historical and economic phases that have shaped its evolution. One of the main factors was the discovery of oil. People translated this evolution into their everyday lives; for example in education, communication and architecture. This was similar to the translation of the industrial revolution into the lives of Europeans. People had to migrate, leaving their original habitats, to where new jobs were being created and new opportunities were available. They wanted to live in their own houses, a place they could call home, conceptually as well as physically, because a house and its elements hold a symbolic meaning to its users; *"[the meaning] is a piece of home"* (Rapoport 1979, p. 52). Tradition, history, socio-economy, values and ideology were among the inherited factors that influenced and affected the resulting architecture (Ragette 2003). Their lives and principles are reflected in their houses, and currently they are in a state of flux, between traditional lifestyle and the move away from extended compound living - one influencing the other (Antoniou 1982).

Traditional surviving structures in most Gulf countries are now memorials to an age that changed dramatically after the discovery of oil. Furthermore, traditional houses were environmentally considerate, before the presence of air-conditioning, and provided their users with climatic comfort (Kay and Zandi 1991). The past century has witnessed development throughout the kingdom of Saudi Arabia from various perspectives, due to multiple inputs, political and

economic. These inputs followed the discovery of oil and the formation of the current Saudi Aramco oil company. The influence this company had on Saudi Arabia was dramatic and presented the country with on-going opportunities in different fields such as technology, politics and economy. On one hand, literature has focused on the visual effect of globalisation on architecture, and on the other the process of the creation of traditional visual elements in old architectural buildings. Architects had viewed traditional architecture with various approaches related to the way they utilised its existing knowledge; copying the past into contemporary creations, understanding the past and modifying it to suit the present, and lastly, acknowledging the past's existence yet starting with new ideas.

Some scholars have referred to the work of Rapoport (Bahammam 1987, Abu-Ghazzeh 1997, Al Naim 1998a) who discussed conceptual terms within the built environment such as non-verbal communication and user-based designs (1979, 1982, 2000, 2005). Rapoport refers to the built environment as being affected by not only one factor, but by a group of factors that shape it and result in its final form. Consequently, there are differences between the meaning that the designer has and the meaning that users have for a concept that is affected and shaped by factors such as: religion, site, materials and some cultural and social aspects. Also, Rapoport (2001, 2005) pointed out that architects need to have a deeper understanding of users' lifestyles and the factors that shape their built environment. However, Schefold (1997) categorised Rapoport's analysis as factor-analysis, stating that his style lacked consideration of other important factors and focused on others, whereas the work of Lawrence (2001) supports Rapoport's conceptualisation of the analysis of houses, that a house cannot be analysed in two-dimensional aspects alone for that does not involve the users and their input.

The work of Rapoport was influential for this research and gave the researcher different perspectives in which interior design can be viewed from. The understanding of the end user before analysing the build environment they are living in was discussed in his book (Rapoport 2005). The discussion represented answers for the questions the researcher had related to methods of approaching the research question. Also, Rapoport's theories helped formulate the questions touching areas that were briefly approached by other scholars involved in similar topic.

Much research has been conducted in this area, focusing on the design of urban dwellings, yet there is a rich and increasing literature base, produced by architects and scholars, which is interested in traditional architecture and the crisis of identity (Akbar 1998, Al Naim 1998a, Al-Dossary 2000, AlEnazy 2007). Also, some studies focused on architectural aspects of controlling the communication between outside and inside of the house in Saudi Arabia, their focus targeted architectural elements such as windows, doors and properties' fencings (Bahammam 1987, AlHemaidi 1996).

This research explores the interior spaces of traditional houses and contemporary houses in Saudi Arabia in general, in particular within its Eastern region. The location of the area of interest shares similar characteristics with other Arabian Gulf countries such as Bahrain, the Emirates, Kuwait and Qatar (Vaziritabar 1990). Therefore, some traditional houses, which are considered in the study, may be drawn from those Arabian Gulf countries.

This research starts with exploring traditional house interior architecture by investigating the factors that most affect the resulting design decisions, which shape these houses. Traditional houses present a physical record of needs representation created by master-builders upon users preferences to meet environmental influences (Kries and Vegesack 2003). As mentioned earlier, environment-influencing factors are a result of studying users and their environment. From these factors - culture, society, norms, environment and traditions - will lead to an understanding of the traditional architecture of the location. These factors were inherited generation after generation, yet were modified by technological advancement, which affected the life style of users such as: cooking, cleaning, heating and cooling, lighting and ventilation. These inherited factors are vast, each has its own field of study, and they will here be explored in relation to the concept of privacy (Kazerooni 2009). The outcome of this research aims to influence the process of designing contemporary Saudi houses with respect to the influencing environmental factors.

1.1. Aims and objectives

This research looks at Saudi contemporary houses; with Saudi Arabia's considerably large area that provided diverse examples to study, which presented an obstacle at the same time. This vast area has diverse cultural background. Therefore, the Eastern region was selected to gain depth into the issue within a particular part of Saudi Arabia. The Eastern region was selected due to its geographic location, close to other Arabian Gulf countries and sharing common economical, historical and socio-cultural influences. Also the Eastern region was selected due to the researcher's familiarity. The research focuses even more on the cities of Dammam, Khobar and Dhahran, for the same mentioned reason.

The research focuses on the house interiors from the perspective of Saudi female users in relation to the concern of privacy and privacy levels. Female users were selected, as they are the primary users of the house who are affected by social requirements and needs. Also, to get deeper insight to how this concern of privacy affected the way they feel about contemporary houses (Al-Kodmany 1999). The researcher being a female member of this society raised bias concerns related to personal and socio-cultural knowledge of traditional and contemporary needs. Therefore, the first aim of the research was to learn about the concept of privacy and then to explore its continuity in the houses of today.

The research aims to create a design tool that respects privacy boundaries and expresses them in a way that suits contemporary female Saudi users, by benefiting from the experiences of the past and combining them into the context of contemporary house design. This tool aims to aid interior architects and interior designers, who have limited knowledge of Saudi house needs, also design students in their learning journey. The tool is intended for early design stages. Its aim is to guide the designer through the functional-spatial design of different spaces of the house, specifically inexperienced and new designers in Saudi Arabia. The tool is derived from contemporary house designs obtained from interview participants.

The objectives were designed to support the mentioned research aims. They are: 1) to formulate a robust research base from a literature review; 2) to collect primary data which would reflect the concept of privacy (its meaning, boundaries and importance) by communicating with users of contemporary house; and 3) to

examine designers' existing base of knowledge about clients' needs. In parallel, traditional Saudi and Arabian Gulf houses are examined to formulate a justifiable basis for responding to the symbolic and functional meaning of some interior spatial elements, such as courtyards, liwans (interior wall niche) and dehlez (broken entrance).

1.2. Research question

The research question relates to the concept of privacy within the contemporary Saudi house, a question that touches users' personal lives and might be of some sensitivity to some if not most. For some, having privacy is common sense within private and public spaces; domestic and commercial spaces. This non-verbal gesture was modified by social norms to serve religious and cultural needs. The research questions revolve around the concern of privacy and its representation in contemporary Saudi houses from the perspective of Saudi females.

1. What does privacy mean to the users and how important is it to them? This question will be explored with regard to both traditional and contemporary houses.
2. Is there communication between the designers and clients to establish clients' spatial and interior design preferences with relation to the concept of privacy and its interpretation inside the house?
3. How does the design of contemporary houses in Saudi Arabia deal with the issue of privacy and to what extent do clients make spatial interventions to improve privacy at home?
4. What factors are taken into account when designing the spatial layout of both traditional and contemporary house interiors?

These research questions built the research path. Therefore, the research focuses on exploring the meaning, importance and interpretation of the concept of privacy in contemporary Saudi houses. As mentioned earlier, the influence of social requirements and needs on female users inspired the researcher to explore this concept from their perspective.

1.3. Location significance

Historically, Saudi Arabia is a religious place, being the birth place of the prophet Mohammed (peace be upon him) and of Islam(Talib 1984). Due to its importance, Muslim people from all over the world have visited the holy cities on pilgrimage and have then either returned to their own countries or stayed in the

Arabian Peninsula. There is evidence of their influence on the culture and social norms of the area, hence the variation in architectural styles throughout the kingdom, which are further affected by climatic factors. According to King (1998) there are five acknowledged house styles in Saudi Arabia, while Ragette (2003) mentions that there are only three distinct house styles: central, western and south-western mountainous, not mentioning the northern and eastern regions that were influenced by the Ottoman Empire and the Far East. Geographically, Saudi Arabia has thirteen provinces (see Figure 1). These thirteen provinces were classified under three; five and four architectural styles according to different scholars (King 1998, Ragette 2003, Shoup and Maisel 2009) (see Figure 2). Each style has its unique influences and characteristics, reflecting their climatic and social needs. Three of these regions are currently centred upon major economic cities: Jeddah that has the western port, Dammam with the eastern port and major oil company, and Riyadh the capital of Saudi Arabia. The following is a brief overview of Saudi Arabia's three economic growth areas.

Figure 1 Saudi Arabia map, indicating the thirteen provinces

Figure 2 architectural style provinces

1.1. The discovery of oil and its influence on architecture

In mid 1930s, Oil was discovered in the Eastern Province of Saudi Arabia (Mostyn and Hourani 1988, Gelvin 2011). Standard Oil of California cooperated with the Saudi Arabian government to search and discover oil sources in Saudi Arabia, starting with the eastern region. Oil, as an energy and economic source, had a major influence on the development of Saudi Arabia. In the mid-1940s the cooperation was re-named Saudi ARAMCO Company and is located in the city of Dhahran; which was developed for the company's headquarters and to accommodate its employees, who were mainly from the United States at the time. This company transformed the area as well as the country (Vitalis 1999) economically, technologically, culturally and architecturally. Later, the economic demands of the 1970s, together with the discovery of oil, had an effect upon lifestyles which was reflected in housing structures (Al Surf et al. 2012). These patterns were similar to those found in other Arabian Gulf countries (Shoup and Maisel 2009, Sobh and Belk 2011).

The discovery of oil introduced new materials to architecture that were to have an influence through multiple stages, to meet industrial demands for offices, hospitals, commercial sites and employees' residential buildings (Shoup and Maisel 2009). The first stage lasted until 1947 when the first master plan, designed by the Arabian Oil Company (Aramco) was adopted. The second stage was between 1947 and 1955, and during this time the comprehensive master plan of 1953 was designed by Aramco's engineers and accepted in 1955. The third stage, from 1955-1977, included a period of rapid growth in the 1960s and 1970s and culminated in Dammam's present appearance as a cosmopolitan town. The fourth stage, post-1977, is characterised by the master plan for Dammam metropolitan, which also contains the new plan for Dawaser action area (Mahmud 2009). In his opinion, Al Naim (2013) argues that employing these planners helped in widening the gap between users and designers, by not involving users in the decision making of the social and urban design of their city.

The above discussion highlighted the effect of the discovery of oil on urban design and the introduction of materials with more capabilities. Those affected the interior spaces of houses: application of less thick walls, the use of wall insulations, introduction of electricity and new water and sewage systems etc. these new applications replaced some of the traditional elements found in house

interiors such: thick walls that helped regulate temperature transition day and night, wind catchers that helped with the ventilation process of the house (see Figure 3). Also, the imposed building regulation affected resulting interior spaces: newer houses were outward facing while they were inward facing houses that utilised courtyards. Those regulations also affected functional meaning of some spatial elements such as the courtyard.

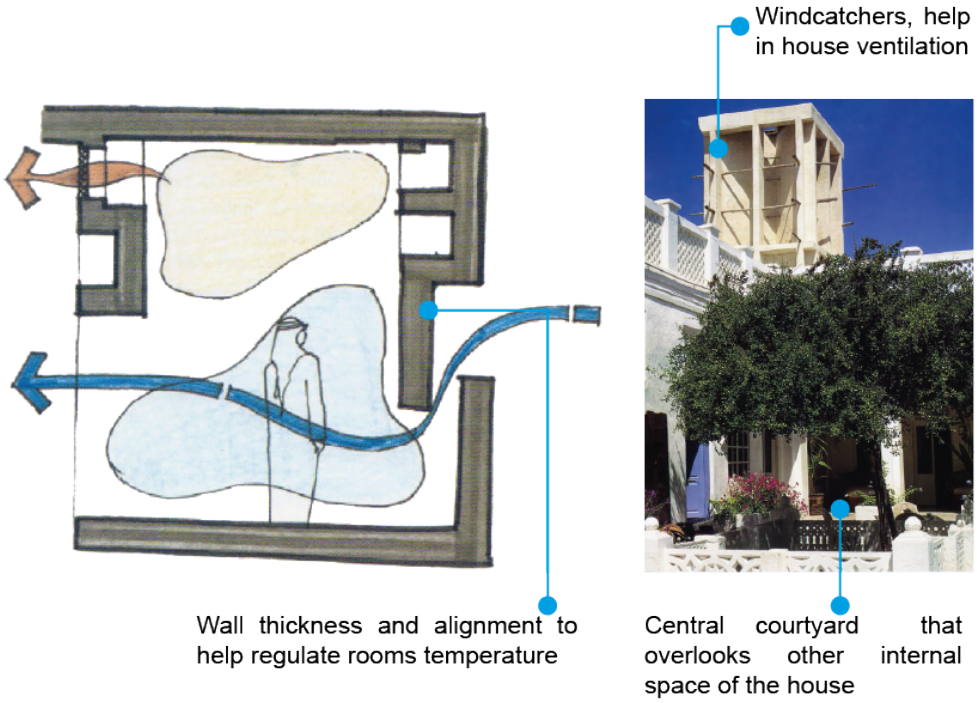


Figure 3 Traditional architectural elements that responds to climate needs (images from Kazerooni 2009; Key 1991)

The research trace these effects from the perspective of privacy, trace the compromises that occurred and how users accommodated their needs with the resulting contemporary houses they live in. that is to build a design tool the focuses on functional relationships between spaces to overcome those privacy breaches, to provide users with houses with minimum compromises.

1.2. Architectural styles in Saudi Arabia

In this research, the researcher explores the three distinguished architectural styles in Saudi Arabia. These selected styles are linked to three geographic regions: centrals, eastern and western regions. The cities of Riyadh, AlHassa and Jeddah were selected to represent these regions, and they were selected because of their geographic and economic importance. Following is discussion about those distinguish three major visual identity three styles in the regions: Western, Eastern and Central.

1.2.1 Central

Riyadh, the capital of Saudi Arabia, is located in the central region and is the largest city in Saudi. This city has earned the focus of important commercial and governmental headquarters because of its historical and political importance and for being the capital and hosting the rural family.

This region is known for its hot-dry weather and for the scarce available raw material. Traditional houses in this region were built mainly from clay with some wood for support, and houses were one storey and some two stories (Talib 1984, King 1998). The use of clay coped with the climate of the space, providing house users with regulated temperature throughout the day and night. Also because of the structuring materials and social norms there was not much details in the exterior elevations, see Figure 4 & Figure 5. The openings in those houses were small and allocated above the street eye level to prevent house users from being overlooked, see Figure 6.

Figure 4 small openings of hot-dry Najd architecture (Talib 1984, p.53)

Figure 5 Adobe house near Riyadh (Talib 1984, p.49)

Figure 6 A house near Riyadh (Talib 1984, p.58)

1.2.2Western

The western region, which is considered to be the focus of religious attraction because it has the Holy cities of Mecca and Maddinah, has historical and religious significance. Economically, Jeddah is an important geographical location, because pilgrims to Mecca arrive at its international airport. It is estimated that fishermen founded the city of Jeddah more than 3,000 years ago (King 1998), and the prophet Abraham founded Mecca, this is the source of the city's religious importance. Those two facts, formation and history, had a great impact on the formation of the area's socio-cultural fabric. Also its location on the western coast of the peninsula gave it access to African coastal countries. Its location and importance welcomed people from around the world, and this effect is visually manifested in the architecture, materials used and building techniques and solutions. The types of settlements affected the social life in these cities and defined social status in some rare cases.

The traditional houses in the Western region of Saudi Arabia was influenced by various cultures that was they were exposed to, due to it religious and commercial geographic location. From these influences, the use of wooden screens like the ones found in Egypt, see Figure 7. Also, the geographic nature of the area that provided stone, houses in the Western region are known for being high yet narrow, see Figure 8.

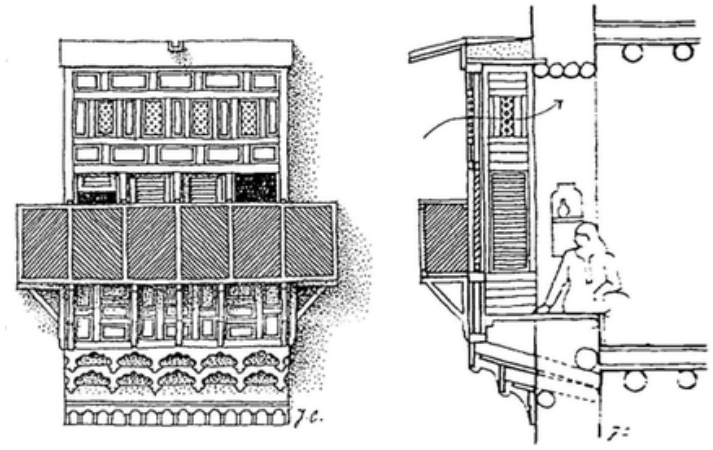


Figure 7 Detail of Rawshan window (Ragget 1998, p.207)

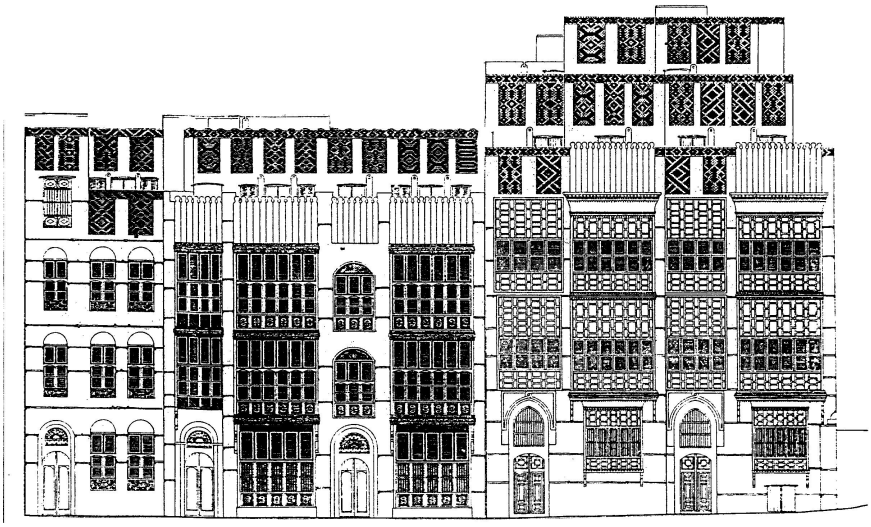


Figure 8 Exterior elevation of a house in Mecca (Ragget 1998, p.209)

1.2.3 Eastern

The eastern region of Saudi Arabia (Al-Hasa) has passed through multiple rural phases. It has been part of a number of different civilizations in both old and modern history - Mesopotamian, Greek, Roman and Persian - and each has left behind its own artefacts. Before the Kingdom of Saudi Arabia was formed, the Ottomans ruled the eastern region, using it as a main port in the thirteenth century, benefiting from coastal trade and connections with other Arabian Gulf countries (King 1998)k. Figure 9 is a time-line showing periods of rule in the eastern province, including those of the Ottomans, Arabs and even the Portuguese (SECON. and wa-al-Matāḥif 1983, Rajab 1996). This variation enriched the cultural environment of the eastern region, providing it with different concepts and approaches that have been unknown to other parts of Saudi Arabia at the time.

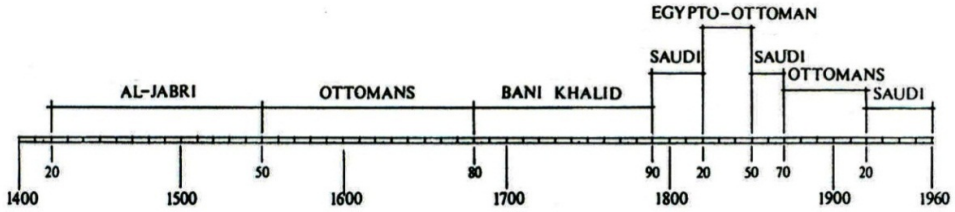


Figure 9 Historical time-line of the government of Al-Hasa (source: The Fortification of Hofuf, Al-Hasa, 1983)

Therefore, the Eastern region had a rich influenced architected that reflected its history. Figure 10 displays an example of a house that reflects different influences such as the use of wooden screens and gypsum ornaments on its exterior walls and window openings. Also because of the social need for privacy, windows are not found on the street eye levels similar to the house example shown in houses in Central Saudi Arabia. The Eastern region houses are similar in characteristics to houses in other Arabian Gulf countries because they share similar boundaries and geographic influences, commercial and climatic (Kay and Zandi 1991, Sobh and Belk 2011).

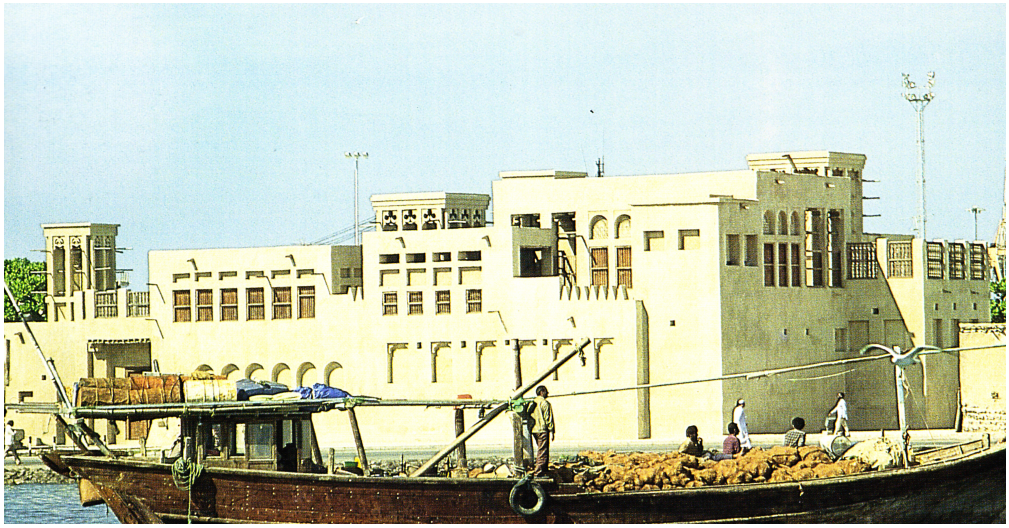


Figure 10 Skeikh Saeed's house, on the edge of Creek, was renovated completely in the late 1980s (Kay 1991, p.28)

1.3. Research flow

This research deals with a socio-cultural issue, privacy, within the context of contemporary houses in Saudi Arabia. The following chapters will investigate the concept of privacy as a term in general and its relation to spatial design in contemporary Saudi houses. Figure 11 displays the topics that led to the research question then later to form the research structure.

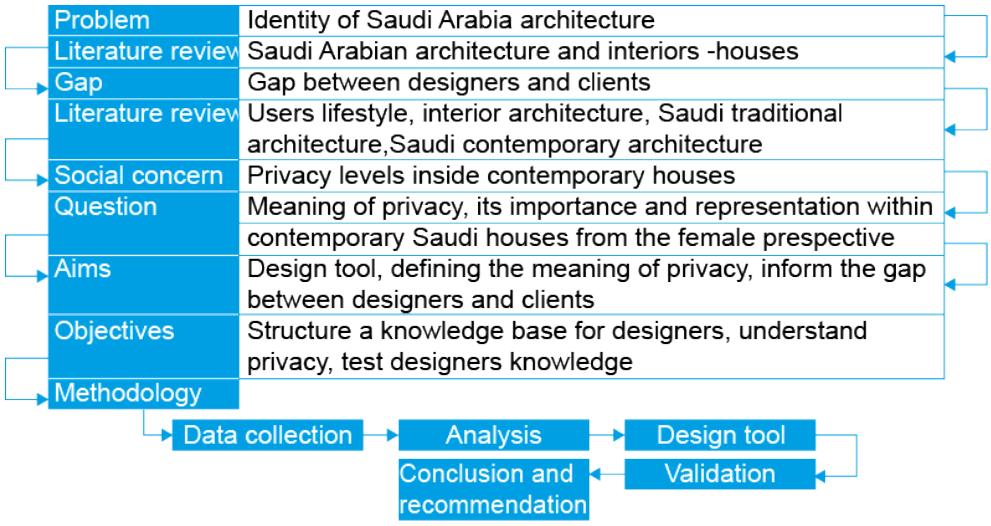


Figure 11 Research flow of thoughts

Chapter one: This chapter introduces the research scope, location selected for the research, aims and objectives of the research and the research question. This chapter is the base of the research's ideas generation.

Chapter two: In this chapter literature is reviewed under two main headings; privacy and Saudi domestic architecture. In the first instance, privacy is explored as a concept in the field of psychology and then the concept is linked to architecture and personal space. That is to explore the factors that had influence on its boundaries and that gave it the meaning it has. This concept is explored universally as a concept and its application was explored in some selected countries (England, China, Italy, Greece and Saudi Arabia). After that, the second point investigates Saudi domestic architecture and the existence of privacy interpretation within the existing houses. The way users interpreted their need for privacy in their houses and means of shelter, from bunion lives to the contemporary houses. Through which interior architecture elements are pointed, tracing their use in traditional and contemporary houses, if they still existed or modified or removed. Also, the chapter introduces space syntax as a method to relate between architecture and the social need of concern of privacy. This chapter helps build a knowledge base for the research

Chapter three: Methodology is discussed in this chapter. Research philosophy, approach and tools used in the research. The chapter discusses different schools of thought and the argument results in the selection of ethnography within the qualitative research strategy. The tools and tactics within this chapter were used to collect data that would inform the research question and some other tools were

selected to reinforce the results of the data collection by evaluating the design tool.

Chapter four: This chapter uses the tools discussed in chapter three to collect data from the field. Two main tools were used under the ethnographic approach; semi-structured interviews and field observation. The data analysis is discussed in this chapter utilising the thematic analysis. Emerging themes and categories under them are the outcomes of data analysis were to inform the research question and structure the design tool that would aid designers in their design process.

Chapter five: After data was collected and analysed, a design tool emerged, aiming to assist interior architects and interior designers, who have limited knowledge of Saudi houses and users needs in them, in their design process. The design tool went through some development stages to address the concern of privacy from the contemporary meaning of privacy found in the collected data. Both the literature review and primary data informed the design tool, utilising the experiences of the past and interpretations of the contemporary situation.

Chapter six: Now that the design tool was formed, the researcher organised two focus groups to test the tool and its validity. The aim of this chapter is to evaluate, and if necessary modify, the design tool to respond to the research question: privacy in contemporary detached style houses in Saudi Arabia.

Finally, Chapter seven: This chapter concludes the research addressing the research question and the journey taken to respond to it. Also, recommendations and contribution to knowledge are addressed in this chapter.

Chapter 2. Literature review

2.1. Privacy

Privacy is a vast conceptual term, combined with multiple aspects of our lives. This conceptual term was explored by psychologists trying to identify it and understand the factors that shape and affect its meaning (Pedersen 1982, 1996, 1999, Newell 1995). The concept of privacy has grown in different fields in relation to the rights of the individual, and privacy rights have been discussed with respect to law, security, the Internet, information privileges and architecture.

> *"As such [privacy] can serve as a focus for interdisciplinary research"* (Marshall 1970, p. 246).

This chapter discusses the meaning of privacy and its boundaries within the field of interior architecture and interior spatial design in Saudi houses. Little literature was found that studied privacy within houses, most related to architecture and urban design (Bahammam 1987, Abu-Ghazzeh 1995, AlHemaidi 1996, Eben Saleh 1997, AlEnazy 2007, Daneshpour et al. 2012). From these studies some functional relationship for the house interiors were suggested; rooms relating to one another as per users feedback and room location as per historical study of house development (Al Naim 2006a, Al Tayash 2008a). An understanding of the meaning of privacy and the factors that help to shape it, around the world in general and in Saudi Arabia in particular, structures a more contemporary, defined, meaning of the term.

2.1.1 Meaning of privacy

This research looks at the meaning of privacy in relation to the interior spaces of Saudi houses. In order to get into such sensitive and interpretive investigation of the concept of privacy a broader understanding of what privacy means in literature start with theoretical approaches in identifying the meaning of privacy. Different scholars have addressed the concept of privacy relating it to individuals and groups (Altman 1977, Hall 1990a, Newell 1995, Pedersen 1997, Hillier 2008, Memarian et al. 2011). Within these studies, the emergence of personal space was noticed to be central and fundamental of the creation of this concept of privacy.

In Newell's paper (1995), literature that was concerned with privacy was reviewed, cross referencing some key authors, then categorised privacy into five fields according to whether the interest is towards people or environment. Some of the definitions were directly related to architecture; documents created by architects. With Pedersen (1996, 1997), Newell identified privacy in relation to different science fields. They compared people from different cultural backgrounds within a controlled environment; mostly their work was related to the educational environment.

Different academics interested in privacy had their own approach towards this concept, a concept that was not much known about until the early seventeenth century, the existence of which was considered to be a result of urban and social changes in people's lives (Pedersen 1999, Smith 2001, Sobh and Belk 2011). As an anthropologist, Levine identified privacy as

> *"the maintenance of a personal life-space within which the individual has a chance to be an individual, to exercise and experience his own uniqueness" (Levine 1980, p. 19).*

Pedersen (1996, 1999) mentions that the concept of privacy is evident in different societies and cultures, yet, each expresses it differently. For Witte (2003), privacy was considered to be a phenomena, a way one expresses and controls one's contact with others. Also Smith (2001) describes privacy as a reflection of one's identity. A definition of what is privacy from Sissela Bok states that privacy is

> *"the condition of being protected from unwanted access by others—physical access, personal information or attention" (Bok 1989, pp. 10–11),*

which is similar to Vaziritabar's (1990) and Altman's (1977) perspectives on the meaning of privacy, which emphasises the ability to control this protection, which is individually specific, which Marshall (1970) and Al-Homoud (2009) considered to be the core of the concept of privacy.

In relation to architecture, Pedersen (1997) mentions that privacy is about opening and closing barriers, and the importance of such privacy functional profile to architects and designers, where Altman and Edwards (1977, 2010) refer to privacy revolving around the individual's needs, yet question the internationality of this concept globally or its specification dependent on culture. As the assumption of unity is not to be pursued when it is related to privacy, as it is not static (Townsend 2000). For Al-Thabab (2014), privacy relates to the relation between private and public spaces inside the house. Westin (1967)

suggests a relationship between privacy and one's information, and also suggested four states of privacy and four functions for privacy. The four states being: solitude, intimacy, anonymity and reserve; and the four functions being: personal autonomy emotional release, self-evaluation, and limited and protected communication. This conceptual term, privacy, relates, as mentioned earlier, to cultural and social backgrounds, which form it to the shape in which it is experienced. Therefore, to achieve a more suitable/accepted architectural environment, a more thorough understanding of the culture and social behaviour that shapes privacy actions is required. This relates to the balance, which Daneshpour (2012), recommended between privacy violation and social isolation, a balance that varies between individuals.

The individual's comfort and behaviour, when alone or in public, in relation to privacy have also been discussed (Goffman 1990), and it was found that privacy was not only related to comfort, it is also related to the social expectation of others, as owners or visitors. Yet, these social expectation and personal comfort zone do not conflict with social obligations, such as hospitality (Sobh and Belk 2011).

From another perspective on the functionality of privacy, Hall (1990a) developed the theory of proxemics that was reviewed by academics and implemented in the work of architects and interior designers. Proxemics related to the individual and the space around him/her; a space which he got control over to arrive to the required level of privacy (Altman 1975, Bekci and Özbilen 2012). Griffin was one of these academics, his paper (2006) looked at culture as a factor affecting privacy. According to Hall (1990a), personal space was different between individuals according to their cultural background and values. Edwards (2010) emphasised the importance of Hall's concept in interior design as it represents dynamic and non-verbal communication and can help designers understand the users' privacy needs in interior spatial design, also referring to privacy as representation of culture (see Figure 12).

Pederson	Concern
Witte	Phnomena
Smith	Reflection / Identity
Sissela Bok	Boundaries / Control
Altman	Culturally Universal / Specific
Westin	Privacy categorised in relation to function
Hall	Proxemics theory
Edwards	Privacy connected to all senses

Figure 12 The concept of privacy in the perspective of different scholars

As Rapoport (2005) related architecture to non-verbal communication, privacy relates to non-verbal behaviour, which is influenced by socio-cultural factors (Abdul Rahim and Abu Hassan 2012). These factors give variety to meaning, where

> *"meanings can be personal or socio-cultural, and they can be symbolic or functional" (Coolen et al. 2002, p. 114).*

This non-verbal yet cultural modified concept is expressed differently around the world. Having the concept of privacy universally important to enhance the quality of living leads to its importance within the field of interior design (Stewart-Pollack and Menconi 2005).

2.1.2 Privacy within different cultures

Kent categorised societies around the world and placed them into five categories according to socio-political, economic, group control and military considerations. The categorising aspects were reflected in the house designs. In this categorisation system the following countries (or groups of countries) were placed in the same society category (category five): Japan, China, Mexican Tarascan, Russia, European countries and Saudi Arabia (Kent 2001a). This section of the research uses Kent's categorising system as a guide to select countries which the researcher looks at those different cultures within this category to explore the general privacy dimensions within them.

Cultures interpret needs differently depending on aspects like the ones mentioned earlier. Privacy as a need is affected and translated according to cultural understanding (Sime 1986). Before the sixteenth century, houses used to have more open spaces that served multiple functions. After the sixteenth century, personalised rooms emerged in Europe, where there was a connection between the need for privacy and the dedication of functional spaces (Vaziritabar 1990, Riley 1999, Sobh and Belk 2011).

> *"Women's status relative to men's differs across cultures and over time, creating a continuum of power relationships rather than a dichotomy" (Spain 1992, p. 29).*

For women from ruling families in fourteenth to seventeenth century Florence, for example, the house was their private zone, a place where they took control, which was their responsibility. Even though men were predominantly outside the home, they considered public spaces to be their own private space. This reflects how privacy was perceived and applied according to the social base and

regulation of the time (Weddle 2001). It has been argued that this effort for gender separation at the time was to isolate female members from the exterior world (Spain 1993). From the above, it can be seen that Italian privacy was expressed through gender roles inside and out of the house. The situation in the Arab world was similar, as

> *"Gender roles for women as well as men inform the production and the use of art and architecture in Islamic societies. In addition to gender, attributes such as social status age, religion and wealth influence feature certain common aesthetic choices and spatial patterns that correlate with gender norms" (Booth and Joseph 2013, p. 37).*

That is similar to the status of patterns of use inside Saudi houses of within the same era. However, in Switzerland, designers expressed privacy physically between outside and inside, where they tended to create a transitional space between what was private and the non-private interior space of the house, to create a communal space. Yet, this space in most cases was not used by house users (Lawrence 2001) (see Figure 13). Utilising a space (functional and non-functional) as a transitional space between privacy and public spaces of the house was found in traditional Arabic houses and in contemporary Saudi houses courtyards and dehlez in traditional houses and allocating halls in contemporary houses.

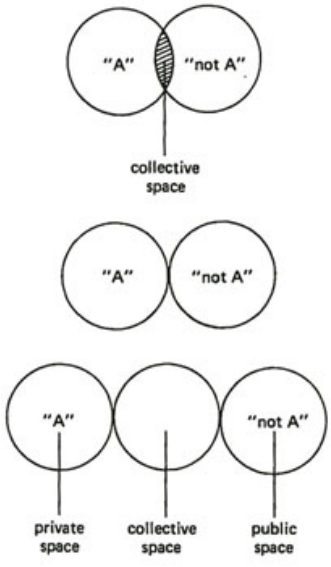


Figure 13 Relationship between inside and outside in Swiss houses and buildings (Lawrence 2001, p.90)

Jameson (2001) made a comparison between Greek and Arab Muslim houses and discovered that Greek houses have ground floor visual access from the outside to the inside, whereas Arab Muslim houses do not. Functional room

dedication is found in both Greek and Arab Muslim houses, in which there is a men's room where male guests are escorted, although in Greek houses there seems to be no intention to keep this away from the women's seating areas. Also, in traditional Greek housing, as in Florence, the woman's place was in the home, whereas men went out to work.

In the Far East, and in particular China, privacy is related to different aspects of one's life. Users had concerns over being visible, their information known by strangers, and their freedom to stay in or to leave a space (Ying-Keung 2000). Architecturally, Chinese houses in general have common features such as partitioning for different functions (Kent 2001a) and this supports the concern users had with regard to their privacy.

While in Japan, Ozaki and Lewis (2004) wrote about the background factors that created some of Japan's cultural norms, privacy being one of them. They state that in Japan the house is the most intimate place for the user, and that that is where privacy is reflected. According to Ozaki, the Japanese sense of individualism started to develop after 1974, but before that familial relations within the house and family were important, and this was directly linked to the meaning of privacy for the users (Ozaki 2002, Ozaki and Lewis 2004). Similarities between Saudi houses and Far East houses were found in relation to privacy concerns, the way theses (Saudi and Japanese) societies reflected these concerns in the physical space to control visual exposure and highlight the importance of family unity and safety.

These observations were made mostly with respect to the sixteenth and seventeenth centuries in Japan, China, Greece, Arab countries and Italy. In the twentieth century Keeley and Edney (1983) conducted a study that tested privacy interpretation from the perspective of student designers, as both users and designers. The researchers observed students' physical interpretation of privacy in an experiment conducted in the design studio. Participating students designed a large number of small rooms, using walls to determine spaces and to create visual boundaries, thereby defining privacy parameters. Also, it has been stated that in contemporary Britain privacy is still an important aspect of one's house (Townsend 2000).

With regards to the Arab countries, they have unique context that is a result of: traditional and Islamic values and norms, growing economic and education sectors and increment in cultural diversity because of globalisation and economy

opportunities (Belk and Sobh 2009). Also, the Islamic representation of the concept of privacy is in isolation between different domains; privacy from public, women from male users (Negoita 2012). This need of representation in the Muslim community developed solutions that have developed according to social and cultural rules (Ahmed 2013).

The previous examples illustrate the similarities these countries had in regards to the concept of privacy. Gender roles, personal space, territorial behaviour, privacy, visual exposure concern, importance of family and its safety are some of the terms related to the concept of privacy according to these examples which also were part of identifying privacy by psychology scholars (Newell 1992, Pedersen 1999, Ramezani and Hamidi 2010). These cultural perceptions no longer exist due to the economic and social development, *"research show the complex process through which space is gendered in all societies" (Booth and Joseph 2013, p. 43)*.

2.1.3 Factors that helped shape privacy in Saudi Arabia

In Saudi Arabia, privacy is considered to be the core that determines the location of different functions in a Saudi traditional house (Khattab 2005). This can be observed in the visual separation between different spaces; especially the separation of females from people who are not part of the direct family (King 1998, Memarian et al. 2011). Privacy is not only visual, it relates, also, to other senses and to the elements that have an effect on one's senses. Conceptually it is related to different aspects of lifestyle and users' patterns of use inside the house.

According to Bahammam (1987), privacy is important in Saudi society, and affects the shape of architectural spaces, translating cultural ideas and the need for privacy within them. Therefore when designing a house in Saudi Arabia, one of the main features that needs to be considered is privacy. This feature has multiple origins and dimensions, social, cultural and religious. Privacy can be interpreted in different ways and at different levels depending on social location and background. It was an issue from the simplest form of Arabian shelter in the past and is still an issue today. Na'amneh (2008) points out the link between the resultant shape and space based on the social aspect of users' lives and norms. Saudi house designs are related to the need for privacy to enable cultural and religious rules to be fulfilled, to shape the boundaries between public and private spaces.

Identity (architectural, personal and social), similar to privacy, is a reflection of social and cultural norms, therefore it varies according to the region in which it is found. Visual and conceptual identities are both important factors in creating spaces. In architecture, visual identity is the living record of history through the physical interpretations of people as individuals and as part of a society. Old architectural structures now, where available, are reminders of the social and cultural behaviours then and are not active elements in the formation of the urban and social environment (Abel 2000). Traditional architecture as mentioned was just a reminder of what used to be, which affected the visual architectural identity to become less vivid, or even lost, in most developing countries. Climate, region and culture were key elements in forming the traditional architectural identity. Meanwhile, climate, culture, building codes, clients and building technology are the elements that affect contemporary architecture (Ragette 2003, Mahgoub 2007). Ragette (2003) points out that materials are no longer a limitation, as they were when traditional houses were created, and that regionalism is connected to the geographic location of the house. Supporting Ragette's point, Mitchell (2004) states that climate no longer affects contemporary house design, as it used to in traditional houses, because of the technological tools that help control the climate.

Abu-Gazzeh (1995), Memarian (2011) and Kazerooni (2009) believe that culture and society create architecture, not the other way around. As mentioned in Newell's paper (1998), privacy can be a translation of one's choice, which can be linked to architectural choices (visual identity). In interior spaces and architecture it is translated as the choice of where to be or go while maintaining the required privacy regardless of the level or type of privacy that is needed. Some scholars have considered identity as part of privacy (Levine 1980). Identity and privacy are two connected concepts that affect one another, and their representations reflect the input of social requirements on them; identity in specific was a crisis for some scholars leading them to research it in-depth (Akbar 1988, Al Naim 1998a).

Recent architectural focus in Saudi Arabia has been on the exterior visual representation of the design concept, which is more towards visual traditional identity for contemporary houses. This exterior expression of architectural identity transformed into the interior spaces also as visual interior symbols in some cases while in others there was no relation between traditional identity and contemporary interior identity (Al Tayash 2008a) (see Figure 14).

Contemporary interiors | Traditional inspired interiors

Figure 14 Examples of contemporary interior spaces in Saudi Arabia (source: archnet.org)

Given the size of Saudi Arabia, a number of different architectural styles have developed; there are five distinguishable styles that reflect the regional identification mentioned earlier. Understanding these styles' existence can help in the development of a design tool that is influenced by the past but creates a solution for contemporary needs, and represents local identity both conceptually and visually.

The following are some of the factors that have been most influential in shaping privacy inside contemporary Saudi houses: identity, religion, society, culture and acts of hospitality. These factors are not individual; rather they are interlinked, and can affect one another.

2.1.3.1. Religion

Privacy was mentioned in the Holy Qu'ran and *Hadith* (Prophet Mohammed's sayings, peace be upon him) as an act of politeness and respect to the owners of, and visitors to, a house. Examples and guides were taken from them to help house owners and users achieve the level of privacy they needed for its moral related importance in Islam and respecting one's privacy inside the house (Belk and Sobh 2009, Sobh and Belk 2012). According to Sobh (2012) the difference between western and Islamic culture in relation to privacy is that the first represents individualism and the later is concerned with sacredness. Within Arabs, privacy is cultural centred to meet specific time, space and function in which identity is expressed (El Guindi 1999).There are different levels of privacy; there is the privacy between neighbours, and privacy between individuals in the same house, as in separation between genders. The designs of inner spaces of contemporary houses are to complement end-users needs and cultural and Islamic regulation; considering the individual and the group lifestyle (Kries and Vegesack 2003, Ahmed 2013).

Privacy between the inside and outside

In order to enter any space in the house, be it the public area of the house, like the house's gate, or the most private room, like the bedroom, one needs to ask permission (Sobh and Belk 2011). Also, according to previous mentioned guides (Holy Qu'ran and Hadith), before entering a space one is to seek permission three times and stands by the door sideways, to give the person opening the door privacy and not to expose the interior of the room (Memarian et al. 2011). Asking for permission is an important act before entering someone's home, where the isolation of women and family is important and affect resulting architecture (Kries and Vegesack 2003), or even to their room. This act provides the users, both female and male, with the privacy and rights that are due to them, and protects them from intruders. With the emphasis upon asking permission, outsiders and passer-by do not intrude on users' visual or acoustic privacy (Bahammam 1987, Memarian et al. 2011). Constructing the house with multiple layers helped to create the house with differences between the boundaries of the outside and the inside of the house (Riley 1999). Therefore, house designers were advised to consider three layers within the house: private, semi-private and public (Al Surf et al. 2012). That was to follow not only cultural norms, but also Islamic principles to provide this social and religious balance inside the house where users would feel comfortable and have choice and control (Wahid and Khozaei 2008). Those cultural, social and religious rules also apply within the interiors of the house, Figure 15 displays these rules within the interior spaces of the house.

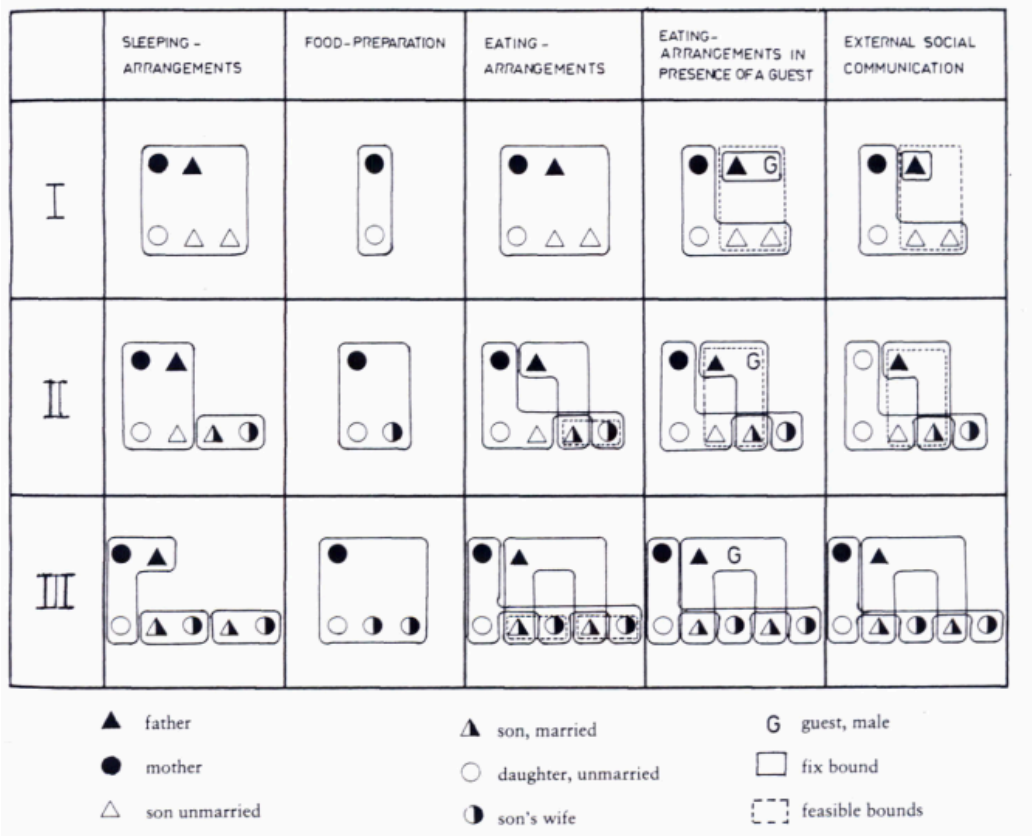


Figure 15 Diagram of patrlinear kinship system with typical groupin of family members for selected tasks: I Nuclear family; II Extended family; and III Extended family with married sons and their wives (Ragette 2003, p. 83)

Gender separation

For social, cultural and religious reasons, spatial design was affected by the location of both female and male users of the house. There is a general need for privacy, as well as for gender separation, for the reasons mentioned above. There were no direct quotes in Qura'an or Hadith with the compulsion to separate between male and female, it was a desire of privacy that led to that separation (Sobh and Belk 2011, Othman et al. 2013). To that end, houses were divided vertically or horizontally into two parts, one part for females, immediate family members and the other for males (Bahammam 1987, Shoup and Maisel 2009). In multiple floor structure, female users find their control over the ground floor where male are mere guests (Kries and Vegesack 2003). This reflects a strict separation between genders inside the house, different rooms or areas of the room per gender depending on the owner's status (Kries and Vegesack 2003). This highlights the importance of gender identity, and accordingly the sexes are directed to use the appropriately dedicated spaces of the house (Abu-Ghazzeh 1995, Al Surf et al. 2012). This importance originated from

"the sanctity of the home. All are seen as sacred and pure and should be guarded" (Sobh and Belk 2011).

Conceptually, women are to be protected from harm and intruders, which reflects users privacy boundaries and is interpreted in the differences between inside and outside (Al-Thahab et al. 2014) . This spatial concern was reflected in the architecture of the house (Booth and Joseph 2013). These needs for physical privacy between different types of users within the house came with the use of architectural and decoration solutions. Partitions are one such solution in traditional houses and are indeed still in use in contemporary houses. Also transition spaces were required and created for each gender to complements halls and gender specific rooms such as living rooms (Negoita 2012). According to Abu Ghazzah (1995, 1995), the need for privacy is a result of culture, society and religion. As mentioned earlier, privacy is not only necessary between genders and their relation to one another but also between house owners as individuals; that is part of the Muslim lifestyle (Spain 1992, Wahid and Khozaei 2008, Al Surf et al. 2012).

A study by (Newell 1992) highlighted that males are more aware of the issue of privacy and it is important to them. The importance of privacy in relation to gender difference is reflected in the multiple spaces that serve similar functions yet for different users of different genders, it represents their want to protect females from strangers not from society (El Guindi 1999, Sobh and Belk 2011, Othman et al. 2013). Yet, that does not imply that female users do not have privacy as a high concern, for that males' reaction is to protect female members of the house hence their actions and awareness. Actually, privacy within family areas of the house give female sense of control and freedom and created a special relation between Muslim females and their houses, which is mentioned in several Quranic passages (Campo 1991, Al‐Kodmany 1999, Sobh and Belk 2012).

2.1.3.2. Society, culture and traditions

Traditions were evident in every aspect of life - social, communication related, aesthetic and architectural- and were carried from one generation to the next (Ishteeaque 1995). To fulfil their social and functional needs, users created traditional houses. Architecture was a response to the human need for a place which would contain them physically and protect them (Ragette 2003), and most importantly, a place that enabled them to show their hospitality, yet within the

limits of privacy. These factors reflected their identify and were accordingly demonstrated within owners' privacy zones (Bekleyen and Dalkiliç 2011).

Cultural norms and customs are complex inputs that collectively influence privacy boundaries and meaning. Thus, traditional houses are designed and created to be family oriented and to fulfil the users' needs (Vaziritabar 1990, Al Surf et al. 2012). From these needs, visitor protocols were created, asking for permission being one such important protocol. Visitors need to seek verbal permission before entering a space within the house (Memarian et al. 2011, Sobh and Belk 2011).

These social norms are shaped and developed through time; they influence social behaviour which is carried to future generation. Families each have their rules, which had similarities more than differences, that created social vocabulary. These social vocabularies were respected by house owners and their visitors and were reflected in the spatial and architectural designs of traditional houses (Negoita 2012). These norms, also, are part of the privacy influencing factors (Spain 1992, Eben Saleh 1997, Al Naim 2006b, Othman et al. 2013).

2.1.3.3. Hospitality of visitors

Hospitality is held in high regard in Arab communities, it is a tradition that started long ago and continues to this time; visitors are welcomed as part of an obligation to provide hospitality even with the private nature of its owners (Kries and Vegesack 2003, Bellal 2007, Sobh and Belk 2011, Sobh et al. 2013). The form of the house does not preclude its existence; from the simplest tent to the most complicated multi-storey structure, hospitality is a feature. In today's houses it has its own spaces; well positioned multi-purpose areas especially designed for that function (Al-Dossary 2000). Hospitality rituals define users identity and culture and with hospitality users express their generosity.

> *"It [hospitality] is a protocol that offers a distinct ritual formula, the meanings of which vary according to who is the host and who is the invited guest" (Sobh et al. 2013, p. 459).*

Though it was argued that there is contradiction between hospitality rituals of Arabs and privacy needs; privacy and hospitality patterns are different yet complement one another as they are elements in Islamic learning with modesty (Kries and Vegesack 2003, Sobh and Belk 2011, Othman et al. 2014). The first is concerned with the location of spaces in such a way that it provides the required physical separation that leads to privacy; the second refers to the patterns of where guests can be, where they can use spaces, feeling welcomed yet not

crossing the owners' privacy limits. There was the spatial requirement to accommodate visitors and the visual gestures that was represented by ornamentation and other forms of decoration (Kries and Vegesack 2003). To accommodate these two needs, new forms of contemporary housing have developed in them (Memarian et al. 2011). These houses were to provide social codes of owner's status within their society. Codes such as economic status and social status were represented through the size of the house and guest receiving living spaces.

Later on, like in traditional houses, these spatial modifications were part of most if not all-contemporary houses. These social codes relate to the opposing social elements of hospitality and privacy; where users try to balance the notions of welcoming strangers while controlling privacy boundaries within the house, accepting the other (Dikec 2002, Othman et al. 2013, Sobh et al. 2013, Bulley 2014).

2.1.4 Privacy and space

According to Edwards (2010), space is conceived in a number of ways

> *"including the philosophical, psychological, physical, social, political, active and imagined" (Edwards 2010, p. 114).*

One way is for users to experience space using all their senses and to have an opportunity to test their emotions or develop connections with the space in order to feel that they belong and that it reflects their social and personal needs (Lefebvre 1991).

Privacy, as mentioned earlier, has been explored in relation to the individual and to the group. The power that one has to control the environment around him, selecting who to access his personal space zone and how close, represents one's privacy boundaries, importance and level (Westin 1967, Altman 1975, Sobh and Belk 2011). Therefore, house designs are not to override privacy needs of users (Ahmed 2013).

2.1.4.1. Link between privacy and space

Space and privacy, as concepts, share their reflection of the influence of social needs and norms on their creation. With that, the created spaces have more meaning than just being a space to stay in and privacy is more than just power and control over environment. Scholars (Rapoport 1979, 1982, 2000, 2005, Hall 1990a, 1990b, Hillier 1996, Ozaki 2002, Mahgoub 2004) have debated

architecture and space, and deliberated upon which created the other. Although space is a void created by architectural form, these voids have had external input that has affected their shape and orientation. Bachelard (1994) highlighted the role of the house in studying social phenomena. The house hosts our first interactions with the world and represents our primary interpretation of social and personal needs.

Interest in the meaning of, and users' bond with, space has grown in the last 25 years, and terms such as

> *"personal space, territory, function of space for groups, meaning of place and such it were the subject of people and places related researches emerged" (Hashemnezhad et al. 2012, p. 5).*

The house spaces studies in this research were selected in order to illustrate a robust basis for privacy within the socio-cultural fabric of Saudi houses. These spaces represent users' entity, where a bond between the space and user is created (Edwards 2010). This bond added meaning to those spaces, reflecting users' spatial behavioural and emotional characteristics. Contemporary design left people attached to the memories they had for the familiar old designs and the social meanings which those designs possessed (Debenedetti et al. 2014).

2.1.4.2. Representing the link between privacy and space

Privacy is a concept that is affected by social and cultural inputs that shaped it to the physical boundaries that materialise this conceptual term. Therefore, identifying and representing physical volumes and boundaries that define privacy levels concerns were intended in this research; as the relation between social and spatial issues were also explored in previous research (Hillier 1996, Giddens and Sutton 2009, Ramezani and Hamidi 2010).

	Type of Relationship	Details of Relationship	Place components
interaction between humans and places	Cognitive	General perception in order to understand the geometry of space and orientation	Form
	Behavioral	Perception of space capabilities to obviate the needs	Function
	Emotional	Perception of satisfaction and attachment to place	Meaning

Figure 16 Different aspects of human interaction with the environment and its association with different components of place (source: Hashemnezhad et al., p. 6)

Figure 16 summarises types of human interactions with places and their interpretation in design. These interactions are affected by

> *"Physical, social, personal, cultural, memories and experiences, place satisfaction, interaction and activities and time" (Hashemnezhad et al. 2012, p. 10).*

Alongside, these factors effect on the house interiors represent the phenomenon of place attachment, which involves

> *"personal returns, including well-being, satisfaction with life, security, experience of escaping social or personal pressure and the development of social capital" (Debenedetti et al. 2014, p. 906).*

Place attachment creates longing for old designs and drives people to take action to save those designs, to preserve socio-cultural communication and lifestyles (Debenedetti et al. 2014). Also, this attachment to place creates a bond between the user and the place they are living in, physical and emotional (Falk et al. 2013). The place attachment phenomenon has been linked to privacy concerns in different studies (Elprama 2011, Falk et al. 2013). The studies conclude privacy levels affect the relation one has with the space occupied. When the user is living in a space for a short time, the place attachment becomes low, unlike when the user is to live longer that the attachment becomes stronger. That is when the space becomes a place that the user calls home. This attachment is effected by social interactions and effect these interactions back (Elprama 2011). This phenomenon, place attachment, though it is linked to privacy, yet its (theory of place attachment) effect on privacy is not within the scope of this research.

This thesis deals with the interior spatial design of Saudi contemporary houses and the preservation of users' needed privacy boundaries. Amongst the spatial theories adopted in architectural, urban and interior design is prospect theory; a theory that is adopted from economics, and refers to the ability to control one's visibility while having the ability to see (Edwards 2010). This theory reflects some of the points in the literature mentioned earlier regarding privacy needs and users' lifestyles (Altman 1975, Bahammam 1987, Abu-Ghazzeh 1997). As a theory it was linked in literature with architecture in some details. Prospect theory was not perused due to its relativeness to the concept of privacy within the interior spaces of contemporary Saudi houses.

As mentioned earlier, privacy is represented in interior architecture to control visual, auditory and physical spaces of the house. Also the relationship between

privacy and space has depth to it, physical and conceptual. When studying such representation in interior architecture, researchers (Al Tayash 2008a) seek existing physical boundaries to study/analyse and evaluate. The process of analysis for the existing physical houses are different, following are some examples of such process.

Two-dimension plan analysis

Studying plan drawings is a common method approached by designers. In a study done by Al Tayash (2008a) and Shach-Pinsly (2011), the researcher applied such method to analyse and compare the visual exposure of the house interior spaces and to point the most exposed interior points (see Figure 17 and Figure 18). These drawings address the existing physical boundaries placed and evaluate the visual exposure from different access points.

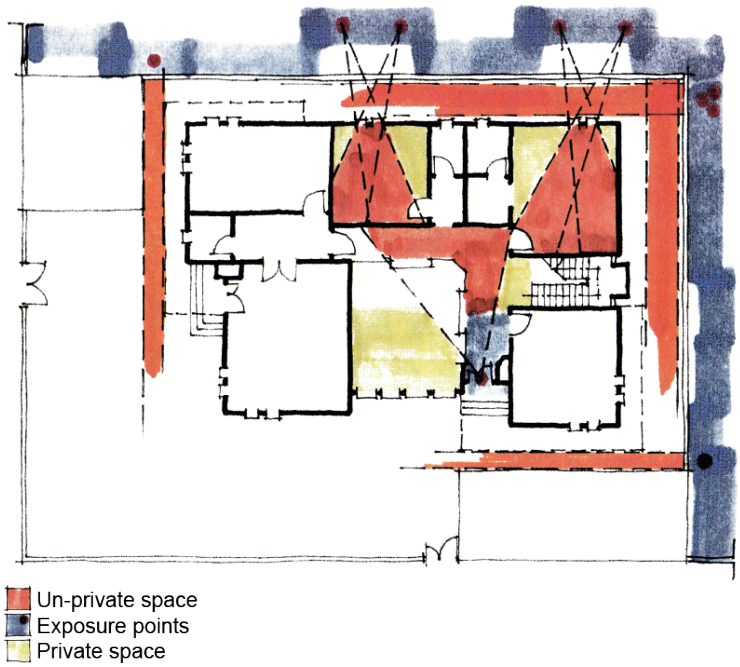


Figure 17 House spatial visual exposer analysis (Al Tayash 2008a, p.166)

Figure 18 Urban visual exposure analysis (Shach-Pinsly et al. 2011)

Space syntax

Another tool that was utilised to analyse spaces (urban and interior) is space syntax, which according to Hillier (2005), explores two layers of space: its

objectivity and users' engagement. Some scholars had utilised this tool in analysing their sample while studying the built environment and its effect on users' behaviour and users' lifestyle inside the house (Khattab 2005, Zako 2006, Bellal 2007, Güney 2007, El-Shorbagy 2010). It has been described as an evaluating and testing tool to which designers can refer (Dursun 2007), and also as a strategic configuration tool (Bafna 2003). Within space syntax there are three different tools: the justified graph, the axial graph, and the convex graph. Bellal (2007) and Zako (2006) applied the justified graph to understand interior lifestyle patterns of use. Figure 19 displays part of Bellal's work, where he used justification maps to display the functional relationship between the house spaces with the exterior entrance as the point of origin. In this map, it is displayed that the deepest space in the house are the ones with code numbers 17 and 9. The depth represents the number of spaces needed to be accessed/pass by to reach a certain space.

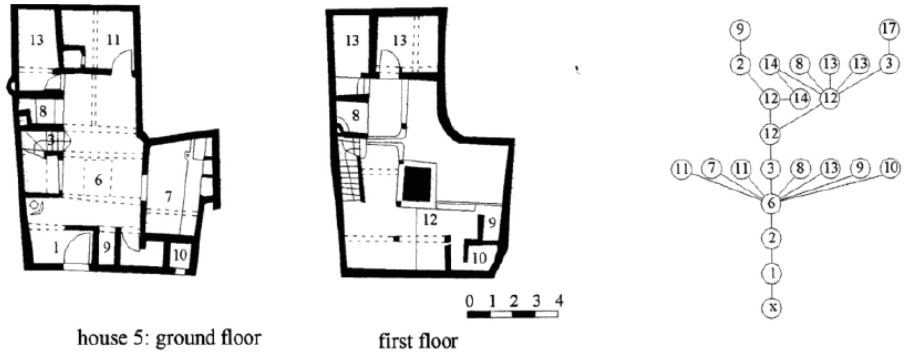


Figure 19 The use of justification maps (Bellal 2007)

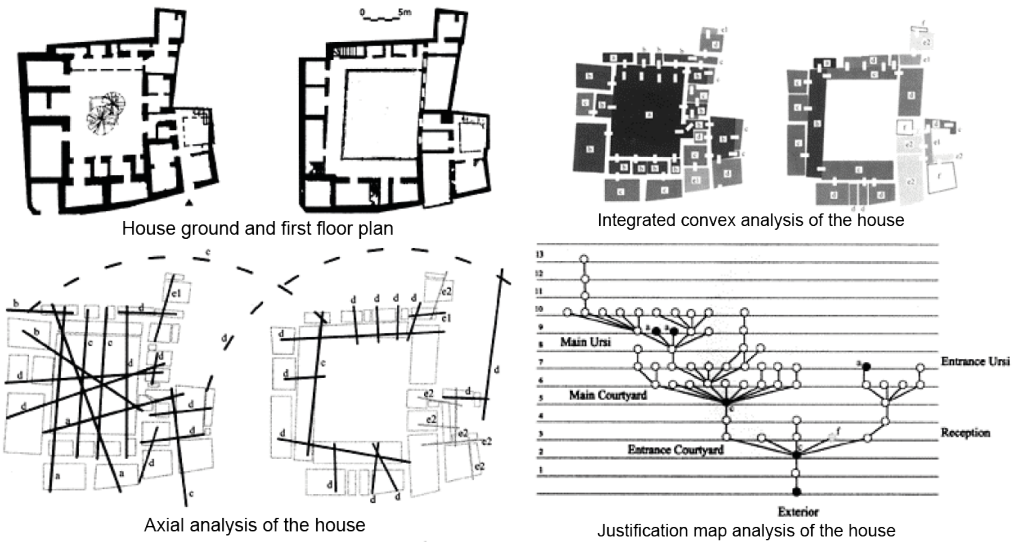


Figure 20 The use of different space syntax tools to analyse a hosue (Zako 2006)

In Zako's work (see Figure 20), different space syntax tools were used to analyse and study the houses of interest: axial analysis, integrated convex analysis and

justified map. These analysis tools studied the courtyard spatial and functional situation within users spatial needs and gender separation. Axial analysis explores maximum number of spaces accessed from a selected point. Integrated convex analysis highlights the exposure or closeness of spaces compared to one another. Lastly, justified map, as in the previous figure, displays the depth of spaces with main entrance as point of origin.

The justified and axial analysis graphs from space syntax analysis method were utilised in this study to illustrate lifestyle patterns and interactions inside the house. The relationship between social interaction activities, privacy, and designed and allocated space can be reflected through these space syntax tools, as displayed from the work of Bellal (2007) and Zako (2006). Yet, the calculation process to get the interaction levels and space depth were not applied in the analysis process in the research.

2.2. Saudi houses

It is evident from the literature that the concern with privacy as an influencing element in house design has increased (Vaziritabar 1990). This concern, as mentioned, derives from social, cultural, religious and globalisation origins, which are reflected in the resulting house designs and processes (Abu-Ghazzeh 1995). With the consideration of those affecting origins, memorable spaces are created that relate to multiple layers of spiritual and symbolic meaning a house (Steele 2005).

Literature had studied traditional and contemporary houses from the perspective of identity of the city and the users. Architectural and urban identities were key topics found in literature. In architecture literature aimed to trace the architectural changes and their drivers on one hand and its relation to users needs on the other hand (Al Tayash 2008b).

2.2.1 Architects and client relations

Architects and theorists are interested in the concept of privacy as part of the design consideration, yet there is concern about a social knowledge gap which exists between designers and users (Rapoport 2005, Al Naim 2014) on one hand and lost communication between theory and the built architecture on the other (Till 2012). Rapoport (1982), quite justifiably, questions the designers' authority to make decisions in house design while these decisions are based on designers' point of view; the social interpretation of values and changes that the spaces go

through have not been thoroughly considered. Architecture has moved from an individual's knowledge of users' needs, considering the possibility of later spontaneous modifications, to a more professional predetermined architectural creations (Ragette 2003). Architects cannot display enough consideration towards the constrains they create in a house and changes that users go through. The latter is a result of their lack of understanding about users patterns inside the house, which is a result of a lack of communication between the architect and house end-user, making the design process one sided.

An example of a project where the architect did not have direct communication with the end-users, yet the architect being from the same location gave him knowledge of cultural and social rules of the place, is the work of Hassan Fathy. Fathy's work is a living example of the complexity of users and their house requirements. According to Maluenda (1989),though that Fathy had thought the design from different cultural and customs patterns of the expected users, the project was not successful. As it was expressed in the same paper *"He then realised that he was not planning for others but rather for himself" (Maluenda and Pich-Aguilera 1989, p. 41)*.

Spaces should have the ability to adapt according to users' preferences and needs (Russ V. V. Bradley 1970). A relationship develops between the user and the space occupied which needs to be acknowledged and is expressed by the way users utilise spaces (Rapoport 1982). Changes in room boundaries, furniture layout and room function; such alterations reflect and are a statement of the user's identity. Users become more adaptive to the place they are in, trying to modify it to suit themselves; to place what works best for their needs (Akbar 1998). Such behaviour was discussed in a paper in 2012 (Azhan Abdul and Abdullah Sani) with the assumption that the relations between the built environment and social needs were somehow neglected. The importance of such the relationship between space and users give the space its meaning, without which the space will be stripped from its semiotics and would be a mere physical creation that lost its complex layers that the users need to develop in order to feel home (Steele 2005, Ahmed 2013).

Architects should consider, as sources, the theoretical aspects of design, but not have them as the ultimate process, because theories can be wrong and could go through some modifications, which (following theories) can lead to problematic designs (Hillier 1996). They must remember the main point of those theories and design implementations: the end user; as Rapoport (1979) expresses the

different approaches designers take with that aim compromised. Particular care needs to be taken when designing houses, private creations where one needs to belong. Accordingly, architects as designers should know the meaning of the spaces that they are designing, and what these spaces represent to the user, both culturally and socially. The meaning of those spatial creations is as important as the visual and physical creations (Sime 1986). Combining a user's needs with spatial and visual creations helps to form the interior spaces of a house, assigning functions to each space as it suits the user's needs (Hammer 1981).

The way in which users utilise spaces after designers create them is unpredictable, and relies on cultural and social factors. These uses change as norms change (Al-Dossary 2000). The utilisation of house spaces involves the relationship between different elements: people-space, people-objects, objects-objects, objects-space, space-space (Donley-Reid 2001). Hence, multi-functional spaces are created to give users the freedom to utilise those spaces as they choose (Memarian et al. 2011). The utilisation of multipurpose spaces has given interiors the impression of being spacious, an impression which is enhanced by the way furniture pieces are arranged and by their nature (Akbar 1998). Multipurpose spaces serve various requirements in houses, such as privacy, flexibility and hospitality, and there tend to be fewer specialised rooms (Kay and Zandi 1991, Akbar 1998). Both existing houses and the ones still to be designed should reflect users' and architects' understanding of a space's design and its functions (Ballantyne 2011).

All the above considerations reflect a designer's thoughts and ideologies, how they understand and process information such as needs and priorities. Architecture is a visual representation of society, including status and education (Mahgoub 2007). Therefore, an understanding of the links between architecture and human behaviour is recommended to help with the interpretation of social needs and culture (Serageldin 1996). Privacy concerns and some other cultural and social needs in houses located in Saudi Arabia are still there, it is how spaces are used not how they are formed that is important (King 1998).

According to Khattab (2002), there are three levels in the design process that architects should go through:

> *"The first is the everyday world, the second is the compulsive imagery and the third is the deep structure" (Khattab 2002, p. 29).*

When one step is skipped, the resulting designs are artificial and have no depth. The concept of culture, environment and responsiveness has led to different interpretations of cultural meaning with regard to what it means and what it does. Khattab highlights the role architects' work has now and the role they had in the process of creating contemporary and traditional buildings. When it comes to cultural responsiveness, norms and habits representation, designers' role have an effect upon the resultant architecture and users' satisfaction (Rapoport 1982).

As mentioned earlier, privacy relates to socio-religious and cultural factors. It is not only important in Saudi Arabia, but around the world and differs from one culture to another. To achieve better architecture, a deeper understanding of culture and societal behaviour is required, and for this reason, Abu-Gazzeh (1995), Memarian (2011), Kent (2001b) and Kazerooni (2009) believe that culture and people create architecture, not the other way around. With regard to privacy, Witte's (2003) view is that the issue is not knowledge itself, but architect's understanding of what that knowledge means to users, for *"a house is laid out according to how it is to be used*" (Ozaki 2002, p. 209). Nevertheless, people perceive the world differently over time and that creates development in history, which is related to culture and the social meaning of space. Also space is an expression of social and personal needs, and house design needs to develop to accommodate these needs (Hammer 1981, Ozaki and Lewis 2004).

Abu Ghazzah (1995) discussed the issue of traditional houses and of privacy within the context of Saudi Arabia. His notes state that architecture organises the social and cultural requirements in a domestic environment. In his work he tries to understand the physical environment of traditional houses from a social and cultural viewpoint, how they affect the house design and the utilisation of the building, Figure 21 illustrates a summary of his notes. Figure 21 displays the intersection of the social variables and physical factors in shaping the house living environment as Abu-Ghazzeh points in his study.

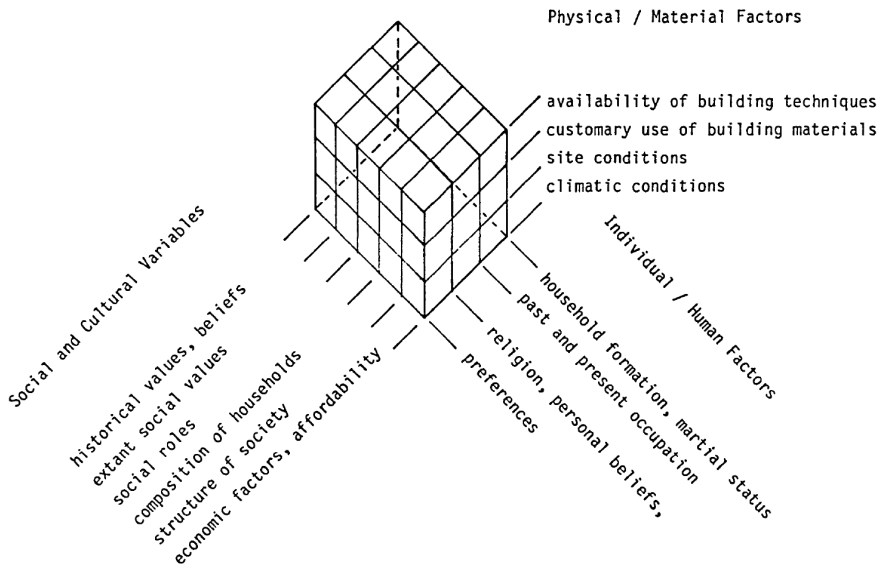


Figure 21 The various needs that helped to shape traditional houses (Abu-Ghazzeh 1995)

The architectural creation of houses in Saudi Arabia, in the 1970s, is strongly dictated by the architects and their impact on the resulting product is conclusive (Al Naim 2006b). The client's interpretation of what should be, or of how they want their house to be is affected by internal and external aspects. From the internal aspects that affected the house there are social codes and the need for privacy, and from the external aspects there are professional magazines. There was a want to imitate what is around, to fit in and not to be considered an outsider as a result of the external factors influenced by globalisation (Ben Hamouche 2004, Mahgoub 2004). Another external factor is to be considered, designs by architects from other Arabic countries before the arrival of the first Saudi architects group in mid 1970s. For instance, people who had access to courtyards in traditional houses are the same people who have access to halls in contemporary houses (Al-Dossary 2000).

Rapoport (1979) laid down the concept of open-ended design, to give freedom, expansion and the possibility for change by users of the way traditional houses were built. This leads to one of the research questions: the lack of communication between architects and clients, existence of a gap between them. As some designers consider the concern with privacy to be a limitation to freedom of design led them to neglect its importance (Al-Thahab et al. 2014). The documentation of some phenomena may be out of date or inaccurate. Also there is the possibility that the researcher is currently in a theoretical atmosphere where interest in checking for updates on the subject of interest is low or has disappeared; where the focus on referencing the existing has become priority

number one. Rapaport (2005) mentions in his writings his concerns over designer oriented designs, and the sources from which designers gain their information. Also he points out things to consider regarding the relationship between architect and clients, as architects tend to think they know what is best and somehow ignore what is really needed, user oriented designs. Although sometimes they may be correct, this does not give them the right to ignore updated input on social lifestyle (Vaziritabar 1990).

As mentioned earlier in Rapoport work (1982, 1998, 2000, 2001, 2008), architects are to refer back to theory when generating their designs, yet should not neglect the user in their designs. Like the proposed 'open-ended design' by Rapoport (1979) and other assumptions made within the international style by the Chicago school, theory is to be acknowledged but should not override the social and cultural needs of a specific location; as neighbourhood, city, region influence social fabric and therefore the levels of density within houses (Marshall 1970). As with time and different cultures being experienced, the social fabric goes through development and modifications, one that is not to be ignored and theories and designers are to update their knowledge according to it (Al Naim 2006a). This specification gives the created design its characteristics, which invites the user to feel part of the design, not to feel alien to it.

Since this research addresses the contemporary house development projects, therefore there is no immediate communication between the architect/ designer and the end-user, where the architect/ designer is to rely on their personal understanding. This lack of communication, due to the nature of the project type, can be touched in the resulting designs that might not touch upon different social aspects of needs that the users expect in their house. This research focuses on the concern of privacy, understanding it to add to the architect/ designer understanding of end-users needs of privacy in their contemporary houses.

2.2.2 Privacy in traditional houses in Arabia

Throughout history, humans have tried to modify their shelters to accommodate privacy, and the situation in the Arabian Peninsula is no different. Within a short period, however, traditional houses were removed and replaced by new constructions, and as a result, users had insufficient time to comprehend the changes, leading to a weak link to traditional houses and lost identity over a short timeframe (King 1998, Al Naim and Mahmud 2007). Users express their needs through architectural representation inside the house (Jani 2011). One of the

noticeable differences between traditional and contemporary houses is that traditional houses developed and evolved as needed, while contemporary houses are built in one go inside the main land boundaries (Kay and Zandi 1991).

Traditional architecture is the result of the input of different factors. Culture, society, norms, environment and traditions are those which are considered to have most effect, and those that have helped in shaping the resulting traditional houses (Kazerooni 2009). These traditional houses went through conceptual and physical transformations and developments that were in accordance with the change of one, or more, of the mentioned factors aiming to provide maximum privacy for its users (Bianca 2000, Jani 2011, Salama 2014).

Therefore learning about traditional architecture helps to illustrate the social fabric at the time of the houses' construction. Interior architecture elements and solutions are to be pointed out as an outcome of learning and analysing traditional houses. Social and inherited spatial and structural solutions in the house to meet users needs in traditional houses can inspire contemporary design, and for this research help in producing the design tool. This leads to a more structured analysis of the past and interpretation of contemporary architecture.

In this section, secondary data are reviewed in order to study traditional houses from different Saudi regions. This helped with the analysis of traditional houses, their functions and meaning, and it also helped to highlight common architectural elements that supported privacy needs inside traditional Saudi houses.

The journey through traditional housing types starts with the very basic structure of the tent, and moves on to the more complex form of multi-courtyard and multi-story houses. It focuses on the methods and techniques used to deal with the issue of privacy and how it influenced house design, and also on the factors affecting designs and privacy dynamics to form a knowledge base that links to contemporary situation (Foster 2004). Therefore, when attempting to understand the traditional housing architecture of the location, a number of influences need to be considered as mentioned earlier.

2.2.2.1. Tents

Nomadic families in Arabia lived in tents, which were convenient because of their simple structure yet provided complex facilities for their inhabitants, providing them with their social and personal needs. A simple structure that was users utilised to manage their privacy, hospitality and social needs in. Textiles were

used to form the outer shell and acted as space dividers as well (Negoita 2012), forming the interior voids in which different activities were performed; the private family section and the hospitality, public, section. These sections were separated from one another by visual barriers, which were made from the same textiles as the main tent. Tents marked out not only a territory, but also the owner's social status that was indicated by the size of the tent (Rajab 1996, Kries and Vegesack 2003, Al Naim and Mahmud 2007).

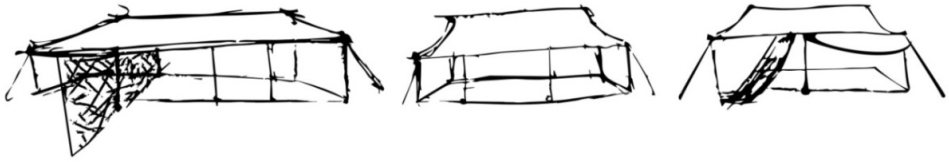


Figure 22 Tents of different sizes (source: drawn by researcher)

The continuity of Bedouin social and cultural norms is seen in contemporary society, and these values form the social identity that is embraced to date (Al-Sabah 2001, 2006). Amongst these norms are hospitality and privacy, which are influenced by religious background. To provide privacy, men and women's sections are separated by a partition. Male visitors and guests are welcomed into the male section, and here acts of hospitality can be performed. Hospitality consists of not only providing food and shelter but also company and entertainment. In the female section other personal and private functions are handled like raising children, food preparation, female gatherings and sleeping (Antoniou 1982), as displayed in Figure 21 and Figure 22.

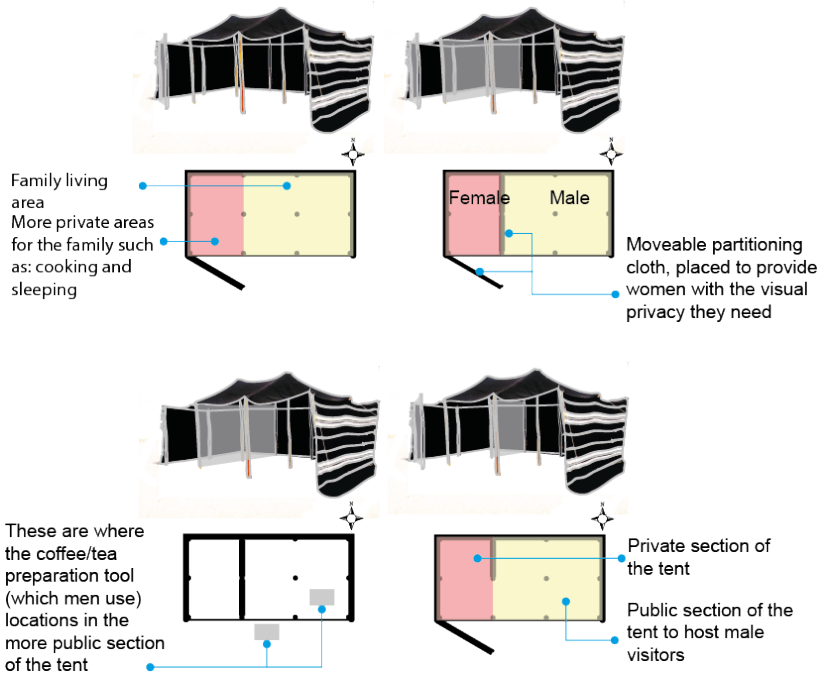


Figure 23 Location of the partition and its effect on social functions in tents

As mentioned earlier, tents with their simple form and basic interior organisation reflect the rather complex story behind its social mechanisms. The diagram below illustrates stages in our understanding of how tents work. There are two parts; the shape, and the function of the tent. The functional, hospitality and privacy needs reflected the requirements and social status of the owners and were evident in the size of the tent.

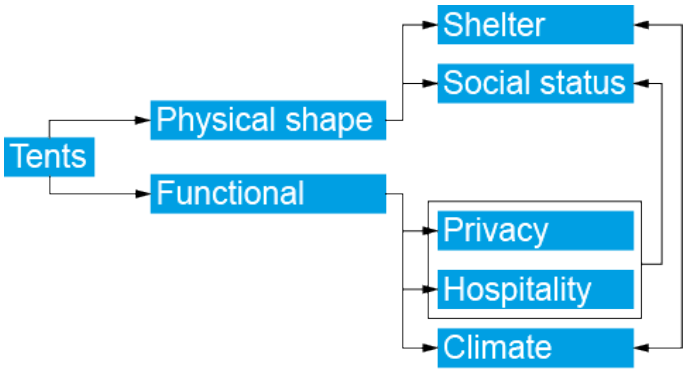


Figure 24 Understanding tents

These functional needs influenced resulting shapes. Hospitality is linked to social status and one's reputation. This act of hospitality is inherited between the Arabian people because of spatial, religious and historical reasons. The tent with its openness provide a more inviting gestures to strangers in the desert who might need shelter or a place to rest in (Al Najjar 2004).Tents are generally divided into two parts, one larger than the other as displayed in Figure 25. This division provides users and visitors with spaces that respect their spatial and personal needs for privacy and hospitality. The use of the tent's textiles as a partitioning element provides both visual and acoustic barriers.

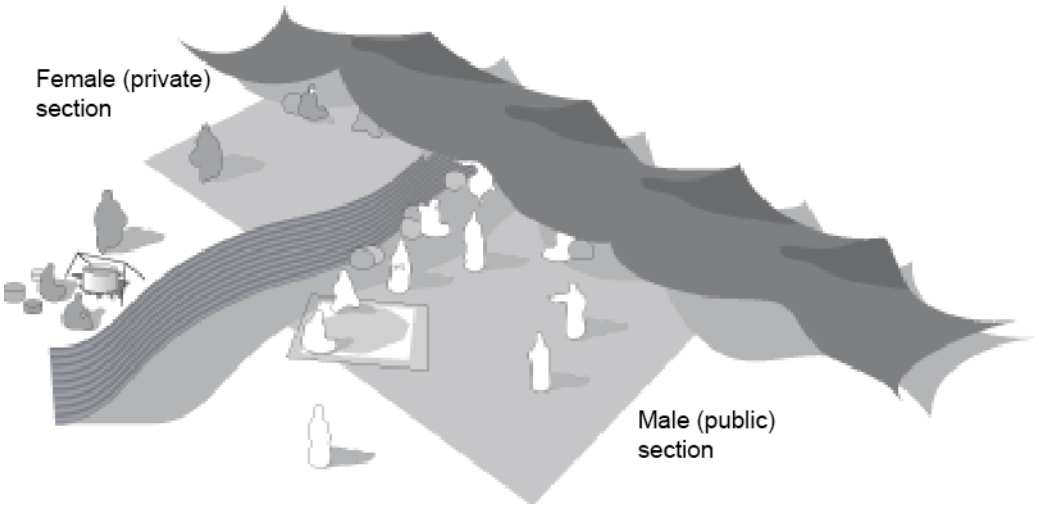


Figure 25 Illustration of a tent having private and public sections (adopted from http://www.catnaps.org/islamic/gulfarch6.html)

Observing the way tents function, how spaces are used, and the relationship between those simple voids, one can connect them with current domestic spatial and functional relationships. Although these spaces were limited, they were flexible and have generated different functional spaces in contemporary houses to serve social needs that have expanded and become more demanding (Muazu and Tyrrell 2008).

2.2.2.2. Courtyards

Houses developed through various stages before settling into the courtyard shape that we know today. There are two theories as to the creation of the courtyard house; one refers to the Islamic adoption of this type from the Roman courtyard houses. While the other theory considers it to be a development of the tent structure (King 1998, Negoita 2012), see Figure 26. A central courtyard surrounded with corridors leads to other spaces of the house, a common layout in traditional Middle Eastern and Mediterranean houses that isolated private spaces from public spaces (Kries and Vegesack 2003, Negoita 2012). Courtyard houses were popular for more than 8,000 years in Iran (Memarian et al. 2011), and can be found in many places. There is even evidence that they existed during Ancient Egyptian times, amongst Mesopotamian civilisations and in the Greek Empire (Mahgoub 2007) indicating their important environmental and social role. Scholars have recommended courtyard houses for hot climates due to their environmental efficiency and the way in which they fulfil users' social and cultural needs (Kries and Vegesack 2003, Ragette 2003, Edwards et al. 2006, AlEnazy 2007). Whilst courtyard houses were environmentally friendly, they also demonstrated the users' territoriality inside their homes (Bekleyen and Dalkiliç 2011). Figure 27 illustrates the features that courtyards provided for its users.

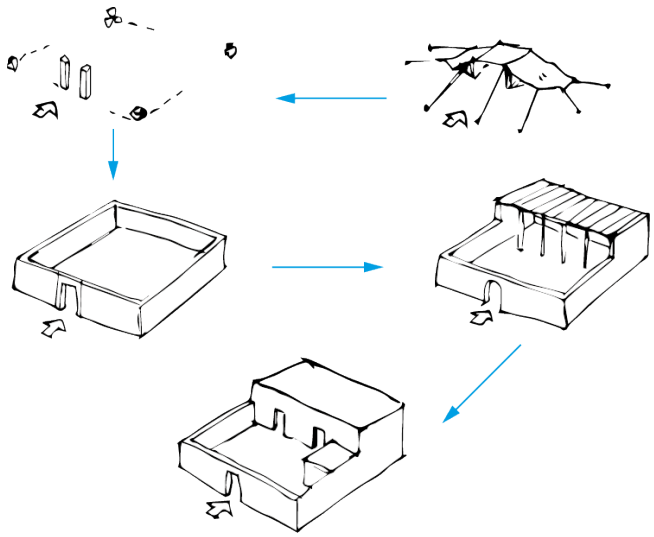


Figure 26 From tent to Iwan to courtyard (based on (Ragette 2003))

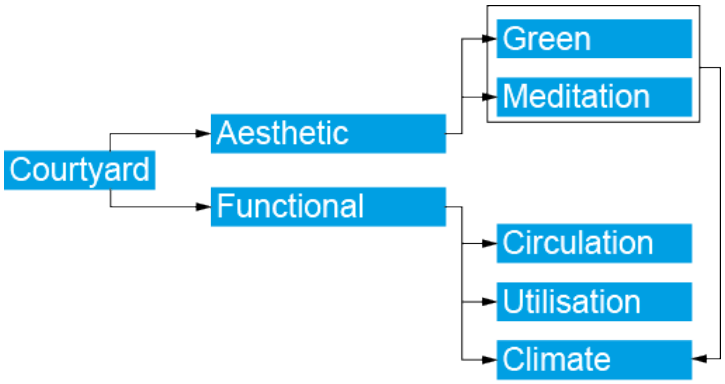


Figure 27 Understanding courtyards in Arabic house

Spatially, these courtyard houses are of a centralised plan type, the courtyard being the core of the house and a thermal solution at the same time (Khattab 2005, El-Shorbagy 2010). The central courtyard created an inner world for users, providing them with the visual and physical privacy they needed and with an open natural area in which the family could sit and join in with social activities with other members of the household (Jani 2011, Negoita 2012) (see Figure 28). The rooms surrounded the courtyard, thus benefiting from ventilation and direct sunlight. Also the courtyard area acted as the origin of circulation from and to other spaces (Kay and Zandi 1991).

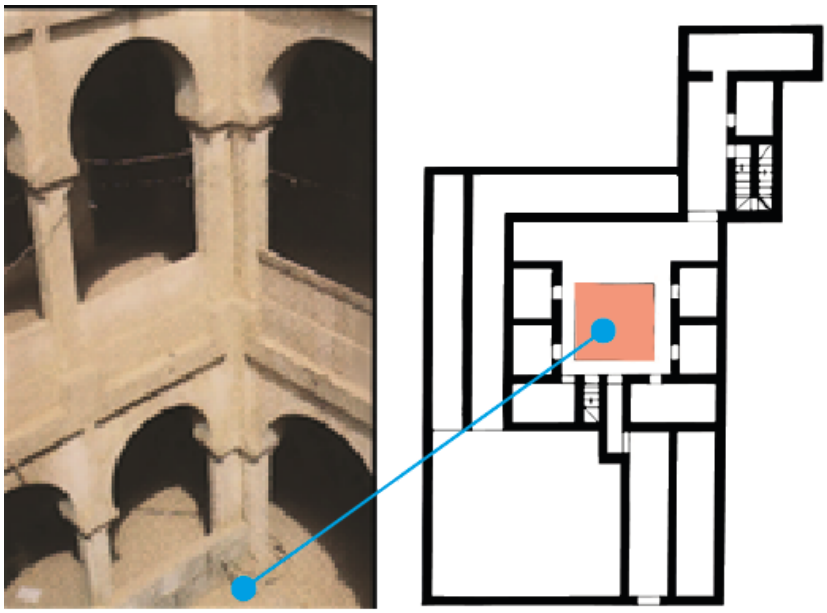


Figure 28 Al-Jiluwi house courtyard ground plan and view (source: adopted from The Traditional Architecture of Saudi Arabia p.184-185)

In a courtyard house, the courtyard acts as a private and public living space. Some of the rooms around the courtyard are connected internally, assisting the users to walk freely between spaces while maintaining their privacy. Spatial relationships between functional spaces in a courtyard house support the privacy

needs of a traditional Arab house. Most likely around courtyards there are liwans, spaces that are closed from three directions and open from one. These act like corridors and also shaded sitting areas (Jani 2011).

Courtyards in traditional houses have, in some regions, an aesthetic value as well as a functional value. Architectural elements that are placed around and in the courtyard have architectural and decorative roles at the same time. These partitions were made out of patterned wood and gypsum, these partitions were found on the first floor of courtyard's corridors handrail. These partitions provided visual privacy by creating the visual barrier without placing users in visual isolation, ventilation and space identification (see Figure 29).

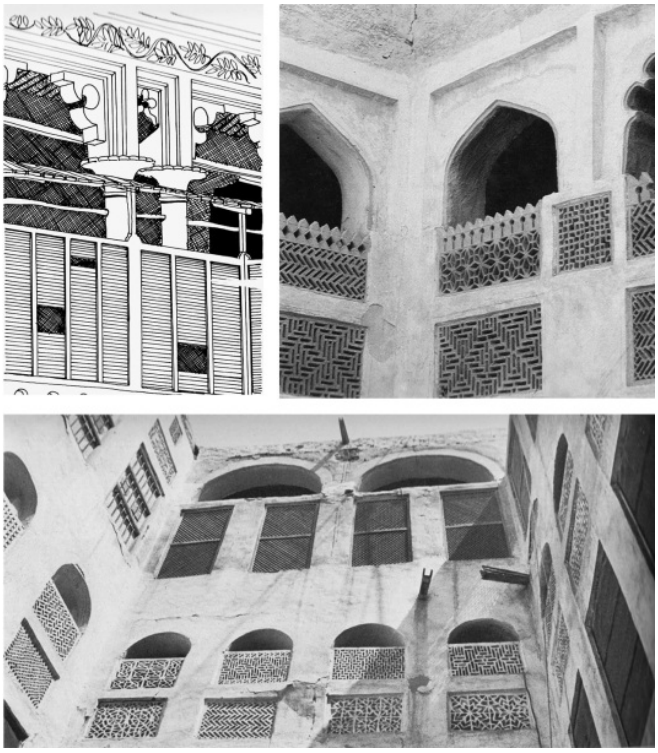


Figure 29 Wooden and gypsum screens overlooking the courtyard (source: Shelter in Saudi Arabia, Talib, p.86, 88)

As housing types in Saudi Arabia, courtyard houses were common as a house type in central and eastern regions, where multi-story examples can be found; and they are recommended type of houses for contemporary built houses (Bahammam 2006, Zako 2006, Sobh and Belk 2011, Schwab 2014). These houses developed and expanded to accommodate the family and in some case the extended family too (King 1998). Traditionally, extended families were familiar with one another, where compound courtyard houses intersected creating a small society within the urban cluster. The bigger the family became, the more rooms and more courtyards were created. As with tents, there is a social meaning to the

size, number of courtyards and the social status of the house owners. That had impact on the social interaction within the same courtyard complex, and also on the social representation of privacy and other social requirements within the courtyard house type. In a complex courtyard house, multiple courtyards were found and each dedicated to specific users. That gave power to the users and control over access and therefore gained their physical, visual and auditory privacy level they required (Edwards et al. 2006).

2.2.2.3. Other architectural elements in traditional houses

The previous examples are the oldest and the most well known types of traditional houses for both nomadic and settled families in the old Arabian Peninsula. These types were to be found across most of the peninsula, although there were some areas which used different structural and design characteristics, where stone and wood were found and used as the raw construction materials. Areas of the west and southwest had their own distinguishable housing characteristics. These areas shared the fundamental conceptual needs, of climate consideration, privacy and hospitality, with the rest of the country, and translated them in their own way. The following are some architectural and interior elements from traditional houses that reflect the distinctive need for privacy: windows and doors which if not utilised properly can be only physical boundaries and constrains that lost its complex reason of creation (Stewart-Pollack and Menconi 2005).

Openings

Openings refer to both interior and exterior room transitional elements like doors, windows and arches, each of which are architectural elements that direct users towards their destination and draw boundaries for them. This architectural and interior element is influenced by the concept of privacy, it is created to help access spaces or act as a linking element between two spaces.

> *"Traditionally, the front side, facing the public domain, was designed around the building's entrance. The facade was meant to be a building's only aspect that most of the public would ever see" (Mattens 2011, p. 108).*

To balance between the need for privacy and the social requirements of hospitality, exterior entrances were solid, large and decorated. This visual sign reflects the social status of the owners as well as acting as a welcoming sign for

neighbours (see Figure 30). Exterior entrances have different levels of emphasis depending on the type of users they are intended for.

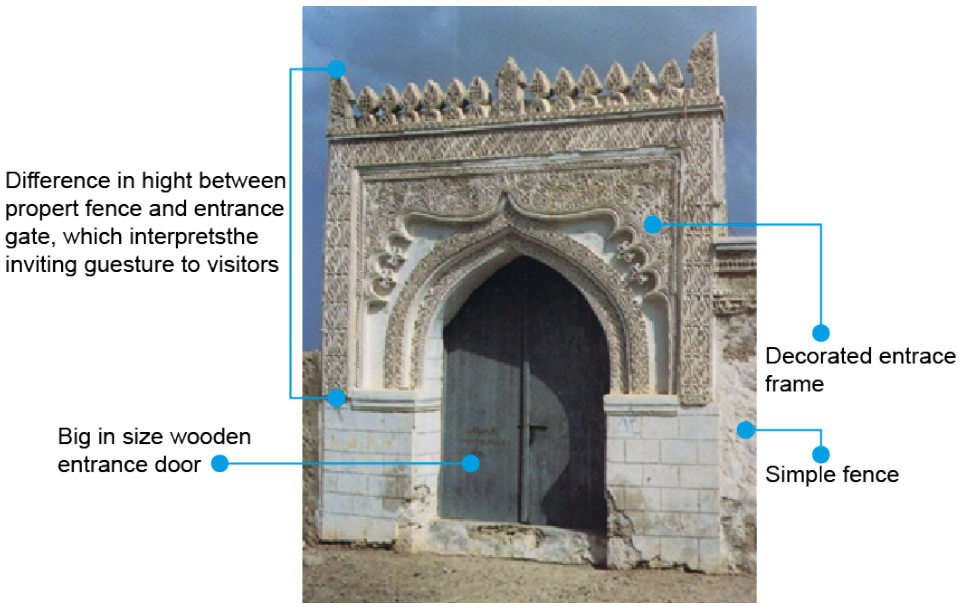


Figure 30 An arch opposite Bayt alRifa'i, Farsan 1984 (source: Traditional Architecture in Saudi Arabia by G. King, 1998, p.67)

The other types of openings are windows, the architectural element that connects the interior spaces of the house visually with the exterior world.

> *"Windows were in general sited above street level, which simultaneously insured the privacy of the occupants and helped keep dust from entering the house"* (King 1998, p. 211).

According to King (1998) privacy is required inside houses, therefore the location of windows were to respect this need while still maintaining their functional use of visual connection and ventilation (see Figure 31 and Figure 32). The size of windows differed from one region of the Arabian Peninsula to another in accordance with the region's climate. Small openings help to bring cool breezes under pressure into the house, hence acting as a cooling mechanism. Opening found above sight level to provide ventilation and light without giving passers-by a chance to visually intrude as displayed in Figure 3 and Figure 31 (Sobh and Belk 2011, Salama 2014). These functional features, at the same time, supported the user's social and personal needs.

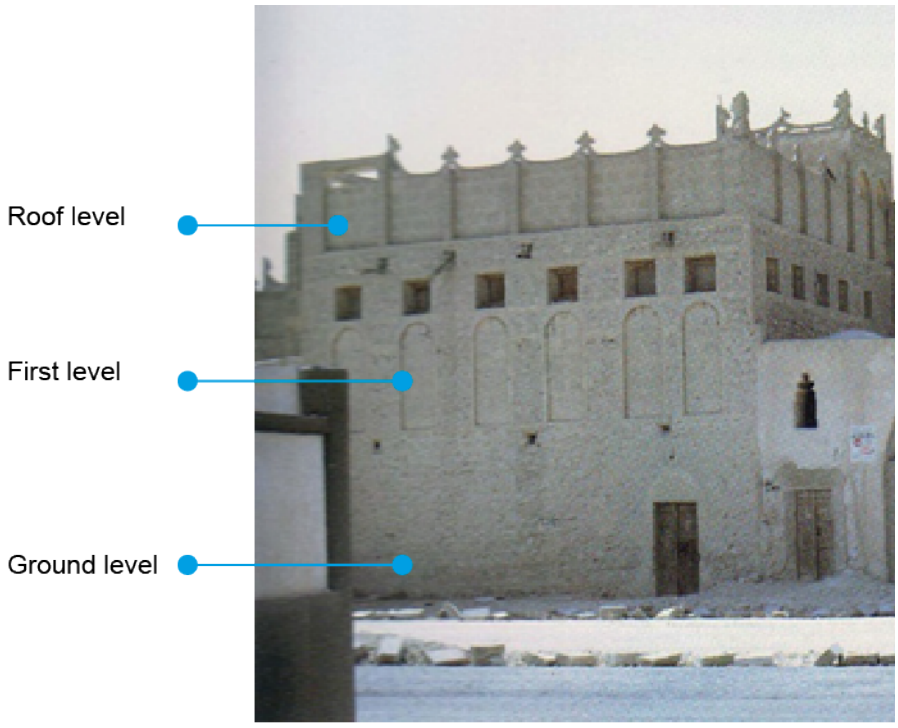


Figure 31 AlJiluwi house on the left and Dibs mosque beside it on the right (source: Traditional Architecture in Saudi Arabia by G. King, 1998, p.184)

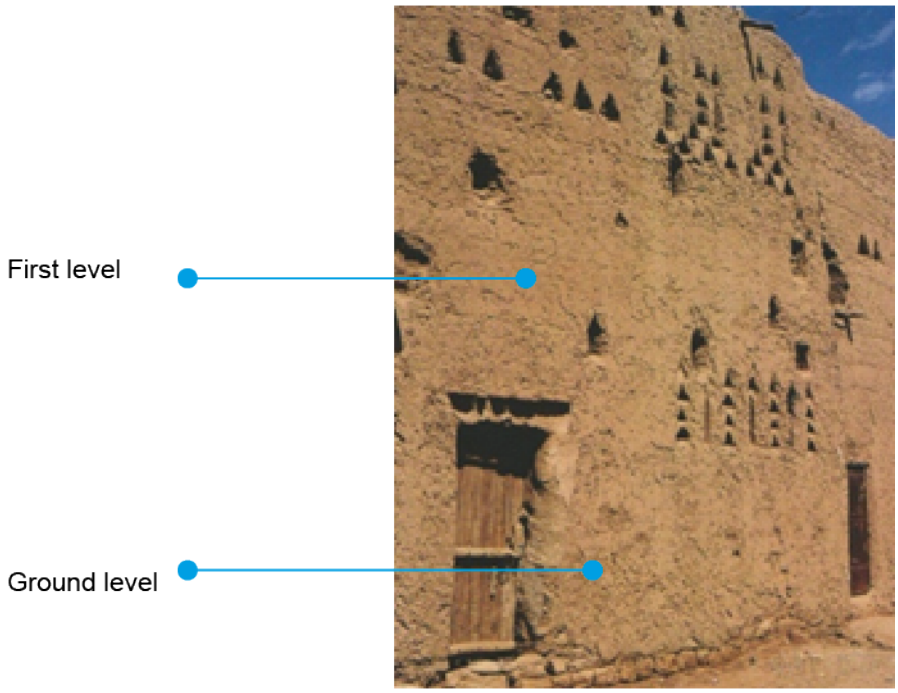


Figure 32 A Qasr at Jalajil 1982 (source: Traditional Architecture in Saudi Arabia by G. King, 1998, p.150)

The houses in Figure 31 and Figure 32 were located in different regions within Saudi Arabia. The difference between them reflects the climatic needs and materials availability in the area (Talib 1984). Both houses followed the courtyard type of housing. Also, both houses had no direct openings on the ground floor

that would exposer users on that level. In Figure 31 openings were above sight level and are found on the first floor to provide light and ventilation, while in Figure 32 there are some small openings located on both levels to provide ventilation and visual access to the street without being exposed to it.

In the western region, windows were covered with screens, *Mashrabia*, made out of wood that allowed sunlight and airflow into the house while preventing visual exposure of the interior spaces (see Figure 33 and Figure 34). The concept of Mashrabia (*A grid or perforated door (wood or metal for rich families) used to cover windows and balconies (Negoita 2012, p. 23)*) is used in contemporary houses, just as it was in traditional houses, but designers can also benefit from its patterns which are used to create partitions to divide a space into two. These types of partitions can provide a visual and physical screen that is not as heavy as the wall, gives the sense of openness to the space. These partitions act in some cases as a physical element that draws a boundary line for users and visitors. The location of these wooden screens above the main entrance in Figure 33 provided emphasis to the house's entrance. Houses in Western region of Saudi were known to have vertical growing houses. That method of emphasis was utilised to identify the entrance to users and for visitors as entrances were emphasised in Eastern region shown in Figure 30.

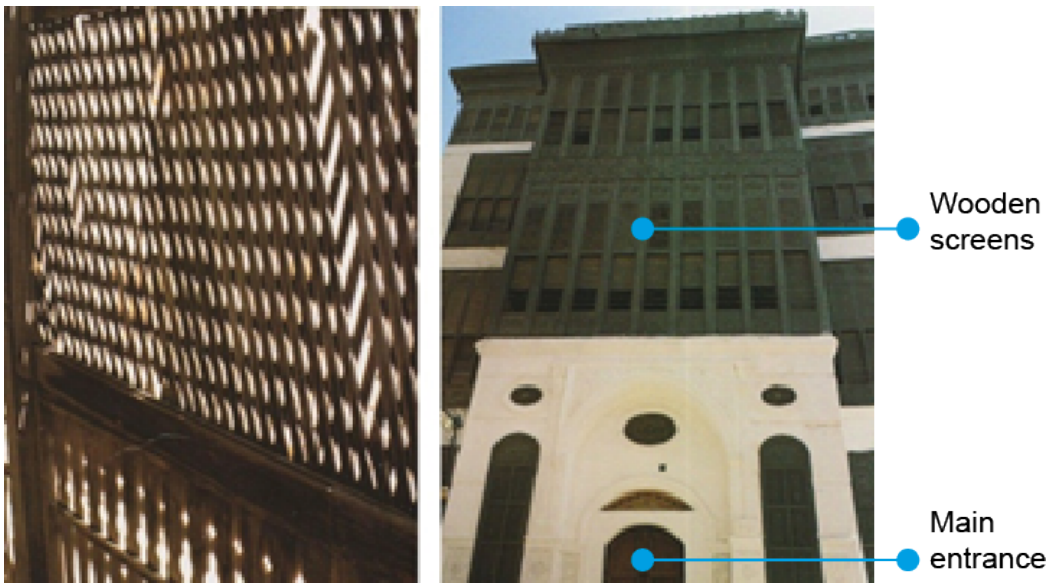


Figure 33 Wooden screen in a house at Jidda shading the interior and allowing air to circulate while maintaining privacy for the users (source: Traditional Architecture in Saudi Arabia by G. King, 1998, p.42)

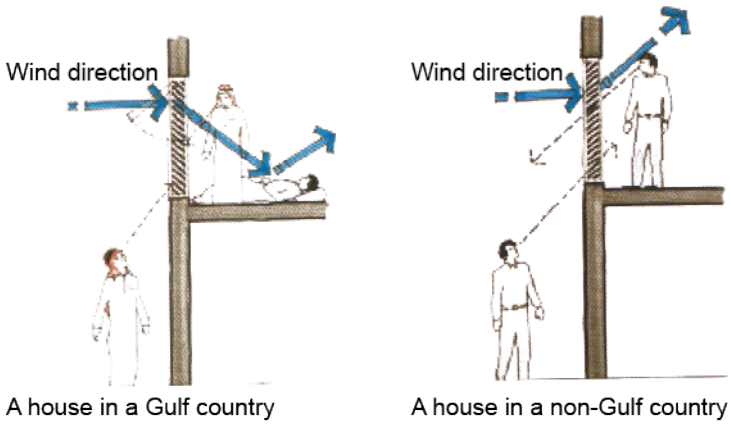


Figure 34 Louvers direction in traditional houses comparison between gulf and non-gulf countries (Kazerooni 2009, p.28)

Spatial elements

In a traditional house, moving from one public space to another was not direct; rather there were indirect interior broken entrances. These entrances provided a private gesture to guests and owners, creating both physical and psychological boundaries (Kay and Zandi 1991, Serageldin 1996, Al-Thahab et al. 2014) (see Figure 35). These broken entrances were located usually by the stairs and the male/visitors' room, and led deeper into the house; by this it does not expose the house inner spaces directly (Ahmed 2013). These broken entrances afford both the owners and a person entering the house a degree of privacy, as they create short corridors that lead into the house and around the spaces.

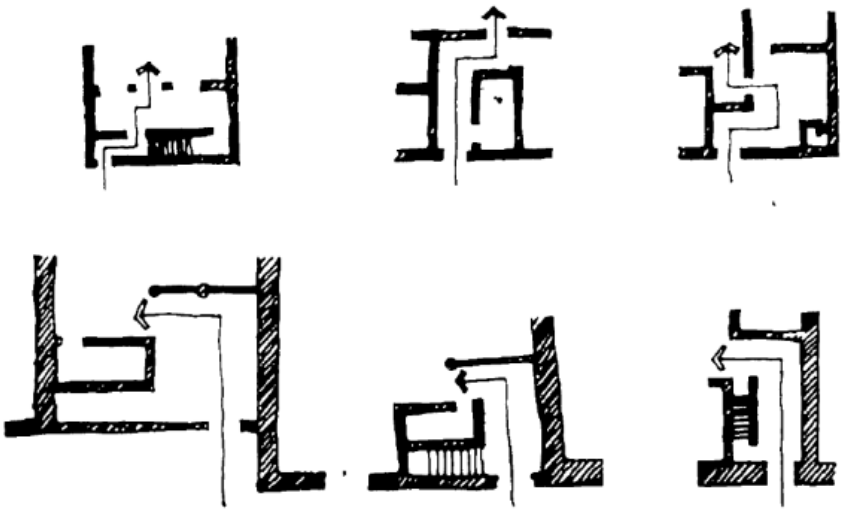


Figure 35 Broken entrances that lead into the house - top view (Bahammam 1987, P. 18)

2.2.2.4. Summary

Physical boundaries were created to provide visual privacy in houses, to enable the users to use spaces with freedom and comfort, without concern that they would be overlooked or heard by visitors. These boundaries acted like a communication tool for strangers, showing them the areas in which they were welcomed. The boundaries adopted in traditional Saudi Arabian houses varied between physical partitions and the use of different levels for the intended functions (Abu-Gazzeh 1995). This form of translation is not unique to Saudi Arabia, as mentioned earlier, with reference to Keeley and Edney's paper (1983).

Traditional houses where created by the users themselves, and their needs were expressed through their house construction. Interior and architectural elements, such as halls and opening locations on exterior elevations, were utilised in such a way as to provide male and female users with protection as well as lending privacy to intimate zones of the house (Ragette 2003).

2.2.3 Privacy and contemporary Saudi houses

Contemporary houses suffer from a breach of privacy (Susilawati and Al Surf 2011), where the concept of privacy and physicality have been lost. On one hand, this can be linked to aspects of societal development and exposure and on the other to the employment of international architects and designers to place the final touches. Also the mixed cultural backgrounds of users - Saudis, other Arabs, and non-Arabs all living in Saudi Arabia - each have their own definition of privacy (Abu-Gazzeh 1995). Comparing traditional and contemporary houses in terms of the origins of the design outcomes; in the first case, they derived from users' needs, while in the second they were influenced more by modern western regulations (Kries and Vegesack 2003). Al Naim has raised concern about the effect of such western imposed regulation (2013).

Such regulations have an impact upon the concept of privacy in relation to all of the senses, visual, acoustic and thermal. Also privacy is the core of an Arabic traditional house (Khattab 2005). In Saudi houses, privacy refers to the family's visual separation, and especially to avoiding the exposure of females to people who are not family (King 1998, Memarian et al. 2011). From the points that need attention in big cities is the fact of it hosting a multi-cultural environment, not just region's native people but also people from around the world. This, in result, created social division of the city's urban design, where societies with common

cultures and habits gathered closer around one another within the city to create their own community; they create a small city within a big one. According to a study conducted in 2012, relations between the built environment and social needs have been neglected (Azhan Abdul and Abdullah Sani).

2.2.3.1. Traces of Traditional architecture in contemporary environments

Saudi Arabia has gone through various phases in its evolution. People, society and culture have developed, translating that development into their education, economics, sports, sciences and architecture. This research explores the architectural interpretations. Tradition, history, socio-economics, values and ideology are among the inherited factors that have affected architecture (Ragette 2003). Also, the research explores the interior spaces of traditional houses, and the process of their development to their current condition in the Eastern region of Saudi Arabia. The location of the area of interest shares similar characteristics with other Arabian Gulf countries such as Bahrain, the United Arab Emirates, Kuwait and Qatar (Kazerooni 2009). Therefore, the research contains some of architectural examples from these countries.

There are theoretical benefits to returning to traditional architecture (Abu-Gazzeh 1995, Eben Saleh 1999, Edwards et al. 2006). However, this would not necessarily be socially acceptable due to the belief that it would not provide the same levels of comfort that the new designs do. A/C systems, electric lights, and other electrical amenities are provided in all contemporary houses, and these amenities are things to which users are now accustomed (Al Naim 2006b). Users are generally not well informed of the benefits of adapting some of the tools found in traditional architecture and for this reason they refuse to accept the concept, while they continue to appreciate, and some seek, the visual existence of traditional architecture (Susilawati and Al Surf 2011).

Even with the economic and cultural exposure that Saudi Arabia went through, like other Muslim countries, Saudi people were still holding to their cultural norms that they valued. These norms were traceable in their houses, like the existence of two functional areas to host visitors from different genders (Vahaji and Hadjiyanni 2009). It was suggested in Gelani's article (1996), that in the organisation of internal spaces of the house there is to be one main focal point, referring to the spatial organisation of Friday Masjids. This principle has been applied in some traditional spaces; the courtyard houses, in which the courtyard acts as the main focal point and other functions array from it, and in

contemporary houses where the conceptual meaning of this idea is interpreted through the family living area, which is the central point leading to other rooms around it.

Figure 36 shows a simple comparison between a traditional house (left) and a contemporary house (right). The traditional house layout has the central part opened to the sky and acting as a core space around which the other functions are spread. The contemporary house, on the other hand, displays a central space created to be a family living area and a central point from which the other spaces around it can be accessed. In a conceptual way, both these plans have this point in common, and the courtyard's conceptual spatial use still exists.

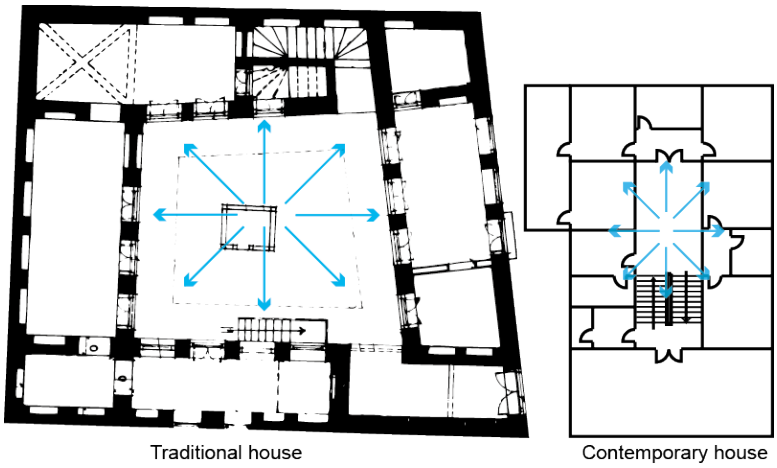


Figure 36 Comparing traditional and contemporary houses – functional use of the courtyard

Technological development is part of environmental development and change as a whole and specifically in the building of architectural spaces. Technological interference in the built environment, such as the introduction of A/C systems, has been a concern for some twenty years, but can be traced to publications as early as the mid-1980s (Sime 1986). Yet, some technological advances, like in materials technology, provided designers with more flexibility; even the existence of A/C systems. Other technologies provided challenges, like telecommunication requirements. As mentioned earlier, new building regulations were imposed on the society. These regulations, as illustrated in Figure 37, worked with the decreasing land area. Having the courtyard space in the middle of the house transferred to a setback surrounding space between the house boundaries and land boundaries (fence) (AlEnazy 2007).

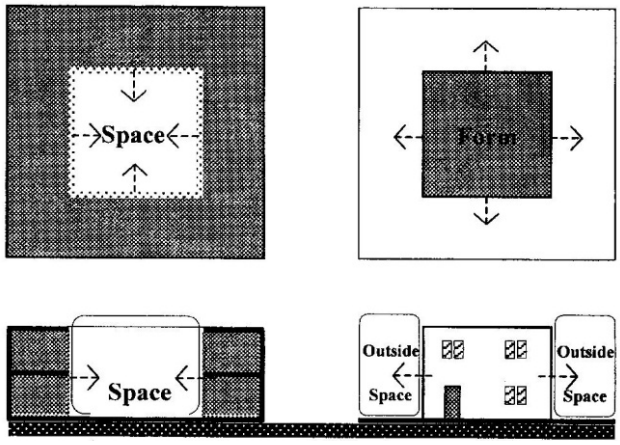


Figure 37 Courtyard house vs western house (source: Courtyard Housing: Past, Present, Future by Brian Edwards 2005)

2.2.3.2. The effect of globalisation on Saudi architecture

The world now, compared to twenty years ago, is more connected. Any new technology that is introduced somewhere in the world can now rapidly be found in another part of the world and this is part of the globalisation issue. As architecture is a representation of the architects of an area, the visual images speak to users of the created architecture as well as to viewers and passengers passing by (Mahgoub 2007). Saudi Arabia's architectural image is no longer the image of familiar traditional old houses, although to the current generation those façades are still the familiar ones they were surrounded by as they grew up (Al Naim 2013).

The introduction of open spaces in design became popular worldwide. The concept of open spaces was also introduced in Saudi and was welcomed by commercial, business and residential users. It was accepted for multiple reasons, amongst them, globalisation, the media, and the fact that many foreigners live and work in Saudi Arabia.

In the twenty-first century there are different approaches to architecture and how it should be. In the twentieth century, the international approach to architecture had the world talking in the same global architectural language, but according to Jarzombek and Howangbo (2011) there are three main obstacles to this: language, what students are being taught, and the split between modern and traditional. The last point is relevant to the research, as this split between traditional and modern is what has shaped architecture globally and locally, in Saudi Arabia.

Traditional architecture is derived from society and culture, as an expression of identity that is expressed visually. Architecture is a tool for expressing more complex needs

> *"associated with history, religion, and 'culture,' the latter often sanitized for internal popular consumption, touristic commercialization, and political empowerment" (Jarzombek and Hwangbo 2011, p. 59).*

On the other hand, there are cultural and social needs, which are also expressed physically to interpret those needs. Although traditions affect how cultures and norms are formed, history is itself a key influential factor in how traditions are formed, in the sense that some traditions are developed to express a particular time in history (Jarzombek and Hwangbo 2011, Al Naim 2014). Therefore, culture, society, norms, the environment and traditions need to be considered when investigating what has helped to shape traditional houses (Kazerooni 2009).

The continuity and discontinuity of traditional house design, movement towards something totally new, or reference to traditional houses, all are inspired by social needs and social history. Concern over globalisation grew as the visual image was affected and altered. From the literature (Al Naim 2006a) and from interviews it is apparent that, in comparison to traditional houses, there is continuity conceptually with regard to what now constitutes a house and its functionality. After all, architecture is both a reflection and a social reflection of the time in which it was created (Abel 2000). According to Abel (2000), there is a tendency on the part of third world countries to take technology and design influences from the west, which is not necessarily a good thing. Cultural values are not greatly affected, but some social aspects have been influenced by western lifestyles.

A newspaper article (Aleqtisadiah 2007) discussed the relationship between interior open spaces, privacy economy, and comfort in Saudi contemporary houses. There is a link between them and with some creativity it can be resolved yet the solution is subjective. The article was composed of interviews with architects who discussed contemporary houses and the users' change in taste because of their exposure to new house designs in the past half century (Aleqtisadiah 2007). Not only have Saudi users developed and modified their use of spaces within their houses, in a thesis relating to Turkish houses (Yildirim 2010), the researcher discusses the status of the living room in these homes, and

how the activities which took place there were reflected in the interior design of the room.

With regard to change, Al Naim (2003) explains the rapid architectural amendments that came as a result of using new materials such as concrete, and developing the new types of house structure that ARAMCO introduced. These newly introduced house types created confusion for Saudi people who moved rapidly from the hybrid to the transformation phase. This transformation phase created new visual images that contradicted cultural values and meanings, creating a gap between the images and meaning, which according to Al Naim, is increasing all the time. Also Al Naim mentions that the houses developed in the 1940s and 1950s incorporated new elements, which were visually placed but were of no functional use, for example the balcony. The balcony as an architectural element in the west provided users with view to the exterior world, but in Gulf houses, this type of exposure was not welcomed. Therefore, balconies existed physically without being used by home owners.

In another publication, Al Naim (2014) discusses the identity of the city, the diversion of the visual focus to the spatial identity. That was linked back to the economic situation users are in, which led them to have houses built in smaller land sizes (area ranges between 200 and 350 m^2) compared to their traditional houses, even the houses they afforded up to early years of this century. These new houses, though are smaller in area, have all functional components of the traditional houses to accommodate users needs.

2.3. Literature review conclusion

This chapter discussed firstly the concept of privacy, then house designs in the Gulf countries in general and Saudi Arabia in particular with a focus on the effect of the concept of privacy within the interior of Saudi traditional and contemporary houses. The meaning of privacy was explored around the world in general and in Saudi Arabia in particular with the use of literature. Influencing factors on the shape of privacy were pointed out and the way they shaped privacy (social and cultural norms, religion, women in the house, the rituals and acts of hospitality).

To achieve privacy in contemporary house spaces, traditional methods and designs need to be acknowledged and adapted into contemporary house spatial design. Also, in some of the mentioned studies (Akbar 1998, Al Naim 1998b) it was suggested that we should take from the traditional elements and reapply them into contemporary house design. In this study, however, the goal is not only

the physical existence of the element but also the conceptual meaning behind their existence and then how to provide the functional aspect of these selected elements in order to provide users with privacy.

Privacy needs are a result of the combination of society, culture and religion. These needs were translated in traditional houses that people have designed for themselves visually as well as conceptually. Visually as in physical shapes and spaces, and conceptually as in identity and hospitality acts within the house. Traditional houses respected these needs and presented a historical record of solutions and ideas to inspire contemporary users. As a concept, privacy has not fundamentally changed in people's contemporary lives. Therefore, houses are still designed in such a way that they provide visual and social privacy for users, utilising interior and architectural elements such as halls and openings (Ragette 2003). That is to translate the conceptual concern of privacy physical inside the house with the inspiration from traditional houses.

An understanding of the concept of privacy is the first priority, followed by an appreciation of the inspirational possibilities to be found in traditional houses. The literature has presented philosophical debate about the state of privacy, its cultural context and representation. Also it is noticeable from the literature that there have been changes to users' lifestyles as a result of their efforts to accommodate their needs in a way that works for them in the contemporary environment in which they find themselves. The existence of privacy needs is not only evident in Saudi Arabia but, as mentioned earlier, in other countries around the world, reflecting their social and personal needs and what privacy means to them. Collectively social norms and habits are affected by globalisation, which is reflected in users' lifestyles and therefore their houses, affecting the contemporary meaning of the concept of privacy and interpretation and contemporary houses.

These influences were represented in through the house designs. Therefore the traditional settlements and houses were studied, to trace influencing factors and their effect on the house. In this chapter, the lack of communication between architects and clients in the design process was highlighted, based on what was found in the literature, which was evident in the existing house designs. The chapter reviewed the traditional architecture of houses in Saudi Arabia and the traces of these traditional houses found in contemporary houses, and lastly it pointed out the impact of globalisation on contemporary Saudi architectural regulations and design. The incorporation of other Gulf countries architecture

was due to the social and architectural similarities between them. Interior architecture elements and spatial design solutions that related to providing privacy in the house were identified with reference to their social meaning.

Space syntax analysis tool was discussed as a potential analysing method for primary data collected. This analysis tool with the formulated knowledge base of traditional architecture, interior elements, privacy needs and its representation in traditional architecture will lead to the design tool that would guide designers towards a more sustainable and user-friendly contemporary houses, development duplex houses.

This chapter had an influence on the proceedings of the following chapters, as it has informed the researcher with the available information as a base for comparison and development. The information obtained about the meaning of privacy was used to structure and generate the interview questions and actions to watch out for during the observation phase. Also, the knowledge obtained about the contemporary houses and literature that has tackled areas around the social requirements in Saudi houses were important in the formulation of the functional relationship design tool created after the data collection and analysis. The design tool form was informed from the space syntax analysis tools.

Chapter 3. Methodology

3.1. Introduction

This chapter introduces the research methodology used in the research. It focuses on the three parts of the research structure: research design; the methods used to collect and analyse primary data, and the evaluation techniques used to assess the design tool. This research relates to the contemporary houses of Saudi Arabia in the city of Dammam. Firstly, a literature review was undertaken to compile a body of background knowledge on the country and the city; that is, to acknowledge the factors that shaped it as a city and affected the users within it. Secondly, privacy was chosen as a selective social behaviour that had influence on house design and was examined through a study of the literature and of the primary data collected. Due to the sensitive nature of privacy, care was taken with the support of a suitable methodology and research plan. Therefore, primary data was collected using ethnographic methods, which helped in developing the design tool. Lastly, architects and interview participants evaluated the design tool. Those respond to Till's (2012) three stages to improve the relation between research and resulting designs: process, product and performance (see Figure 38).

Process	Literature review, interviews, observation
Product	Design tool
Performance	Focus group validation process, interview participants focus group feedback

Figure 38 research's stages from theory to outcome

The research is within the field of interior architecture, a field that is considered to be researched and studied by practice base systems, yet architecture is based on the process not just by the end result (Till 2012). This research relates to individuals, or as Saunders (2009) described them, as "social actors" who influence the research road and outcome.

> *"A common tendency in architecture has been to divide "knowledge" into domains associated with particular sub disciplines" (Groat and Wang 2013, p. 11)*

that helps fulfil the problem solving process of the research. Therefore, the methodology applied needed to reflect the nature of the research question and its needs. Also, the methodology needed to reflect the perspective of both the

researcher and the participants. The modules presented in Saunders (2009), Groat and Wang (2002) and the Hutter-Hennink research cycle (2011) were influential in the preparation of this section and the organisation of this chapter.

Two research methods references, from the mentioned above references, influenced the structure of this research and its methodology. The research onion developed by Saunders (2009) (see Figure 39)and the question as origin model by Groat (2013) were utilised as guiding tools that helped structure the chapter. These tools illustrate the hierarchy of research epistemological, methodological and methods available options. Eventually the model created by Groat was followed in this research for its relevance to the research field – architecture (see Figure 40).

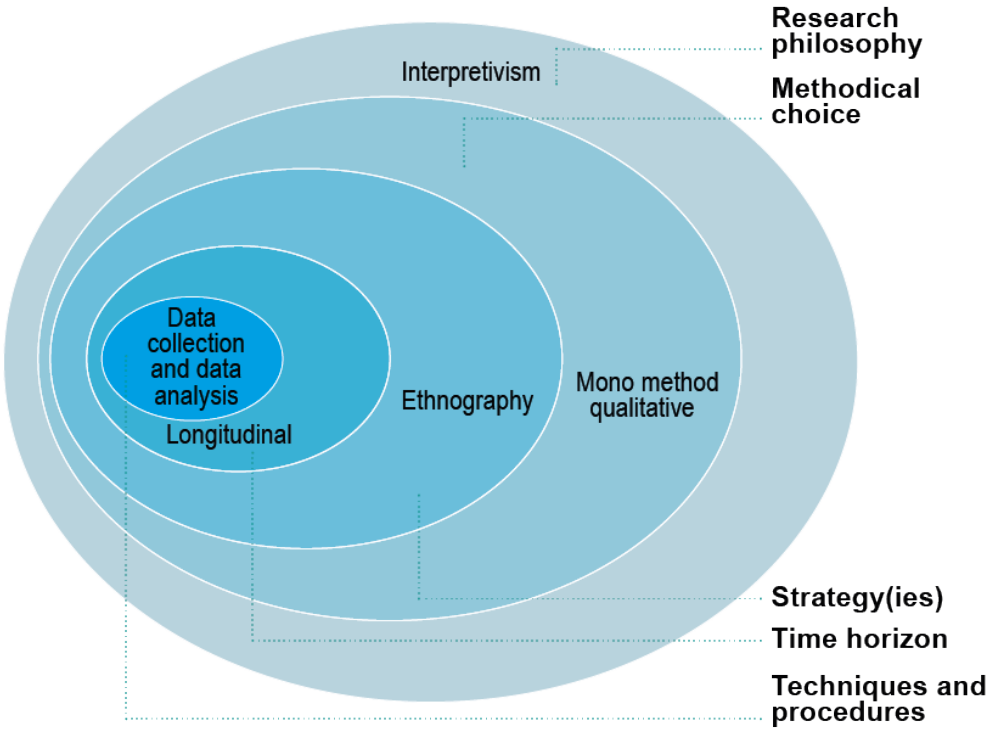


Figure 39 Based on the research 'onion' developed by© Mark Saunders (2009)

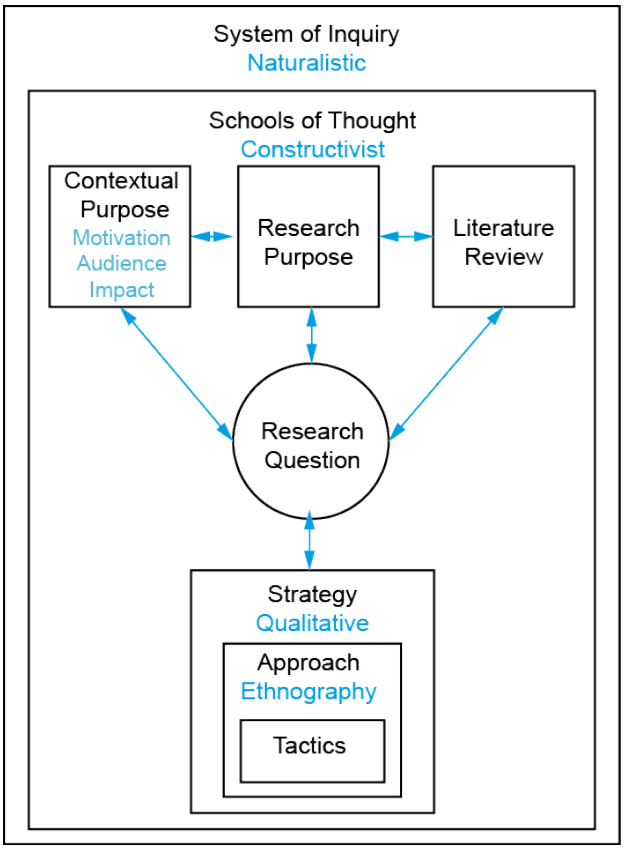


Figure 40 Based on Groat's research method model (2013)

3.2. Systems of inquiry

The research philosophy adopted was selected to reflect the nature and environment of the research area. This philosophy underpinned the research strategy and the methods applied to answer the research questions. The research questions revolved around the concept of privacy within contemporary Saudi houses from the perspective of Saudi females, the value of privacy and its importance. Taking this into consideration, the research is concerned with the cultural aspect of contemporary houses in Saudi Arabia. The research question also touches on verbal and non-verbal aspects of users' lifestyle patterns inside their house, understanding them and translating them.

Sofaer (1999) discusses the objective of research in general, which is to reach certainty regarding the researched topic. This implies that the researcher needs to be aware of his/her subjectivity while conducting the research and should not let it interfere with the research route and outcome (Krueger and Casey 2009).

There are different approaches to categorising strategies of inquiry under progressive frameworks (Groat and Wang 2013). From these frameworks, the researcher is categorised in relation to their standpoint with regard to the study;

between subjectivity and objectivity. Also Groat's (2013) relate the positivism and naturalistic systems of inquiry to architectural research, each on one side of objectivity and subjectivity.

Positivism used to be commonly used in social sciences before the 1970s (Hennink et al. 2011). This approach relies on the objectivity of the collected data, and the formulation of a hypothesis based on that data, yet the social sciences reflect the subjectivity of participants and their lives and results in the emergence of interpretive philosophy. Positivist philosophy is known for generating generalised rules from previous theories and seeking verification facts for research questions; things to be either true of false. This approach was criticised within the social sciences for dealing with users as static elements in the research, which led less and less researchers in social sciences use this approach (Williams 2003, Jupp and Sage Publications 2006, Hennink et al. 2011).

As mentioned earlier, the research questions rely on investigating non-verbal gestures as well as verbal actions, and with positivism neglecting the individual led to the selection of the constructivist philosophy was selected for this research.

On the other part of research system of inquiry there is the naturalistic system. This system acknowledges the influence both the researcher and participants have on the research on one hand and the influence that the research has on them (Groat and Wang 2013). Scholars expressed concern regarding the depth of acquired data using this system of inquiry (DePoy and Gitlin 2011). This concern relates to the credibility of collected data and level of bias involved. Researchers are to be clear and transparent about their research and its aims to help neutralise their stand and give the research more credibility. This system of inquiry requires flexibility from the researcher's part(DePoy and Gitlin 2011); acknowledging new influencing data and accept the modification to the research path, applying more objective stand and strengthening the credibility of the research.

3.3. Schools of thought

Within the Naturalistic system of inquiry there are different schools of thought, and according to Groat (2013), the following six schools are under the umbrella of Naturalistic system of inquiry and are more relevant to architectural research: history, pragmatism, transformative, phenomenology, constructivist, poststructuralist and participatory. All mentioned schools of thought involve

reflexivity but with different perspectives leading to differences in the way reflexivity is involved within the research (Denzin and Lincoln 2011).

Three of those six schools of thoughts were considered to be the base structure for this research: phenomenology, participatory and constructivism. Firstly, phenomenology was investigated; its nature and its features. This investigation helped understand this school of thought and evaluate its suitability for the research process. Research that is related to architecture experienced this school of thought in topics about houses and settlements, especially in Germany. Also, phenomenology is known for being influenced by the researcher's or participants' subjectivity (Groat and Wang 2013).

Phenomenology is considered to be the qualitative version of the positivist research philosophy (Moran 2000, Cerbone 2006). In this strategy, focus is on understanding the issue itself after dismissing all affecting factors. While architecture is related to history that is affected by the events that a place has gone through, as Moran says,

> *'most of the founding figures of phenomenology emphasised the need for a renewal of philosophy as radical enquiry not bound to any historical tradition' (Moran 2000, p. 5).*

This allows us to dismiss phenomenology as a possible strategy for this research. The question in hand, the research question, relates to the concept of privacy, which was considered to be phenomena by some scholars (Al-Naim 1998). Yet, as it was mentioned earlier, this concept depends on the social and cultural meaning that is inherited and developed through the history of Saudi Arabian people and inhabitants. Also, going through literature review it was apparent that privacy was considered more of a conceptual social concept rather than social phenomena. The amount of subjectivity implicated with this school of thought affected its credibility and did not present it as a strongly suitable choice for the research.

Participatory research focuses on the relation between researcher and the researched subjects, hence the 'participation' (Heron and Reason 1997). Although this research school of thought encourages user-centred design methods, so does other schools, the difference lays in the interaction. That links to literature review where Rapoport advised user-centred designs to accommodate users needs (Jabareen 2005, Spinuzzi 2005). Also, participatory research is commonly used in major turning points (Heron and Reason 1997), as stated by Spinuzzi (2005) and commonly with organisation hierarchy (Heron and

Reason 1997), which this research is not trying to tackle. Participatory research has a bottom-up approach (Wheeler 2005), where the research objective would be the research outcome. This research has a question formulated by the researcher as an outcome of a social concern: privacy in the contemporary Saudi houses. Most importantly, this school of thought is considered to ne a blurred genre (Wheeler 2005).

Yet, participatory research school of thought has similarities with constructivism. These similarities as concluded in Denzin's fourth edition book (2011):

- Obtained knowledge is from the researcher's experience and interaction with the subjects, in methods such as observation and interviews, where society influence that constructed knowledge.
- Subjectivity-objectivity in the process of the research.
- Reflexivity of the researcher, where the voices can overlap because of the shared experiences.
- Control over the research process even with the interaction between the researcher and the research subjects.
- Flexibility of the school of thought, where different methods to be applied under.

After dismissing phenomenology and participatory research, the researcher studied constructivism school of thought to gather knowledge on the features that it offers to help address the research question. Constructivist school of thought is about understanding, analysing and interpreting individuals and their lives (Saunders et al. 2009). Constructivism relies on people and their complex views, then on the researcher's interpretation, which is *"negotiated socially and historically"* (Creswell 2007, p. 25). Also the researchers' background helps to shape the research, according to their *"personal, cultural, and historical experiences"* (Creswell 2009, p. 8). This research philosophy relates to people and the environment in which they live, it looks as how they shape it, and is involved in interpreting the hidden meaning behind their actions and the creation of the lived environment. Adopting this type of philosophy also implies that the researcher will act as an interpreter of the world he sees and experiences while reading the signs and the behaviours of the participants around him (Crouch and Pearce 2012). Constructivist depends on the individuals' input. Understanding their inputs and build the research on that data; hence the term constructionism. The researcher is concerned more with the depth of gained insight and the

meaning these insights have within the social context (Jupp and Sage Publications 2006, Saunders and Tosey 2012). This philosophy acknowledges that the nature of the primary data collection methods can result in subjectivity, which represents participants' perspective of the subject under investigation (Hennink et al. 2011).

Three points evolved into the research question, which helped in selecting the appropriate school of thought. These three points were the research motivation, intended audience and expected impact of the research. As mentioned earlier (see Chapter 1), the researcher's educational, professional and personal life experiences had an effect on pointing out the socio-cultural concern of privacy in contemporary Saudi houses. Therefore, the research is aimed to communicate with students, designers and academics. Finally, this research hopes to acknowledge the gap between architectural theory and application (clients and designers).

With regard to the research question, which aims to provide more sustainable and useable houses for contemporary Saudi users, a constructivist philosophy supports the process of achieving the aims and objectives.

> *"A virtually infinite number of realities can be presumed"* (Groat and Wang 2013, p. 79)*;*

as in the design tool that is to be developed in this thesis.

3.4. Research strategy

Following the constructivist philosophy, a qualitative strategy was selected, as it

> *"excels at interpretation – giving an understanding of why things are the way they are and how they got to be that way" (Morgan 1997, p. 12).*

The selection reflects the link pointed out by King and Horrocks (2010) and Creswell (2009) between constructivism and qualitative research, a generalised link between the two. The work of Groat and Wang (2002), that was concerned with architectural research, speaks predominantly of the use of qualitative methods in structuring architectural researches. In fact,

> *"almost all qualitative research seeks to construct representations based on in-depth, detailed knowledge of cases, often to correct misrepresentations or to offer new representations of the research subject"* (Ragin 1994, p. 92).

The research is concerned with the personal values of Saudi users who live in contemporary houses, and a qualitative research strategy

> *"studies the context or setting of participants, makes interpretations of the data, creates an agenda for change or reform, [and] collaborates with the participants"* (Creswell 2009, p. 17).

Also the work of other scholars in the same field supports the selection of a qualitative research strategy (Akbar 1998, Al Naim 1998b, Al-Dossary 2000, AlNafea 2006, AlEnazy 2007).

Selection of a qualitative strategy provided features that supported the research structure and needs and enabled the author to answer the research question and aims. A quantitative strategy, however, is about testing measurable variables and structured and consistent reporting. Quantitative strategy relates to the positivist system of inquiry, seeking the truth with an objective deductive approach (see Figure 41). These are not what this research aims to achieve in order to answer its questions (Creswell 2009).

Question	Quantitative	Qualitative
Ontology: What is the nature of reality?	Reality is objective and singular, apart from the researcher.	Reality is subjective and multiple as seen by participants in a study.
Epistemology: What is the relationship of the researcher to that being researched?	Researcher is independent from that being researcherd.	Researcher interacts with that being reserachered.
Methodology: What is the process of research?	Deductive process: cause and effect.	Inductive process: Mutual simultaneous shaping of factors.

Figure 41 Quantitative and qualitative paradigm assumptions (Groat 2013, p.71)

Case studies, as a research strategy, were considered. Within in literature, it has been suggested that case studies can be used under qualitative and quantitative strategies (Curran and Perecman 2006). As mentioned earlier, the location selected and the socio-cultural concept selected (see Chapter 1), made the case studies strategy not valid for this research. This strategy focuses mostly on a singular example and with the depth manages to generalise theoretical assumptions (Groat and Wang 2013) and as it was mentioned (see Chapter 1), the selected location had users with divers background where one or two cases would not give a broad view of the studied situation, the concept of privacy. Though depth and reflexivity are important features the research seeks in a strategy for this research, yet this (case study strategy) provides a narrow perspective of the subject. Also, case study strategy depends on studying a selected phenomenon within its context (Saunders et al. 2009), and to do so it uses a small sample which is representative of a larger group, then generalises

the findings. Commonly this strategy can be found in business and economic studies, and aims to collect scientific data on the phenomenon within the study context (Wiebe et al. 2010). Therefore, case studies as a strategy were not selected.

According to Groat and Wang (2002), some of the characteristics of qualitative strategies are: an emphasis on natural settings, a focus on interpretation and meaning, a focus on how the respondents make sense of their own circumstances, use of multiple tactics, and analysis through words and personal informal writing. Also, a qualitative research strategy is helpful in developing frameworks, theories and constructing hypotheses (Sofaer 1999).

This research strategy involves participating subjects (the people the research is about) and their behaviours are the measured variables. Qualitative strategies do not require large numbers of participants; instead they work in detail with a relatively small group of participants, which provides depth to the research. Sampling is dependent upon target and applicability criterion, or a snowballing technique can be used, which ensures that there are some basic similarities amongst the participating group (Crouch and Pearce 2012). Each research method has its own sample criteria, and these will be mentioned later. These criteria were chosen to enable the author to address the research question which concerned the meaning, importance and interpretation of privacy in contemporary Saudi houses.

The qualitative research cycle, a model developed by Hennike (2011), illustrates the proposed elements in a piece of research. It begins with the foundation of the research, the design cycle, moves on to the ethnographic cycle in which data is collected, and then on to the analytic cycle which generates results from the collected data. According to Hennike, it then returns to the first cycle, the design cycle.

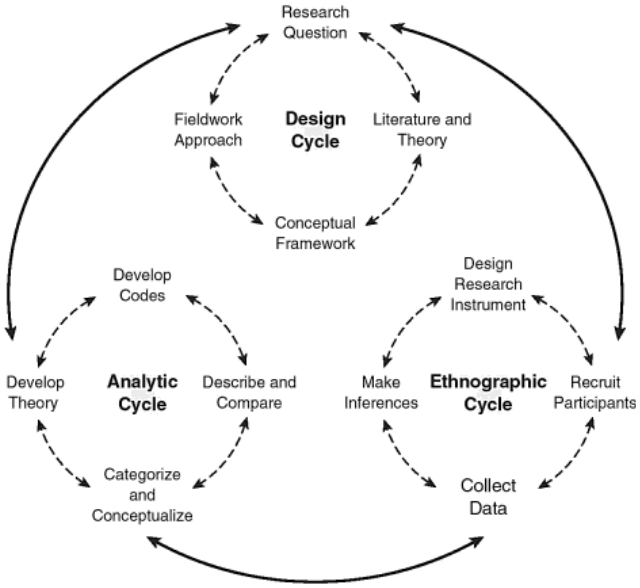


Figure 42 Hutter-Hennink qualitative research cycle (Hennink et al. 2011), p.4)

Qualitative analysis reveals the diversity and richness of people's emotional relationships to places, indicating that place meaning develops from an array of emotions and experiences, both positive and negative (Manzo 2005).

3.5. Research approach

This research touches upon the socio-cultural aspects of the users' lifestyle in contemporary Saudi houses from the perspective of a sensitive issue, that of privacy. For this reason methodological strategies related to both the design fields and social researches were explored in order to select the appropriate one for this study. They included ethnography, case studies, phenomenological research and narrative research.

Before selecting the qualitative approach, it is necessary to acknowledge the two architectural approaches towards research in the fields of architecture and interior design: namely the practical and the theoretical. Architectural research falls under anthropology and social sciences, depending on the target issue being investigated. From a review of the previous research, it was noticed that qualitative methodologies were utilised in conducting architectural investigations (Akbar 1998, Al Naim 1998b). An awareness of the different qualitative approaches assists researchers to evaluate and compare them and to select an appropriate approach, which will help to answer the research question. Popular qualitative approaches include phenomenology, ethnography, and case study.

Privacy as an issue is a result of cultural, social and religious needs. Within Saudi Arabia there are numerous cultures, and this means that case study is not appropriate as a strategy because it would not be properly representative of the wider range.

Czarniawska (2004) mentions that narrative studies can take any form but are known more for

> *"spoken or written text giving an account of an event/action or series of events/actions, chronologically connected" (Czarniawska-Joerges 2004, p. 17).*

There are various types of narrative methodology including biography, autobiography, life history, and oral history and in some references even ethnography (Denzin and Lincoln 2000, Czarniawska-Joerges 2004, Hennink et al. 2010, Creswell 2013). These types have points in common, such as they capture individuals' detailed experiences, and they use similar data collection tools, they occur within specific places or situations and often there is a turning point in the narration (Creswell 2013). In the narrative strategy of inquiry,

> *"the narrative combines views from the participant's life with those of the researcher's life in a collaborative narrative" (Creswell 2013, p. 13).*

According to Creswell (2013), there are similarities between narrative and ethnographic strategies in terms of the type of information collected but the way in which the studies are produced differs. The difference is the voice the researcher uses and their level of involvement. In narrative studies the researcher can be the main subject of the thesis, while in ethnography it is about the subjects, researcher and others, within the cultural environment.

Ethnography, as a strategy,

> *"studies an intact cultural group in a natural setting over a prolonged period of time by collecting, primarily, observational and interview data" (Creswell 2009, p. 16).*

From these observations and data collected, generalised comments and recommendations are made and conclusions are stated. This strategy has been employed in a similar type of research, for urban design related topics. Also the feature of ethnography, which involves interpreting observation, is considered to be strength. Yet, it is important for the researcher to be aware of reflexivity and subjectivity while conducting the research.

"Ethnography largely originated in disciplines of anthropology and sociology" (Salkind 2010, p. 430). In contemporary research, ethnography expanded to other study fields as per its features of observation and cultural perspective during the research process. In research, there is confusion over the boundaries between ethnographic research and autoethnography (Wolcott 2004). Wolcott (2004) differentiates between ethnographic work, ethnographic autobiography and autoethnography. The degree to which the researcher reflects and refers to themselves as users determines which type of the three mentioned qualitative approaches was used.

As an approach, autoethnography is new and considered to be part of ethnography, yet *"in a sense, all ethnography, is self-ethnography*" (Goldschmidt 1977, p.294). Autoethnography is described *"as a manifestation of a recent reflexive turn in ethnography"* (Wiebe et al. 2010, p. 34), in which the researcher understands the connection between self and others by gathering and using data about self and others (Ngunjiri et al. 2010, Chang and Boyd 2011). According to Wiebe (2010), autoethnography is multi-faceted; in it, the researcher can be the subject, the subject and object, or a member of the study group.

Ethnography was originally associated with anthropological studies, but linked more recently with others, for example, cultural and educational research (Groat and Wang 2002). With its features, mentioned above, ethnography presents the appropriate approach for this research; providing reflexivity, credibility and depth.

Summary

For this thesis, an ethnography approach was selected, based on its properties and the fact that it had been selected previously for research with a similar scope (Al Naim 1998b, Sobh and Belk 2012). This approach is concerned with the users of the design, helps us to understanding the patterns involved in their use of the design in their particular cultural context, is a way to evaluate the design context, and facilitates in-depth learning about the subject (Crouch and Pearce 2012). It therefore helps to express the researcher's perspective as well as to interpret the data collected from the selected sample. The researcher has common social and cultural background with the sample participants, so the researcher is considered to be part of the sample, thus the researcher's reflection enrich the research content and give more depth.

3.6. Methods and tactics

In qualitative research, there are various suggested methods of collecting the required data. These methods reflect the research question under investigation and lead to the answer. To select and structure these methods, a funnel like approach was adopted (see Figure 43).

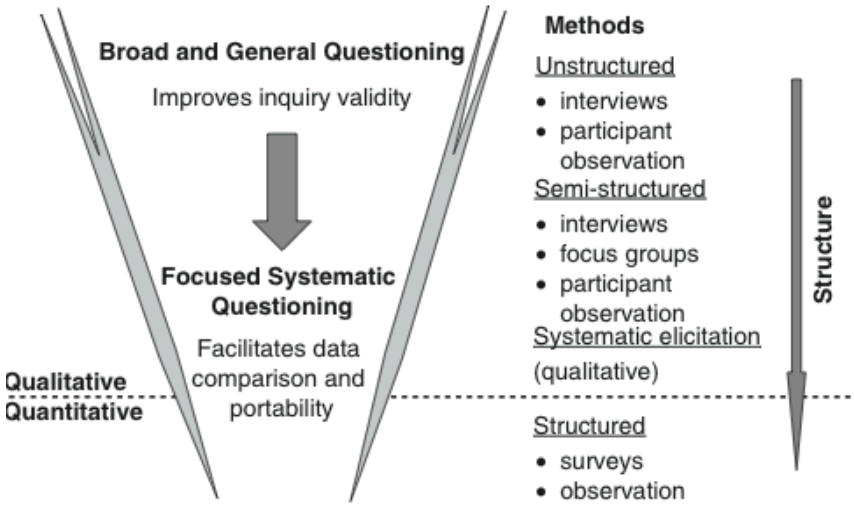


Figure 43 The research process and degree of structure (Guest 2013, p.31)

The research question looks at the concept of privacy in the interior spaces of Saudi houses. As the previous section discussed, ethnography approach was selected. That led to explore the methods within ethnography approach, which would suit the research and research questions' needs. Different methods were explored: literature review, fieldwork, observation, interviews, focus groups and surveys (Bickman and Rog 1998).

Fieldwork is an important element for sociologist and anthropologists, in which the researcher works and experiences the intended environment. Participant observation is linked to fieldwork. Observation process is what distinguishes ethnography as a qualitative approach (Bickman and Rog 1998). With observation the researcher can get insight to the participants lifestyle and can touch upon social behaviour related to the study.

The use of surveys within the ethnography approach helps the researcher draw the study's boundaries (Bickman and Rog 1998). Yet, it has been argued that if and when ethnographers use surveys they miss the depth that this approach provides to the researcher. Therefore surveys are not encouraged as an ethnographic method (Campbell and Lassiter 2015). However, interviews

(unstructured and semi-structured) provide the researcher with the depth needed with control of obtained the information quality and type, which makes this method a powerful method for ethnographers (Bickman and Rog 1998).

Focus group is a method that benefits from the interaction between participants during their discussion, where ideas are generated and data is created and recorded to support the study (Bickman and Rog 1998, Creswell 2009). Therefore, observation, interviews and focus groups were the selected methods within the ethnographic approach.

3.6.1 Literature review

To begin with, relevant literature was reviewed to gain a clearer insight into what was written about this topic leading to a more defined research question. In the thesis (see Chapter 1), it is argued that there is a need to build clear and up-to-date background knowledge about Saudi cultural and social norms from the perspective of privacy. This knowledge will later be involved in the design process stages of contemporary houses. Therefore, a literature review on the subject of Saudi Arabia and its traditional architecture was conducted to understand how it functioned within the perspective of privacy. Similarly, literature about privacy and its context in both traditional and contemporary Saudi society was reviewed.

Although the focus is on Saudi Arabia, and indeed this was the focus when generating the keywords, there was also a need to explore the meaning and interpretation of privacy as a concept within different cultures around the world. Literature review was to explore published and unpublished information around the topic to create a wide base knowledge that can inspire solutions and lead to explain points highlighted in some of the observed behaviours in Saudi Arabia related literature.

3.6.2 Observation

To gain an even deeper understanding of the meaning of privacy in Saudi contemporary society, a Saudi family was observed as part of an ethnographic approach. Observation was used as a tool to develop a familiarity with the culture of these people as they dealt with the issue of privacy. This created an understanding of the issue and identified some different angles both mentioned and not mentioned in the literature review. Also, observation provided a systematic record that guided the researcher through the fieldwork and when

evaluating the pilot interviews and modifying the questions for the main interview phase (Hennink et al. 2011). The researcher read different materials that addressed different types of observation, and also tested the suggested ways of approaching participants during the observation and of preparing beforehand.

Observation types were reviewed and the 'researcher as participant' approach was selected. This was because under this regime the researcher

> *"disappears completely into the setting and is fully engaged with the people and their activities, perhaps even to the extent of never acknowledging his or her own research agenda" (Angrosino 2008, p. 55).*

This engagement gives the researcher more experience in the social behaviour of the studied group, focusing on some cultural and social affecting settings (Hennink et al. 2011). Hennink (2011), however, questions the researcher's complete participation in 'researcher as participant' situations, because they demand a great deal of concentration, recording thorough notes, and engagement with the social context. Furthermore, Figure 44 displays the strengths and limitations found in observation as a method of collecting data.

Strengths and limitations

Strengths	Limitations
Provides familiarity with cultural milieu	Time consuming (continued and repeated immersion in setting)
Provides context to behavior	Recording field notes is cumbersome
Explains behavior	Simultaneous observing and recording can be difficult
Documents unspoken rules of behavior	Field notes may be subjective
Less intrusive than interview methods	Researchers need to refrain from interpretation
Provides insight into people's interactions	Need skilled observers

Figure 44 Observation strengths and limitations (Hennink et al. 2011, p.197)

The aim of undertaking participant observation as a tool was to observe the unspoken meanings of privacy, which emerged from participants' daily lifestyles. The resulting notes recorded the participants' representation of privacy in their daily lives; in other words, what privacy meant to them, and how they expressed that need for privacy both physically and semantically. Yet with this method there is the risk of losing data, which is a limitation. Data can go unnoticed while the

researcher focuses on another event, or the detail may be missed due to the difficulty of balancing observation and note taking (Hennink et al. 2010). With limitation such as documenting, saving field notes and subjectivity, the researcher was aware of them and kept them in consideration. For documenting data, it was electronically recorded with daily backup, and as per subjectivity the researcher reflected upon the collected data.

3.6.3 Interviews

Interviews are by far the most commonly used tool in qualitative research. In this study, they were employed to gain a deeper understanding of the meaning of privacy in Saudi contemporary society (Sturges et al. 2004, Creswell 2013, Jones et al. 2013). They are used

> *"to gather descriptions of the life world of the interviewee with respect to interpretation of the meaning of the described phenomena"* (Kvale 1983, p. 174)*,*

in this case privacy. Also interviews can give insight to non-verbal indicators that can be sensed through actions and mode of speech (Barriball and While 1994). Therefore, having a strong knowledge base about the topic is as important as the unknown that is waiting to be discovered via the interviews (Leech 2002).

Having planned the research and identified the research questions, interview questions were to be structured, and it is advisable to test them in a pilot phase. The pilot phase tests the usefulness of the questions for accessing the targeted answers, the efficiency of the language used, and how long the interview will last. Generally this phase is conducted with a small sample that has similar attributes to the targeted sample (Turner Iii 2010).

There are three types of interview, relating to the type of answers the researcher seeks: structured, semi-structured and open-ended interviews. Semi-structured interviews are more commonly used with qualitative research, as they give in-depth insight while affording the researcher some control over the interview (Hennink et al. 2010).

Semi-structured interviews are free conversations that follow a guideline to address the research questions, and this creates some degree of inter-personal relationship between the interviewer and interviewee (Kvale 1983, King 2004). Carey (2012) suggests this type of interview is used for sensitive topics. Also this type of interview is flexible that it can adjust to different participants level of education and social status (Barriball and While 1994).

The inter-personal relationship between the researcher and participant differs according to the type of participant, be they uncommunicative interviewees, over-communicative interviewees, high-status interviewees or would-be participants. The researcher is required to be aware of these types of participant and to be prepared with strategies for dealing with them. Interviews encourage participants to express themselves

> – *"Conversing with people enables them to share their experiences and understandings"* (King and Horrocks 2010, p. 11) –

and these shared experiences present deeper insights to the researcher. It is to be noted that the style and tone in which the questions are delivered affects participants' answers (Turner Iii 2010), and also that the flow of the interview will be affected by the participant's answers (Jones et al. 2013).

This method, interviews, was used to collect primary data from participants who lived in houses of their own designs, pre-designed flats and part of duplex developments. Also, the researcher referred back to the interview participants after designers for their reflection and input tested the design tool.

3.6.3.1. Method for conducting interviews

Different methods of conducting interviews were considered, including face-to-face interviews, email based interviews and phone interviews. Audio only interviews are considered to be second choice after online face-to-face interviews, as mentioned earlier, the second was not an applicable option in this research's case (King and Horrocks 2010). There is little literature about telephone interviews in qualitative research; researchers consider the results lack quality in comparison to those obtained from face-to-face interviews. Interview participants are to have common criteria such as age group, gender and marital status (Holt 2010). Also, King (2010) justifies the use of audio or phone interviews where the researcher's and participants' situations make it convenient - for example, where distance and travelling time are an issue - mentioning that this method can save fieldwork time and costs. King does, however, mention a number of concerns related to phone interviews. For example, researchers need to give more focus to the participant before starting the interview, familiarising themselves with the participants and explaining the nature of the research to help them to open up and feel at ease when answering the questions. During the interview they must be receptive to the participants' answers and to their tone in order to develop a more in-depth understanding of what would have shown in their facial expression in a face-to-face interview. Yet, face-to-face interviews

place participants in a familiar environment that can be interrupted by people accessing and breaking the interview flow (Redlich-Amirav and Higginbottom 2014). That highlights a strength and limitation at the same time of this method of conducting the interviews.

Due to the location of both the interviewer and interviewees, it was decided to conduct audio interviews using Skype. A literature review was carried out for the use of Skype as a medium for holding interviews, and the acceptance by the research environment of the notion of using technology such as Skype in collecting qualitative data was noted (Sturges et al. 2004, Hay-Gibson 2009, King and Horrocks 2010, Cater 2011, Hanna 2012). One of the benefits of using Skype as an interview tool is that it mediates between the telephone and face-to-face methods. As Hay-Gibson (2009) mentions, in her experience, using Skype audio only with the cooperation of a digital whiteboard helped her and the interviewee without compromising the interview's quality and outcome. From Hay-Gibson's experience, neither the interviewee nor the interviewer had to travel in order to conduct the interview, and the interviewees felt more comfortable in their own environment. Due to the nature of the research question and the targeted participants, Skype was selected as an appropriate audio medium for conducting interviews.

On one hand, the easy access to interviewees is a major advantage of using Skype as an interview tool. When the interview starts, it is in video format, which should reassure the respondent about who is conducting the interview. The researcher should then be able to explain the aim of the interview in order to prepare the interviewee and give them a general idea of the scope. On the other hand, even though this application is well known, not all interviewees had accounts or were familiar with its use. Also when approaching possible candidates, a large number were hesitant then refused to participate due to the medium selected, commenting either that their husbands did not agree with it or that they were shy and did not like the thought of being recorded.

3.6.3.2. Skype as a tool

Although qualitative research texts favour the face-to-face interviewing mode due to its wide spread and common use in qualitative research, there is no theoretical basis for favouring one mode over the other (Novick 2008, Deakin and Wakefield 2013). As earlier mentioned, there are different modes of interview: face-to-face, phone and Internet based.

Skype is a common online interviewing tool, mentioned more often in literature (Holt 2010, Hanna 2012, Sullivan 2012) which deals with qualitative research involving interviews, and it can be used with or without the visual facility. Online interviewing via Skype has provided researchers with new opportunities, regardless of growing concern over ethical issues (Cooper 2009) surrounding identity anonymity and exposure. It should be noted that the ethical concern is not related to the medium but to the information obtained and the participant's safety (Capurro and Pingel 2002).

Skype is free software that both researchers and participants can obtain from the official website to install on their computers or smart phones. It is a

> *"medium for virtual communications and virtual face-to-face interrelations, based on a free principle, to connect people" (Bertrand and Bourdeau 2010, p. 2).*

Whilst the software introduces possibilities for research, as with other modes of interview, it does have some limitations, and these are dependent upon the research aim, design and question (Deakin and Wakefield 2013).

As Skype is a relevant, new, and technical tool, the literature has explored the limitations of its use within qualitative research. Some of these limitations relate to technical aspects of the software such as lack of coverage, and the need to have a computer or smart phone and an Internet connection, all of which can affect the participating sample. Also there are call dropouts and video queues /freezes that can occur because of the Internet speed. There is also the possibility of miscommunication, which can lead to researcher misrepresentation and to participants providing misleading answers, which can result in shorter interviews with less in-depth discussion. Short interviews can be a reflection of participant fatigue, unfamiliarity with the software and distraction by the environment, especially if the visual cues are absent (Novick 2008, Bertrand and Bourdeau 2010, Holt 2010, Hanna 2012, Janghorban et al. 2014).

Nevertheless, a wider range of possibilities has opened up with the utilisation of Internet technology for qualitative research. Skype has introduced a low cost, anonymous, flexible and auto-recordable Internet based tool, which researchers can use to conduct interviews. Also it provides a wider range of participants, overcomes geographical barriers and provides safety for the researcher and respondents, after establishing rapport, with reduced social pressure. This mode of conducting interviews also provides the researcher with the ability to take notes without distracting the participant and the chance to reflect later on the

experience and on the interview process (Novick 2008, Bertrand and Bourdeau 2010, Deakin and Wakefield 2013, Jones et al. 2013, Janghorban et al. 2014).

3.6.3.3. Interview question design

The interview questions were built in a semi-structured style, as mentioned earlier, to help guide the interview and assist the interviewee, not to lead or influence. There were three groups of questions. First, demographic questions were asked to help establish the user's profile. Second, were questions about privacy as an issue inside the houses of the participants to review the meaning and importance of privacy as well as aesthetics and the management of privacy within house interiors. Third were questions designed to help understand the ways that participants used to deal with privacy within their houses (see questions in Appendix a on p. 227).

Although the interviews were conducted using Skype, different approaches were taken to help stimulate the users imagination. The participants were asked to describe both the house they were living in and the one they dreamed of living in one day. Engaging the participants in this way helped them to express some of the answers that they felt uneasy answering in other questions. The order and style of the questions varied between participants depending on each individual. Generally, the questions were related and flexible, so rearranging their order according to the participants' answers helped to maintain the flow of the interview. Also this created the atmosphere of an informal conversation rather than a formal interview where the participant might feel uneasy.

3.6.3.4. Interviewees sample and summary

There were two methods in conducting the interviews applied in this research: face-to-face interviews and Skype interviews. The selected sample had verity in their cultural background, their education levels, careers and income; but they all lived in the same city of Dammam. The first method was applied to elder women (between 40 – 60 years old) who owned their own houses and had a say in the design process of their houses. These participants were reached via family social connections, and for their ages and social understandings interviews were to be taken face-to-face. Face-to-face interviews, as mentioned earlier, gave insight to the participants lifestyle and social behaviour during the time of the interview. Participants approached were twenty of which five responded.

The second method was applied to participants between 20 – 35 years old who lived in a house that is part of a development projects and flats. This group chose

from the available options to suite their social and economic needs, either bought or rented. This sample represented the development housing market target who want to get their own houses with less cost than building their houses. Also, the sample represented working and stay at home wives with different educational, social and cultural background yet all were in the same city of Dammam. Participants approached were thirty and out of which twelve responded.

As mentioned, two methods of conducting the interviews were conducted; face-to-face and Skype interviews. First there was a pilot for the Skype interviews, which was around three months before the intended interviews were conducted. The sample for this pilot interviews were three participants who were between 24 and 30 years old, living in a flat or duplex house.

3.6.4 Focus groups

Though participatory research was not selected for this research due to its suitableness; yet focus groups, part of participatory research methods, was utilised in the end of the study helped in the process of evaluating the design tool. The implementation of focus group as a method was developed at the final stages of the research and was not part of the original flow of the research.

> *"The end-of-study focus groups furnish additional data which provide a stimulus to qualify, deepen and extend the initial analysis." (Bloor 2001, p.14).*

Therefore, the method of focus group was selected to evaluate the design tool at the end of the study. The design tool was the result of data collected via interviews and participants observation, whereby professionals from the field were invited to try the design tool and evaluate it by discussing its usability.

A focus group consists of a group of individuals with similar characteristics, but from different backgrounds, gathered together to discuss a particular issue (Barbour and Kitzinger 1999); in this case it was the research design tool. It is a carefully planned session, set up to explore a specific topic and participants are encouraged to give their perspective with regard to that topic (Litosseliti 2003). Even though, this method is not often mentioned in the literature relating to qualitative research (Litosseliti 2003), it is considered to be part of qualitative research for its focus on the language used and its interpretation (Morgan 1997, Barbour and Kitzinger 1999, Grudens-Schuck et al. 2004).

In general, focus groups can vary in size from as few as four to as many as twelve participants (Litosseliti 2003, Franz 2011). This variation in size can be an

advantage depending on the nature of the focus group aim. It is advisable to conduct focus groups of smaller size when the aim is to gauge the detailed interaction between participants, and of bigger size when the aim is less focused such as in brainstorming (Litosseliti 2003). Also it is advisable to conduct more than one focus group (Franz 2011).

As with other research methods, focus groups have their possibilities and their limitations. The group revolves around participants and their interaction, which in itself can be a limitation if the group produces a dominant voice that negates the input of others (Morgan 1997, Litosseliti 2003, Barbour 2008). This can be controlled by the moderator who needs to be neutral and in possession of a well-designed discussion guide. Also it is the moderator's role to ensure the flow of the session and to control possible shifts in topic (Litosseliti 2003, Grudens-Schuck et al. 2004); it is *"both science and art"* (Franz 2011, p. 1380).

Other limitations of the focus group method are that it *"can be time-consuming and expensive"* (Litosseliti 2003, p. 20). It can also be challenging to differentiate individual participants' input from group agreement in the presence of dominant characters, as mentioned earlier (Litosseliti 2003). Therefore, focus group analysis needs to be strict and systematic, to reflect participants' input as it was presented, free from the researcher's bias (Bloor 2001).

Participant discussion and ideas generation is an advantage that focus group method is distinguished with. Here, the role of the group moderator comes in being able to manage the group, the flow of the session and the discussion, which is the unique data that emerges from the session. The moderator is to have basic understanding of the task in hand, the session design and expected outcomes of the session to enable him/her better lead the session and participants (Bickman and Rog 1998).

As per the research nature, it is a research that concerns Saudi Arabian users and designers. Therefore, both female and male designers were invited to undertake the design tool evaluating focus groups. For that and the socio-cultural requirements in Saudi, the researcher searched for a moderator to conduct the male designers focus groups. That was a limitation of the research that the researcher was aware of, yet with the aid of the moderator an insight of male designers was achieved.

3.6.5 Ethics

When the researcher involves participants and they are free to voice their opinions, the outcome becomes not only knowledge to the researcher and academia but also beneficial to society. Transparency on the part of the researcher with regard to the participants reinforces participant involvement. To this end, participants' informed consent, the right to withdraw, clarity of research intentions, keeping participants up-to-date with any publication resulting from their cooperation, anonymity, and importantly confidentiality between participants and the researcher are key parts of the process (King and Horrocks 2010).

In accordance with Bournemouth University Research Ethics Code of Practice, the researcher is aware of her responsibilities towards the research and participants. School Research Ethics Committee approval was requested before conducting the interviews, and the anticipated ethical issues were addressed. These included the safety of the researcher and participants, the participants' consent for data storage, and participants' knowledge of the nature of the research and their rights on initial contact and before the interview took place (King and Horrocks 2010). According to the UK data protection act, the researcher to maintain participants' anonymity, as agreed, stored both the recordings and transcriptions safely.

Both pilot and main phase interviews were conducted in the participants' mother language, Arabic. Before starting the interviews, participants were given a paper to brief them on the scope of the research and the interview intentions. Also, the participants agreed for their interviews to be audio recorded. After the interviews were conducted and recorded, the researcher transcribed the interviews, documenting both the conversation and the notes that were taken while the interviews were conducted.

The methodology selected was also inspired from previous researches that shared similar boundaries to this research: Saudi houses and lifestyle inside them (Akbar 1998, Al Naim 1998b, AlNafea 2006). From these previous researches, qualitative research was utilised for the depth it provided. The researchers were involved in the process of collecting the information directly with the participants, where they were part of familiar environments (Al Naim 1998b). Also, the assistance of mediators was experienced to collected primary data due to cultural requirements (Akbar 1998) where the researcher was male and wanted to communicate with female participants. Social norms interference

in the process of conducting interviews to collect primary data was evident in AlNafea's work (2006), where elder lady was present during interviews to fulfil social requirement of accompanying the researcher, younger in age.

3.7. Reflexivity of the collected data

In their book, Crouch and Pearce (2012) present a sequence of questions which help the reader to understand reflexivity in research. Those questions enquire about the identification, description, analysis and probable outcome of reflexivity and the data it produces, as well as how it is involved in the collection of primary data.

As the methodological strategy selected was ethnography, that strategy involved using observation and interviews as a primary data collection tool. The researcher was involved not only as an observer of the social context, but also engaged with that social context, living the everyday lives of the selected sample. Reflection is an enriching addition to the collected primary data, noting things that were not visually observed but understood by the researcher as well as experienced. Therefore, observation reflective notes on interview settings are an important part of the notes that will be analysed later.

> *"Doing social research is an active and interactive process engaged in by individual subjects, with emotions and theoretical and political commitments" (King and Horrocks 2010, p. 126).*

Therefore reflecting upon collected and experienced data was a crucial part of the validity and transparency of the research. Although the act of reflection might be viewed as a weakness of the selected methodological strategy, it can actually be used as an empowering strategy in obtaining and dealing with data, and then later on in the analysis phase. Also reflexivity helps to engage readers, inviting them into the social context of the research, helping them understand the context, and connecting them to it. One needs to consider, however, how far to take this stage without compromising the required research objectivity (King and Horrocks 2010, Hennink et al. 2011).

The researcher, a female interior architect from Saudi Arabia, shared socio-cultural background with the sample selected for the fieldwork, participant observation. With those similarities between the researcher and participants, the researcher was able to observe participants everyday life without pressuring them. The aim was to document actions that represented participants expression of their privacy boundaries, which at first let to document all actions then

gradually it was more specific. The researcher attended different social events with the participants, observed their acts of hospitality and was part of it as providing and receiving it.

During the face-to-face interviews, the researcher felt pressure from the participant. Participants trying to be helpful by cooperating, yet the social obligations were interrupting the flow of the interview. Also participants voices were low in the recordings due to the social nature that female are not to raise their voice, as an act of modesty.

With the Skype interviews, the researcher found it difficult to find participants who would agree to video interview, which was either because their personal preference or because of their husbands. The social understanding and acceptance of video conversations via Skype made it difficult for the researcher to reach participants. To overcome this limitation, the participants were informed that there would be an introductory video conversation and that the rest of the interview will be audio only, which encouraged a big number of participants who were hesitant at first.

As mentioned earlier, focus groups were conducted with female and male designers. Two pilot focus groups were conducted before conducting the final focus group. The pilot sessions were to test the design tool and session plan. With the male designers, there were two pilots as well, in which the moderator gained understanding of the expected outcomes of the sessions. The moderator was contacted through telephone and email, due to the social norms, where the researcher provided a written description of the session plan and steps (see Appendices).

3.8. Data analysis

This section refers to the strategies used to represent the collected data; in other words, the literature and primary data gathered through interviews, field observations, and the focus group information. The analysis aims to look deeper into what is been said and written about the topic, to get depth in the contextual value of the gathered data. The research progresses through a process of collecting and analysing data: first, understanding the nature of the concept of privacy; second, conducting ethnographic fieldwork; third, holding interviews with local residents who occupied houses of their own design, and also pre-designed ones, which they had moved into; and lastly, evaluating the proposed design tool with the aid of focus groups.

The observation was based on the research question, bearing in mind the required flexibility due to the nature of the term investigated - privacy. Actions and reactions around privacy and its boundaries were targeted.

The research investigates the term 'privacy' and its use in Saudi contemporary houses, therefore its physical existence was noted and its socio-cultural interpretation and reflection were important, for they generated the meaning of the space. According to Edwards (2010), the five ways of using a space are: *"boundaries and threshold; spatial movement; circulation; path configuration; and sequence and focus*" (Edwards 2010, p. 124). From the theoretical frameworks that have been applied in urban design, and recently in some architectural spatial studies, comes a whole spatial syntax, with its elements of isovist and convex pattern studies (Hillier 2005). These studies illustrate the use of space and exposure of a selected point or space.

Observation notes and interview transcriptions were analysed according to a thematic analysis where, in accordance with Crouch and Pearce (2012), codes that were relevant to the research questions were highlighted, then these codes were grouped according to their relevance in themes, then grouped again into even wider themes. The framework by Madriz suggests the data analysis flow followed in this research, where the data collected went through progessive stages. These started with a literature review, which began when the research started and built up to create a knowledge base, which was then augmented by primary data collection. The primary data was collected from house users through interviews and field observation as tools of an ethnographical methodology.

What follows is a presentation of the analytical strategies that were applied to the collected data, and of how the data was managed. An exploration of the manual and technological approaches to managing and analysing data was the first step in finding the most suitable approach for this research. When evaluating the explored approaches, it is important to consider the purpose of the collected data and the method, to maximise the validity of the outcome (Hollway and Jefferson 2000).

3.8.1 Manual analysis

When the pilot interviews were conducted, a manual approach to analysis was tested, to examine the efficiency of the designed questions on the one hand and to explore the manual analytical approach on the other. Therefore, transcripts

were typed and printed out, as were the field observation notes. These printouts were then read through and quotes, which were relevant to the targeted designed questions, were highlighted. After that, the highlighted quotes were categorised into groups that related to one another, and some quotes were found to relate to multiple categories. During that stage, which was the pilot study, quotes were generally categorised to answer the basic research questions and to evaluate the designed questions of the interview. Also the analysis process was experimental, which led to modification later on in the analysis of the main phase of the collected data.

3.8.2 Computer aided analysis

In the process of recording field notes and transcribing interviews, different software was tried. Having tried to undertake the analysis manually, some data management difficulties were apparent; therefore, the software was explored, with a view to identifying its capabilities and limitations. Ultimately, it is not to be relied upon; on the contrary, it supports manual analysis and assists in organising data, but there is

> *"No system—Atlas, NVivo, or Excel—[that] can analyse the data for you, no matter how expensive or sophisticated it is"* (Eliot 2011).

The following are the software packages explored during the analytical journey for this research.

3.8.2.1. NVivo

"Nvivo is a comprehensive qualitative data analysis software package" (University 2011, p. 1); which is used by researchers to assist them in the process of analysing their collected qualitative data. The University provided workshops for its students to introduce them to the software and, in this research case, the researcher attended such a workshop where attendees were guided through the features and tools of the software; organising, linking and analysing the data. When it was time to apply the software, the data was prepared and input to NVivo, and the codes and categories produced were similar to those produced by the manual analysis. The time that the researcher spent in getting familiar with the program and its features was consuming and the results were not as the researcher had hoped. In the process, however, there were some difficulties experienced in dealing with the codes and their relationship to the categories, due to vagueness of the flow process to the researcher. It was also time consuming and confusing compared to the results of the manual analysis.

Yet, NVivo as a program provides features that support the manual process even with its downside of time consumption (Welsh 2002). The benefit of trying NVivo was that it gave a more organised thematic structure.

3.8.2.2. Microsoft Word

Microsoft Word was then tried, as per a presentation viewed online (Condie 2012). Since the researcher has a good working knowledge of using the software, which is easily accessible, it was second on the list of programmes to try. Two methods were tested using Microsoft Word. The first involved placing the text and using editing tools; highlighters, comments from the review ribbon, underline text, and bold. These editing tools were used together in order to identify the codes and categorise them. Since the codes were already identified and translated, the task to be completed by this software was one of categorisation. The comment tool in the review ribbon was used as a category identifier.

The second method involved creating a table, in which the tables were utilised to link codes with their categories and comment tool to place notes. Such a method is presented in the work of La Pelle (2004), where she explains her approach of using simple programmes to analyse qualitative data. It seems that in her case, the interviews were structured, rather than semi-structured, as in this research. This made it difficult to follow her method to analyse the qualitative data of the present study. Microsoft Word is essentially not designed to deal with tables, therefore when this method was tried difficulties were encountered when formatting and organising the information.

3.8.2.3. Microsoft Excel

The use of Microsoft Excel is not new in the qualitative research field, as Meyer and Avery (2009) have shown in their work. Although one might think that Microsoft Excel is related to numbers, and therefore to quantitative research, there are still ways in which it can be useful for qualitative analysis.

Microsoft Excel was used as a result of the work done in Microsoft Word with the mechanism found in NVivo. The features available in this software - table creation and management - made this the primary choice for data management. Microsoft Excel depends on mathematical algorithms that help with its processes, relating algorithms to characters. The ability to mix graphic representation with quantitative and qualitative organisation was a great advantage of Microsoft Excel, which motivated its selection as the analytical tool.

There are different ways to utilise Microsoft Excel in qualitative research (Meyer and Avery 2009, Eliot 2011), and these reflect the needs of the study. The fact that the interviews conducted and observations made were to tackle a small focused issue made the analysis, to some extent, not as wide and complicated as the examples viewed in other publications.

3.9. Summary

"Design is a process in which problem and solution emerge together" (Dursun 2007, pp. 056–02). In order to answer the research question, a qualitative methodology was selected in response to the needs of the question. The need to investigate the meaning of a conceptual term meant that qualitative tools were more suitable, in accordance with the literature; qualitative definition and limitations, and to previous research in the same field. Figure 45 illustrates the methodology selected to structure this research and to answer the research question. In order to utilise the collected data, different strategies were considered and tried before finalising the results.

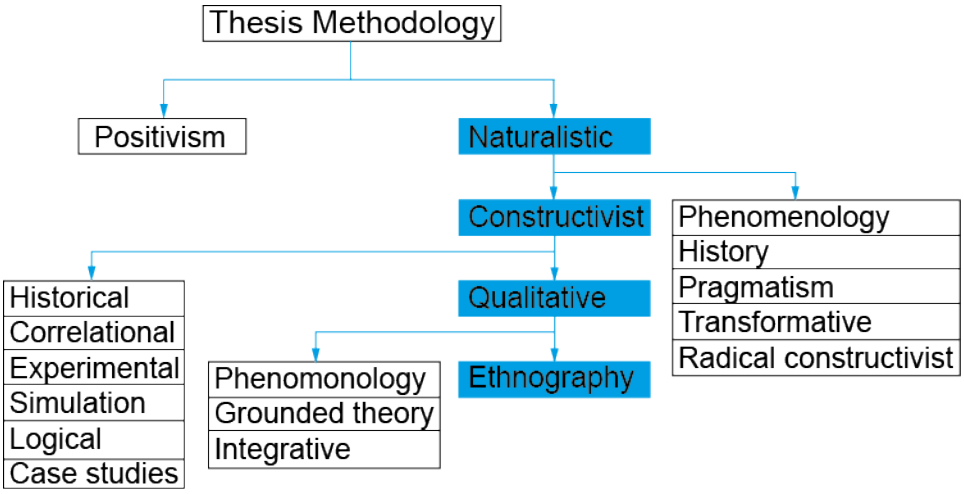


Figure 45 Methodology structure summary

Data analysis, part of the methodology, was done both manually and with the help of a computer program, Microsoft Word. The assistance that the program provided supported the manual process but did not take its place. As it was argued earlier, computer programs do not get to the depth of inserted data, cannot know the underlying meaning of that qualitative data (Welsh 2002, Eliot 2011).

The structure of the research methodology provided a structured path for the research to peruse in collecting and analysing primary data on one hand, and utilising this data and evaluating it in the design tool creation process.

Chapter 4. Pilot study

4.1. Introduction

As part of an ethnographic research, there was a need to communicate with people who are living in the intended environment of contemporary Saudi houses, to get an in-depth insight of the issue intended in the study (Bickman and Rog 1998, Creswell 2007). Therefore, were created as a communication tool. Pilot phase was conducted in the month of February, 2013. Firstly, the main research questions were defined; the concept of privacy in contemporary Saudi houses, its importance and its representation from the perspective of female users. After that, a series of questions were developed to answer the research questions. These questions related to participants daily lifestyle, preferences, understanding of what is the concept of privacy and their social behaviour inside their houses (for interview questions see Appendix a on p. 227).

The pilot phase was conducted to test the validity of the designed questions. That phase had two main benefits: assessing the efficiency of the designed questions on one hand, and on the other hand it was a practice phase for the researcher, where interviewing skills and methods were explored. The pilot group was small in size, three female participants in ages between twenty-four and thirty. Interviews ranged between thirty minutes to an hour long, where Skype was used to conduct them. Participants were sent a consent agreement form before conducting the interviews as part of the ethics and transparency of the research. The form had a brief about the research, requesting their volunteering participation and that they got the right to not answer any question that makes them uncomfortable, as the nature of the research question is sensitive. The participants accepted the agreement and before starting the interview they were given a brief about the research, explaining the nature of the study and their rights during and after the interviews. Interviews were conducted using Skype software (audio only) because of the technical issues that accompanied video conversation; quality of the audio conversation was affected (as mentioned earlier in the methodology chapter). Also, audio only interviews were more acceptable by participants to suit their comfort zone; privacy needs and social acceptance of utilising the cyber-video communication (see Chapter 3).

4.2. Sample selection

The research targets development houses (duplex) designs, clients interested in this type of housing type drew parameter and participants criteria. Therefore, these criteria were: the participants to be married females between the ages of 19 and 35, living in a duplex or a flat. The selection of this age group was intended to help investigate their patterns of use inside their houses, which reflects their ever updating personal and social needs and amongst which the concept of privacy and its involvement in those patterns of use. The participants are to be resident in one of the main three economic cities (Riyadh, Dammam and Jeddah). These three cities share the complexity of the social fabric of its inhabitants, which provides the collected data verity and wider scope of perspective in relation to the concept of privacy, its meaning, importance and representation inside the house. After the criteria were set, the interview questions were designed to address the research question and the factors that affected and shaped it. Later, an email was created requesting volunteering participants with an attached short brief about the research.

4.3. Interviews reflection

As decided, because of the location of the participants and the researcher, participants were contacted through Skype. Three interviews were conducted via Skype and conversations were recorded. Following is the analysis of the resulting data of the three interviews.

The first participant was in her early twenties, a university student. In that first interview, the researcher tried to use Skype software as a videoconference medium, to benefit from the software's capabilities. Yet some technical issues on the participant's side were experienced, which prevented the participant from using her web cam. Therefore, the interview was conducted without the web cam, resulting in what seems like a phone call interview. At first, the researcher had some concerns about the quality that might result from this interview and how valid would it be. However, after the interview was done, recorded then transcribed it was noticed that there was more attention to the unspoken words such as the pauses and tone of voice when the participant was answering. Even though the participant tried to cooperate as much as she could, some leading by the researcher was detected in some areas where the participant seemed

confused. The interview was conducted around three pm, participant time, due to her educational needs.

In the second interview, the researcher moved the order of the questions to test if that would effect on the interview flow, form and type of answers given by the participants. The change of questions order related to the participant's answers and tat action supported the flow of the interview. This interview was with a participant who is in her late twenties, a university graduate and a stay home mother who is pursuing her post-graduate degree. Again, Skype audio interview was conducted due to the technical issues of broadband and Internet speed. Here the audio and the interactivity were prioritised over the video option, for that when the web cam was accessed, the audio started breaking and interrupting the interview flow. Even though the questions were shifted around, the answers to some degree were not affected and seemed overall to be going with the same flow as the first interview. The participant was interested in the topic and started answering the questions as well elaborating to answer some other questions that were yet to come. In this interview the participant chose to have the interview at night after her working hours and before her husband came. Though her child was up he was not interrupting the interview, even with the background low sound he created.

Finally the last pilot interview was the shortest of them all, least intervention by the researcher, yet the character of the participants helped as well, as she seemed to answer some questions prior to being asked, as what happened with the second interview. Still, the participant's answers were short and though her personality was cooperative that did not help in her answers to be more elaborative. Answers provided by this participant were somehow different than the ones from the previous interviews, and contradicting some points that were mentioned in the answers of previous interviews. Time was not an issue with the participant, though it has to be after her working hours. Therefore the interview was conducted at night. The different thing with this interview was that the web cam was accessed from both the participant and researcher. That gave the researcher an opportunity to do the interview while being able to see the participant throughout the interview duration. Yet there were some disconnection issues that effect on the interview flow was not evident. When comparing this interview that had web cam and the other two, the quality of answers were similar.

Generally, these three pilot interviews were more of an informal conversation between the participants and the researcher. That gave the participants some space and made them feel more comfortable and relaxed, which gave authenticity to their answers. The fact that the web-cam was not used in two of the interviews allowed the participants to relax when answering. Also that helped in keeping the interview flow as one continuous conversation without the interruption that occurred when there was an attempt to use web-cam because of technical issues (internet bandwidth).

The pilot phase was part of the learning process undertaken in the research journey and in developing the research contribution. This phase was also an experimental stage for the analysis process and questions interpretation. Since this was the first attempt to collect primary data for the research, it was analysed first manually to assist in understanding the material in hand more sufficiently.

Some considerations were taken while designing the interview questions due to the sensitivity of the topic and the factors related to it. The questions were to be direct yet not to influence the answers of participants. The questions were a tool to help generate a conversation with the participants. While designing the questions, the researcher tried to answer them, in order to visualise their relevance to the research. The last step, visualising participants responses, helped in organising and wording the questions with some supporting statement in case participants were confused.

Part of the ethnographic approach was the concern of researcher's objectivity. From the pilot interviews the researcher was able to identify when participants were led and amount of leading that was done. Even though in the first interview the answers did not respond much to the questions placed. Yet after transcribing the interview, the responses were relevant to the research question and that led to reword the interview questions for the primary interviews.

As I got to the third interview, there was improvement in the interview flow, less from my side and more from the participant's side. Though the details might not be as rich equally in all interviews, but that was also a reflection of the participants' understanding of the concept of privacy and the level of importance they thought privacy has to them, which varied individually. In all three interviews, having the informal interview environment was beneficial for the interview process and flow; it helped participants in expressing themselves

4.4. Interview findings

This phase was an opportunity for the researcher to test the designed interview questions: practicing, leading, transcribing and analysis processes. With the combination of the three experiences, the questions fundamentally were valid and the required data was derived from the answers that the participants provided. The pilot phase was an informative phase for the researcher in which interviewing process was learned and its skills were developed.

After transcribing the three interviews, a manual analysis process of these transcriptions was undertaken. Common concepts emerged relating to the research questions; meaning, importance and interior representation of the concept of privacy. Four points were clear in the analysis process: the meaning of privacy, the relation between privacy and the house (spatial representation), the influence of society on privacy and the relation between hospitality on privacy. Following are the findings generated from the analysis process.

4.4.1 Privacy meaning

When asked about the meaning of privacy, participants responded differently, some were concerned with physical aspects of the concept of privacy, some with the non-physical aspect of it, and some with both aspects yet with different emphasis was given to each aspect.

> *"Saudi houses each room is enclosed, meaning it has to have four walls and a door to let you into the next room" Participant A.*

> *"Most importantly is visual privacy, that females are not seen by males" Participant B.*

Though the participants used different words to describe what privacy within the house means to them, yet conceptually these definitions are relevant and close. The emphasis was on the visual aspect of privacy within and out of the house,

> *"visual privacy, that no one would be watching you entering and leaving" Participant C.*

Also, one of the participants had raised an important point about the different layers that privacy has within the house, pointing out the relation between privacy level and type of users inside the house: family member or visitor.

> *"Privacy outside the house or between the house members", "between house owners themselves or even between them and people outside the house", "it depends on how each one uses his/her house" Participant B.*

These questions from participants pointed out some uncertainty related to the purpose of the questions, which led to utilise the supporting statement prepared that were in the form of examples of social interactions and their reaction to them.

4.4.2 Privacy and house design

Answers varied between the three participants about spatial and functional arrangement of the house. These answers reflected their social experiences and personal privacy boundaries. From the things that emerged were the external factors on participants' choices, where some seek professional assistance, other depended on browsing the market and placing their personal touch to the house.

> *"We were shopping and we saw the wall scenery and bought it because it was a chance that we saw something we liked and we have just moved to this new house" Participant A.*

As an approach by the researcher to get insight to participants' preferences, participants were asked to describe their dream house. That aimed to give the researcher an understanding of participants' spatial pattern of use inside the house, leading to the form of privacy as a product of the design process. Participant A was considering outdoor elements of the house with limit consideration to external privacy exposure. When asked about that point, the participant referred to some of the socially inherited and conventional solutions

"I don't know, but most people here who got external swimming pools place aluminium panels [corrugated metal panels] on top of their house boundary walls to prevent visual exposure by neighbours." Participant A

Her answers expressed least interest and reliability on used solutions by society around her, solving issues after they are been created not before.

Alas, participant B showed more awareness related to the issue of privacy within the interior spaces of the house, where she referred to the courtyard house design as her main inspiration for her dream house. The argument was that courtyard houses provided control over the visual privacy.

4.4.3 Privacy and society

The influence of society on the participants' answers and application of privacy showed in the three interviews, it was mentioned as what people are used to, or as concerns showed by participants to be visually exposed to strangers.

"Going to and from the flat, this is number one concern in our culture", "might be from a more conservative family and background so I would need the visual separation" Participant C.

For the participants, strangers refer to anyone who does not live in the house, which includes extended family and in-laws.

"When my son grows and get married, his wife might be from a more conservative family and background so I would need the visual separation" Participant B.

4.4.4 Privacy and hospitality

Different hospitality levels in each of the participants' cultural view were reflected through the answers that participants provided. The limitations and boundaries placed upon visitors within the house as a way of controlling privacy were expressed

"depends on the visitor herself" Participant B.

When participants were asked about the open plan within the contemporary Saudi houses, they either referred to their current house or the concern that prevents them from considering this type of house design.

"I can't invite strange people because I have an open plan flat design" Participant C.

4.5. Summary

From the concerns that were highlighted through this phase are the following: leading the participants to the answers, being bias when discussing the topic with the participant or requesting further comment from them. In order to have a better communication between the researcher and participants in the next stage, the interview questions are modified. Some scenarios, adopted from the pilot interviews, will be added to support the questions, making the questions clearer to the participants.

In conclusion, the pilot phase provided the researcher with an insight to the expectations and understanding of privacy in the participants' perspective. That led to restructuring the interview questions, focusing on three major points: meaning, representation and importance of privacy to female users. Also, after analysing the interviews, the researcher gained experience in the analysis process, and more options were to be explored that relate to the representation, organising and analysing the interview data.

Chapter 5. Data collection

5.1. Observation

This section documents the observation process and analysis journey. Ten weeks were dedicated to the observation of the participants' lives inside their house. Users actions were observed: their interactions with one another and with strangers; the rooms they accessed; time in which visitors occupied different spaces; gestures users and visitors make before entering a space and while being in the space. The eldest member was approached for consent and agreement before starting the observation stage. The idea was welcomed and approved, and when the researcher asked how to approach the other members, she was advised to simply conduct the observation as long as the anonymity of the participants was guaranteed. The sample family was familiar with the researcher personally, which helped ease the process of being part of the observation and of acceptance by the observed participants. Being familiar with the social and cultural norms was an advantage that assisted the researcher in interpreting and recording the non-verbal communication gestures. Also, this fact helped her to observe the participants in their everyday life without them feeling watched.

The observation notes acknowledged the everyday actions of participants, as they were experienced. As the selected observation type required the researcher to be completely involved, notes took the form of mental notes which were made as the activities took place. This allowed for maximum engagement, and at convenient times, when the researcher was alone during the day, these notes were documented using a smart phone to prevent them from being lost; otherwise they were documented at night. After the observation had been conducted and the in-field notes collected, they were revised and reflected upon. The notes were then filtered to narrow down the relevant information that would assist in answering the research question and in line with the aims and objectives of the research. The observation notes were analysed three times, and each time the categories and themes were almost identical.

For the transparency of the research, the researcher acquired consent from the house owners before commencing in the observation phase. The permission granted from the house owners covered their personal day to day life patterns as well the patterns of themselves and their visitors in different occasions that the

researcher is around in. Also, the researcher planned a period of two months in which the observation would take place. The considerable short time is balanced with the knowledge that the researcher had of the culture that is being studied, and also of the selected sample that is to be observed. In this period, the researcher utilised the major family gatherings in two occasions; one in the regular weekly close family gatherings and the second was in the religious event of Eid which came after Ramadan in which close and extended family came to the house. Also, the researcher observed the everyday life patterns when no one was visiting the house owners. The researcher had access to all spaces of the house which assisted in conducting the observation phase with much exposure to the owners' every day to day activities. These spaces include all living spaces, different dining spaces, main kitchen, dirty kitchen, kitchenette and bedrooms. The researcher observed the house owners and other users of the house, the spaces that were accessed and by whom and when, which formulated the patterns of use inside the house and assisted the researcher in the analysis process.

5.1.1 Sample selection

The sample selected consisted of two elderly females, eldest amongst their siblings, in their mid-sixties, both of whom were single and retired. They lived in their parents' house, which had become theirs after their parents' death. All siblings, however, considered this house to be the family house, where they gathered weekly and for religious and formal occasions. They have lived in two houses prior to this house; both houses were designed by their father and both were considered to be the family main house where events happen.

The selection of this sample was influenced by the events, functions and social interaction that happen in their house. As mentioned, the house was considered to be the family house where family members and extended family members gather in various occasions. Also, the researcher was familiar with the female responsible in the selected sample, which gave advantage of access to the house and social involvement in the various social events. The selected sample presented diversity in they users and their types; house owners, family members, extended family members, in-laws and visitors of both genders. Also, the ages of these users who had different access degrees into the house spaces varied, presenting the researcher with rich observation material. This range of users and

their different ages presented different levels and boundaries of personal and social privacy.

5.1.2 Time selection

The observation was of two months duration, beginning with the holy month of Ramadan and finishing at the end of the following month (the month of Shawal). Those two months were selected because they included a number of different social, formal and casual, events, providing the researcher with a rich environment and experience within a limited timeframe. The time selected comprised of the month of 'Ramadan', as mentioned, where Muslims fast during the daytime from dawn to sunset, and the following month 'Shawal' where family members and friends gather in its first three days to celebrate. In the month of Ramadan families gather more than once per week in the family house, and this provided a concentration of events for the researcher to observe. At the start of the month of Shawal, there were religious celebrations and extended family gatherings, with complicated social interactions and use of the observed house. As Muslims follow the moon cycle in calculating months of the year, when the observation was conducted, Ramadan coincided with the summer vacation. Affected by summer break timing and Ramadan patterns, some were awake during the daytime, experiencing fasting rituals, while some were experiencing the night time. For example, sleeping patterns were affected to accommodate people's desire to attend the evening religious prayers and to work around vacation patterns. In these ten weeks, various family gatherings were experienced, involving family, extended family, friends, visiting neighbours, and religious celebrations.

5.1.3 Type of data collected

The researcher selected the family living space located on the first floor. This space was the most used living space by the owners and the close family that visited weekly, and occasionally during the week, see Figure 46. For most of the observation period, the researcher selected the long sofa with its back to the staircase and facing the windows that overlooks the swimming pool on the ground floor. That location provided the researcher with wider range of view of the spaces next to the living space while placing her in the blind spot of the living space.

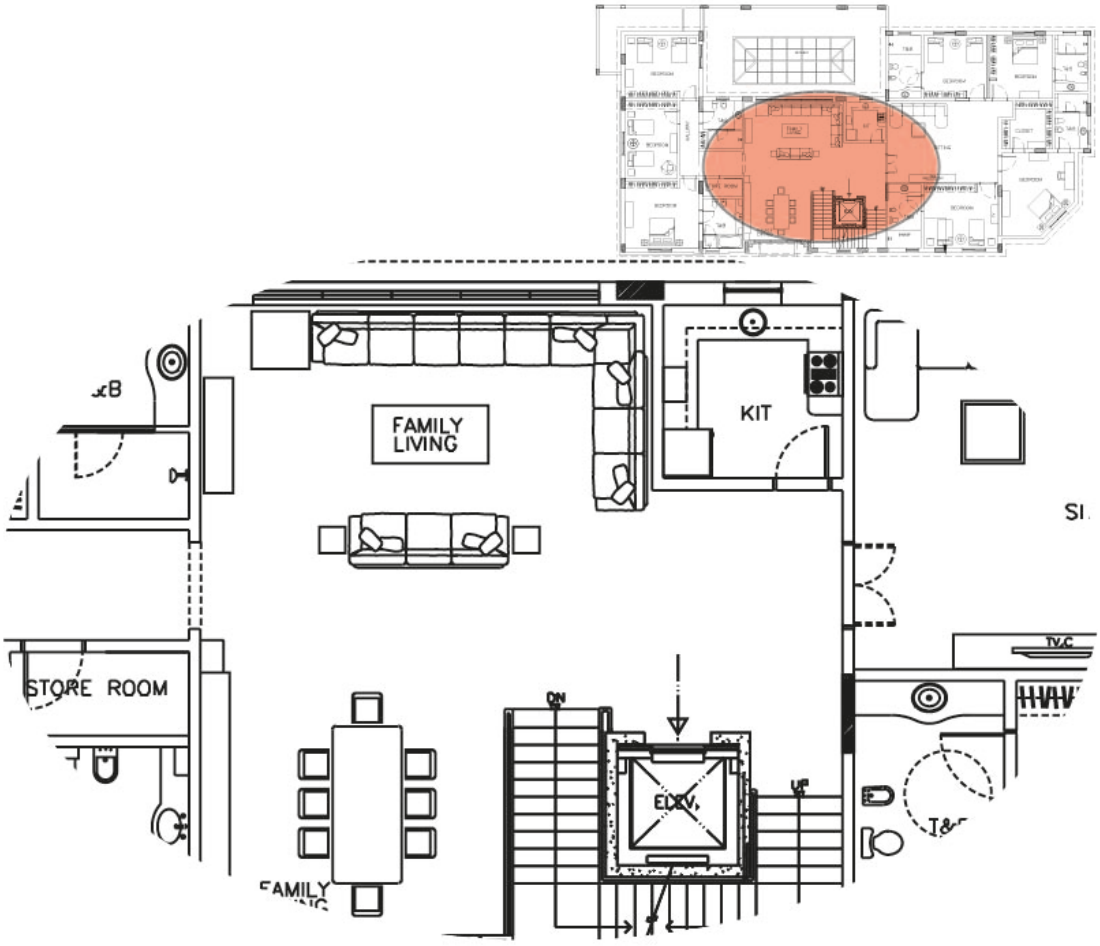


Figure 46 First floor plan with furniture (Researcher)

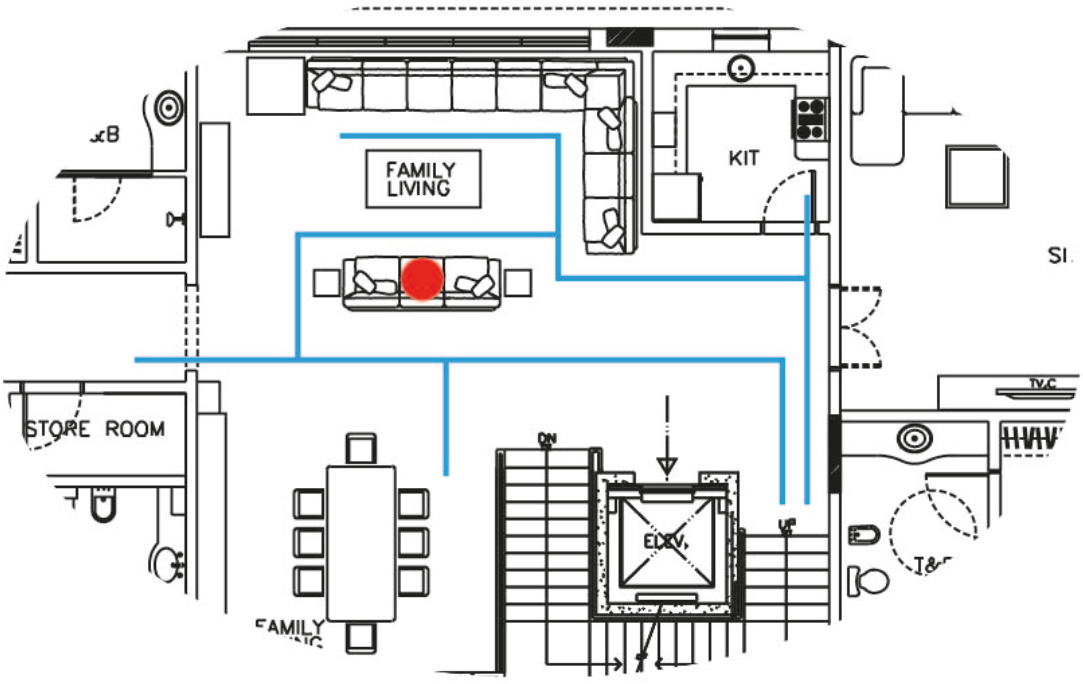


Figure 47 Location selected to take observation and circulation around it (Researcher)

During the observation period, the researcher was aware of the users behaviour around one another and around different visitors to the house (that included different family members and friends). The observed behaviours were amongst their reactions:

1. When the owners are alone in the house: What type of activities do they do? And how it reflects their privacy needs?; What are the influence of the house design on their privacy needs?
2. When a female visitor comes over: who are they?; Where did they locate them?; What type of hospitality acts did they perform? How deep into the house were these visitors allowed?; And what time of the day did different visitors come in? Which entrances did they use?
3. When a male visitor comes over: who are they?; Where did they locate them?; What type of hospitality acts did they perform? How deep into the house were these visitors allowed?; And what time of the day did different visitors come in? Which entrances did they use? Who escorted them in?
4. When a female and male visitor comes over: who are they?; Where did they locate them?; What type of hospitality acts did they perform? How deep into the house were these visitors allowed?; And what time of the day did different visitors come in? Which entrances did they use?

The researcher had viewed literature concerning the theoretic base of the concept of privacy before undertaking the observation phase. Also, before the observation phase, the researcher managed to conduct pilot interviews that widen the perspective of privacy employment in contemporary Saudi houses. That pilot study and literature review highlighted some aspects that the researcher is to be aware of when conducting the observation phase. From these aspects were: type of users accessing different rooms; the reaction of the owners if a user is to enter a space with no permission; owners reaction when a user enters a space not intended for that type of users; how social norms influence owners in their houses on one hand and on the formation of the concept of privacy on the other hand; and the non-verbal social laws that different house users apply while being in the observed house.

The taken notes were combined with the provided floor plans, to aid the researcher in linking between space, function and users in the selected event (in Figure 48 is the event of the first day after breaking the fast where it was an extended family religious gathering).

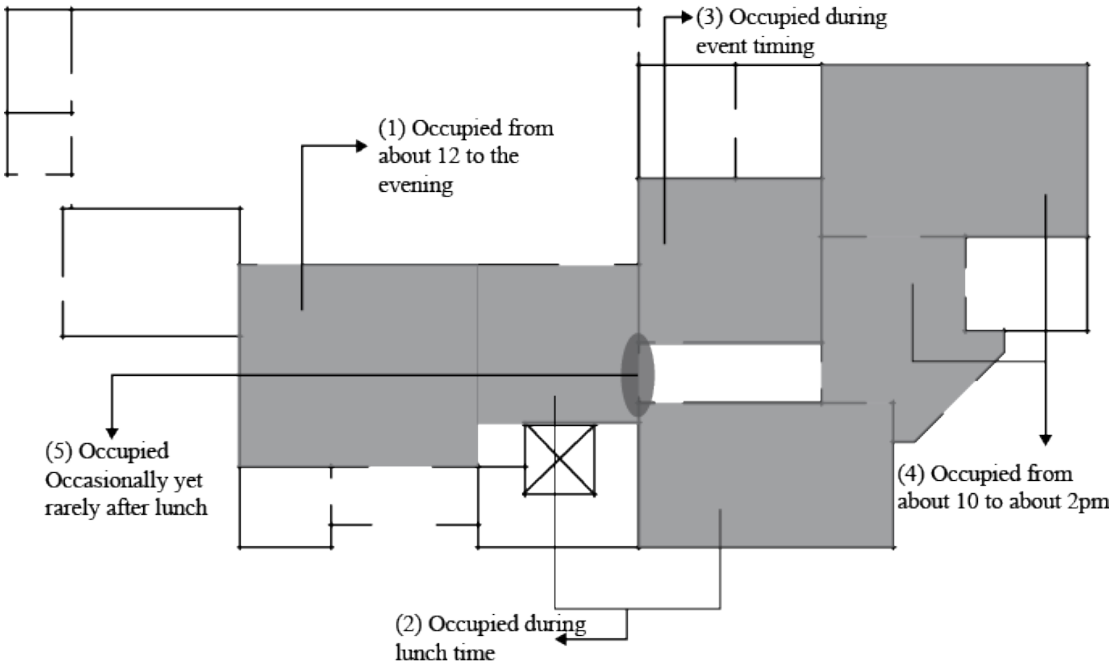


Figure 48 Spaces accessed in the event of extended family gatherings, in this case for the religious celebration after Ramadan (adopted from (Alkhateeb et al. 2014))

5.2. Interviews

Two sets of interviews were conducted in this study. The first set was face-to-face interviews with married Saudi females, over forty years of age, who lived in custom designed houses. The second set was with Saudi females aged between nineteen and thirty-five who lived in the city of Dammam in duplexes and flats. The aim of having these two sets was to trace the meaning of privacy from older female participants to the second set of younger female participants, did the meaning of privacy continued or was it modified and how. This knowledge responds to the research question relating to the concept of privacy and addresses the gap between the designers and clients. Whether the knowledge of designers is efficient to assist them in designing contemporary houses that responds to contemporary social and personal needs of contemporary clients.

Face-to-face interviews were with volunteering participants who were reached through social connections. After they had volunteered, the nature of the research was explained to make sure that they were fully informed about what they had agreed to do. The second set of interviewees was reached through a different social network, smart-phones and emails. Invited volunteers for the second set of interviews were informed that the medium would be Skype; to suit

both the participants' and researcher's needs in terms of time and comfort. Some reacted negatively and did not participate because of the selected communication medium.

5.2.1 First group: face-to-face

This section discusses the interview process and outcome for the first set of respondents. There were five participants, all of whom were over the age of forty, living in their own designed homes. All but one agreed to be recorded. In one of the interviews, an opportunity arose to interview two friends at the same meeting; therefore a combined interview was conducted and recorded.

Due to social customs, the researcher could not go to some of the participants' houses without the company of an elder female. This was the person who organised the interview meetings; in this case it was the researcher's mother who arranged the interviews through social connections with friends. As Al Nafea mentions in her work (2006), the elder lady was there for social reasons. In the case of this research, the elder lady knew the task and did not interrupt the process of the interview; she was there to fulfil the social requirement. Yet, participants felt obligated to conduct hospitality rituals to their guests. Having another person in the room while conducting the face-to-face interviews did not influence the flow of the interview, it reassured the participants during the interview. The communication between the researcher and participants was direct and the accompanying person was not involved in the interview conversation. This gave the participants ease which was reflected in their answers that was more spontaneous. Only one of the interviews included one of the participant's daughter as the participants was not feeling well, but the other interviews had only the researcher, interview participant and the accompanying lady.

The participants were welcoming, inviting the researcher to their homes, demonstrating their hospitality habits, and reflecting some of the privacy limitations that they express while answering the interview questions and giving a tour. Even though they tried to relax and to allow the researcher access to their houses, it was clear that they preferred her not to see more than they were prepared to show. These points were observed, and supported the answers that were given, indeed in some cases they raised questions because they contradicted the answers given. This behaviour on the part of participants reflected their privacy boundaries − what exactly they considered public in their

relation to their privacy levels. Each interview was a social experience in itself, as mentioned earlier, because the researcher had an opportunity to observe the visual and verbal expressions of the participants throughout the interview.

The first interview was conducted around six months after the pilot interviews. For this first meeting, the participant's character helped the flow of the interview and information. The participant was open and held an informal conversation with the researcher, referring to the accompanying female in some cases to confirm her point, yet the accompanying female knew her role and restricted her interaction with the participants to the time before the interview started. As the interview was conducted on a Ramadan morning, both participant and researcher were fasting, and there was little going on in the way of hospitality. This meant that the interview was focused and took place without interruption. We were escorted to the main living area of the house, and after the interview a quick tour of the ground floor was given to the researcher by the participant. The researcher was not, however, given permission to access other floors or the basement level. The participant allowed access to the semi-public areas and public areas of the house: living rooms and dining areas. The researcher asked to be allowed to draw a floor plan sketch of that level while on the tour and the participant agreed.

In the second interview, the researcher faced some communication issues with the participant, which required the daughter to attend and assist. This was a difficult interview, for the reason mentioned, and also because the participant was not fully engaged in the house design decisions, showing an attitude of acceptance of what had been given to her and of adaptation. In this interview the participant and her daughter gave a verbal tour, explaining the ground floor house design instead of giving a physical tour. General details were given and the researcher had to interpret the floor plan.

In the third interview, the participant refused to be recorded, even after assurances were given that her personal information would remain confidential. The participant welcomed the researcher to the house, and because it was a Ramadan morning, there were few distractions whilst the participant and the researcher sat in one of the living rooms. Here the respondent did not give a tour of the house, nor explain the floor plan verbally. The visit involved more conservation.

The combined interview was interesting as both participants answered, complementing one another's answers, with each having their own contrasting

perspectives on some questions. This interview was conducted at night, and the researcher met the participants in the formal living room, designed for visitors. Although there was some risk of interference, that the opinion of one would overcome that of the other, it did show the diversity of characteristics between these two female friends. Again, the researcher was not able to obtain either a floor plan sketch or a verbal explanation from these two participants due to nature of the interview on one hand and to keep the flow of the interview on the other hand. There was a house helper who was assigned to part of the hospitality activities. Whilst the house owner did the entertainment and talking, the house helper served the hot drinks and accompanying food and sweets.

The last interview was conducted in Ramadan at night time, where the participant was both hosting and answering the questions. This was somehow distracting for the researcher and disruptive to the participant's train of thought. As in the first interview, the respondent referred to the female accompanying the researcher for support while answering; however the situation was managed by the researcher who echoed the participant's point of view. While the interviewee was answering she was also conscious of the hostess role she was obliged to play, for it represented her socially and was important to her. Hospitality was a part of her social status and reputation.

5.2.2 Second group: Skype audio

Interviews in the second set were conducted with participants between the ages of twenty and thirty-five who lived in smaller houses and had not been involved in their original design; namely duplexes, flats and a floor in a villa. In this category there were twelve participants, and Skype was used to conduct the interviews, similar to the pilot study phase.

Although the problematic use of Skype as a communication medium for interviews in qualitative research was discussed earlier, this software had its benefits for this researcher and the research. It helped overcome the distance problem between the participant and researcher and allowed for more convenient timing that could be agreed between the two parties. Most participants selected a time when they had finished their housework and their husbands were not in the vicinity. Some selected the afternoon time when they had come home with their children. Generally, they picked a time when they could focus upon the interview, which was a reflection of their interest.

Before starting the interview, participants were emailed a copy of a consent form and were asked to agree to the terms. After they were briefed on the nature of the research, and before the interview started, the researcher explained in greater detail what the research was about to ensure their understanding and to obtain their verbal consent.

Interviews were between twenty and forty minutes long, and in them the researcher was able to ask the questions and the participants to answer as well as give their insights into what they thought was relevant or what they thought was helpful to the research topic.

In the pilot phase there were some issues; some manageable in relation to the interview itself, and some technical related. The manageable ones were communication issues related to question clarity, the leading of participants, and topic explanation. In this phase these issues were dealt with, questions were revisited and examples were added to help explain the questions and to help clarify the topic for the participants. The technical issues were present in this phase but did not affect the interviews dramatically. They were related to Internet connection strength for both parties, but were dealt with by participants and researcher with minimum effect on the interview flow. This was one reason for not holding full video interviews using Skype, as mentioned earlier.

These twelve interviews had some similarities, for example, the friendly attitude of the volunteering participants and their willingness to not only participate but also to help, as the topic was of interest. There was also the participants' patience with the technical issues, which they did not allow to affect the flow of the interviews. In some interviews the conversation was taken in another direction, away from the purpose of the questions, yet the flow of the conversations was managed back towards the question's original perspective. As privacy is a conceptual term and is related to multiple fields and meanings, one of the interviews' main purposes was to establish what privacy means from an interior perspective.

Chapter 6. Data analysis

This chapter discusses the analysis of the collected data; methods in which it was collected in and analysis process. This chapter follows what was mentioned earlier in the methodology chapter (see Chapter 3 for data collection methods details). Thematic analysis was applied on the collected data from the participant observation and interviews, resulting in a hierarchy of thematic and categorised labels that enabled the researcher to answer the research question. Also, the analysis of this data, combined with the literature-review, led to the building of the design tool that responds to the research aim: that of providing privacy in contemporary Saudi houses and a more socially acceptable development houses in Saudi Arabia.

6.1. Observation analysis

At first, the data was analysed manually, where the notes were printed and read through carefully. Relevant actions were highlighted throughout the notes. The second step was to filter these highlighted observations in terms of what would assist in answering the research questions: namely, the meaning of privacy, the representation of privacy within the house interior, and the shaping of actions and physical solutions to serve privacy needs. Related notes were then grouped into categories, then into broader groups and themes. As mentioned earlier, observation was used as a tool to assist in understanding the functionality of spaces and the lifestyle of a sample family. The resulting themes with their categories were inter-related with one another and in relation to the main research question: the meaning of privacy.

Observation notes collected during the pilot phase were analysed manually like the data collected from the pilot interviews. After that, computer software was used as a means of helping to organise the data and its categories. As mentioned earlier, there were various software options for the qualitative analysis, and Nvivo was the first to be chosen to organise the analysed data. Categories, sub-categories and themes were placed within the program, and the connection between the categories and themes were determined. That helped clarify the relation between categories one another and with their superior themes which they were under. Yet, the placement of codes within those categories was not as easy as expected. Since the main analysis was done

manual, the involvement of Nvivo was to illustrate and clarified the relationship between the categories. The analysis of the observation notes was accompanied with house plans drawings, which illustrated room locations.

Stages taken in observation notes analysis:

1. Notes were recorded twice a day: once around noon and second at the end of the day.
2. The notes were read with additional notes placed to highlight patterns in behaviours and spatial use of the house.
3. The highlighted patterns were the categories that the researcher perused in the analysis process.
4. NVivo was the first tool used to organise resulting categories
5. Then the selected statements (codes) were placed in Excel for further organising instead of NVivo.
6. The use of Excel was to organise codes according to the categories they are placed in and to identify the codes associated with each code.

Table 1 The Below three tables display stage 5 of the analysis process FROM SELECTED statements (codes) of the observation notes.

Main entrance in that day was used by all users, and most visitors	Close family
Main entrance in that day was used by all users, and most visitors	Owner
Main entrance in that day was used by all users, and most visitors	Extended family
Main entrance in that day was used by all users, and most visitors	Visitor
Main entrance in that day was used by all users, and most visitors	Entrance

Main female member of the house with the help of the house helpers were in the kitchen preparing the food	Private
Main female member of the house with the help of the house helpers were in the kitchen preparing the food	House helper
Main female member of the house with the help of the house helpers were in the kitchen preparing the food	Owner
Main female member of the house with the help of the house helpers were in the kitchen preparing the food	Main kitchen
Main female member of the house with the help of the house helpers were in the kitchen preparing the food	Dirty kitchen

The first member's room is also accessed by all members yet not as often as the other, and she doesn't like it when others use her things, she rather give it to them and not use them again.	Personal
The first member's room is also accessed by all members yet not as often as the other, and she doesn't like it when others use her things, she rather give it to them and not use them again.	Private
The formal dining room has 2 entrances, one facing the kitchen and the other opens to the formal living, that provides easy access when food is served and cleaned and without being seen. That empowers the hospitality process and on the other hand not being exposed to male visitors	Door
The formal dining room has 2 entrances, one facing the kitchen and the other opens to the formal living, that provides easy access when food is served and cleaned and without being seen. That empowers the hospitality process and on the other hand not being exposed to male visitors	Family dining
The formal dining room has 2 entrances, one facing the kitchen and the other opens to the formal living, that provides easy access when food is served and cleaned and without being seen. That empowers the hospitality process and on the other hand not being exposed to male visitors	Hospitatlity
The formal dining room has 2 entrances, one facing the kitchen and the other opens to the formal living, that provides easy access when food is served and cleaned and without being seen. That empowers the hospitality process and on the other hand not being exposed to male visitors	Main kitchen
The formal dining room has 2 entrances, one facing the kitchen and the other opens to the formal living, that provides easy access when food is served and cleaned and without being seen. That empowers the hospitality process and on the other hand not being exposed to male visitors	Public
The formal dining room has 2 entrances, one facing the kitchen and the other opens to the formal living, that provides easy access when food is served and cleaned and without being seen. That empowers the hospitality process and on the other hand not being exposed to male visitors	Visitor
The formal dining room has 2 entrances, one facing the kitchen and the other opens to the formal living, that provides easy access when food is served and cleaned and without being seen. That empowers the hospitality process and on the other hand not being exposed to male visitors	Visitor living

As from the above two notes, there are similar categories between them: private, main kitchen, dirty kitchen, owner and visitors. These emerging patterns in the codes, resulting in categories that were organised later into more generalised themes were the result of the analysis process.

House plan drawings were analysed alongside the recorded notes: in this research, the researcher placed the notes digitally in a phone app for accessibility and convenience.

6.2. Interview analysis

As in the pilot interviews and the observation phase, the interviews were recorded then transcribed. These transcriptions were to be the researcher's reference to the recorded interview conversations. Again, the transcripts were manually analysed, and common and relevant points with regard to privacy were highlighted and labelled for further consideration and analysis. Adopting a thematic approach, the analysis identified three major themes around which the interview questions were designed, and under which the categories and sub-categories were listed. The interview outcomes complemented those of the observations, as discussed below.

Firstly, as mentioned in Chapter 3, the designed questions aimed to explore the meaning; and importance; and representation of the concept of privacy. Therefore, the semi-structured questions were placed into parts to address those points: classification questions; and social patters; and influencing factors on the house design and privacy boundaries (see questions in Appendix a on p. 227).

Table 2 Interview questions outline

Demographic information	Age
	House type
	Exposure to travel
Privacy and spatial design	Architectural elements
	House adjustment to adopt to needs
	Open plan vs traditional planning
	Social obligations, privacy and the house
Privacy and the house	Importance
	Meaning
	Social and personal lifestyle
	Social obligations, privacy and the house
	Privacy and hospitality

A number of common trends emerged from the interview process. Answers complemented one another in some cases, and justified one another in other cases. These trends were parts of the created the themes and categories; three main themes and eight sub-themes. These findings also complemented the observation findings.

Steps undertaken to analyse interviews:

1. Recordings were transcribed in the language they were conducted in.
2. Transcripts were translated to English in order to unify some key words that would influence the results.
3. Transcripts then were read and relevant statements were highlighted
4. Key words that made these statements relevant were highlighted (codes), which formed the categories later on.
5. The analysis process went through two stages: manually identifying the codes; then placing the codes in Microsoft Office Excel to organise data.
6. The selected codes were placed then within a Piviot Table format to group codes with similar categories, and also gave the research the possibility to group codes according to participant and codes.

Table 3 The Below three tables display stage 4 of the analysis process from a selected statements (codes) from three interview participants.

Society has affected us inside our houses, where in events we love to have open spaces but during the even we wish for something more isolated so that I can move freely	Comfort	Participant 11
Society has affected us inside our houses, where in events we love to have open spaces but during the even we wish for something more isolated so that I can move freely	Female	Participant 11
Society has affected us inside our houses, where in events we love to have open spaces but during the even we wish for something more isolated so that I can move freely	Male	Participant 11
Society has affected us inside our houses, where in events we love to have open spaces but during the even we wish for something more isolated so that I can move freely	Open plan	Participant 11
Society has affected us inside our houses, where in events we love to have open spaces but during the even we wish for something more isolated so that I can move freely	Physical	Participant 11
Society has affected us inside our houses, where in events we love to have open spaces but during the even we wish for something more isolated so that I can move freely	Public	Participant 11
Society has affected us inside our houses, where in events we love to have open spaces but during the even we wish for something more isolated so that I can move freely	Society	Participant 11
Society has affected us inside our houses, where in events we love to have open spaces but during the even we wish for something more isolated so that I can move freely	Visitor	Participant 11
Society has affected us inside our houses, where in events we love to have open spaces but during the even we wish for something more isolated so that I can move freely	Visual	Participant 11

I want to separate the house from the living room section because of the guests and the male in particular	Living room	Participant 13
I want to separate the house from the living room section because of the guests and the male in particular	Male	Participant 13
I want to separate the house from the living room section because of the guests and the male in particular	Private	Participant 13
I want to separate the house from the living room section because of the guests and the male in particular	Public	Participant 13
I want to separate the house from the living room section because of the guests and the male in particular	Visitor	Participant 13

Men and women each in a separate room	Female	Participant 8
Men and women each in a separate room	Hospitality	Participant 8
Men and women each in a separate room	Male	Participant 8
Men and women each in a separate room	Physical	Participant 8
Men and women each in a separate room	Religion	Participant 8
Men and women each in a separate room	Visitor	Participant 8

Table 4 The below three tables display stage 6 of the analysis process from a selected statements (codes) from three interview participants.

Society has affected us inside our houses, where in events we love to have open spaces but during the even we wish for something more isolated so that I can move freely	Public	Participant 11
I want to separate the house from the living room section because of the guests and the male in particular	Public	Participant 13

Men and women each in a separate room	Visitor	Participant 8
Society has affected us inside our houses, where in events we love to have open spaces but during the even we wish for something more isolated so that I can move freely	Visitor	Participant 11
I want to separate the house from the living room section because of the guests and the male in particular	Visitor	Participant 13

Men and women each in a separate room	Male	Participant 8
Society has affected us inside our houses, where in events we love to have open spaces but during the even we wish for something more isolated so that I can move freely	Male	Participant 11
I want to separate the house from the living room section because of the guests and the male in particular	Male	Participant 13

Chapter 7. Analysis outcome

7.1. Observation data analysis outcome

7.1.1 First attempt

That process resulted in seven themes under which there were forty-eight categories. Figure 49 illustrates the generated categories and the relationship between them.

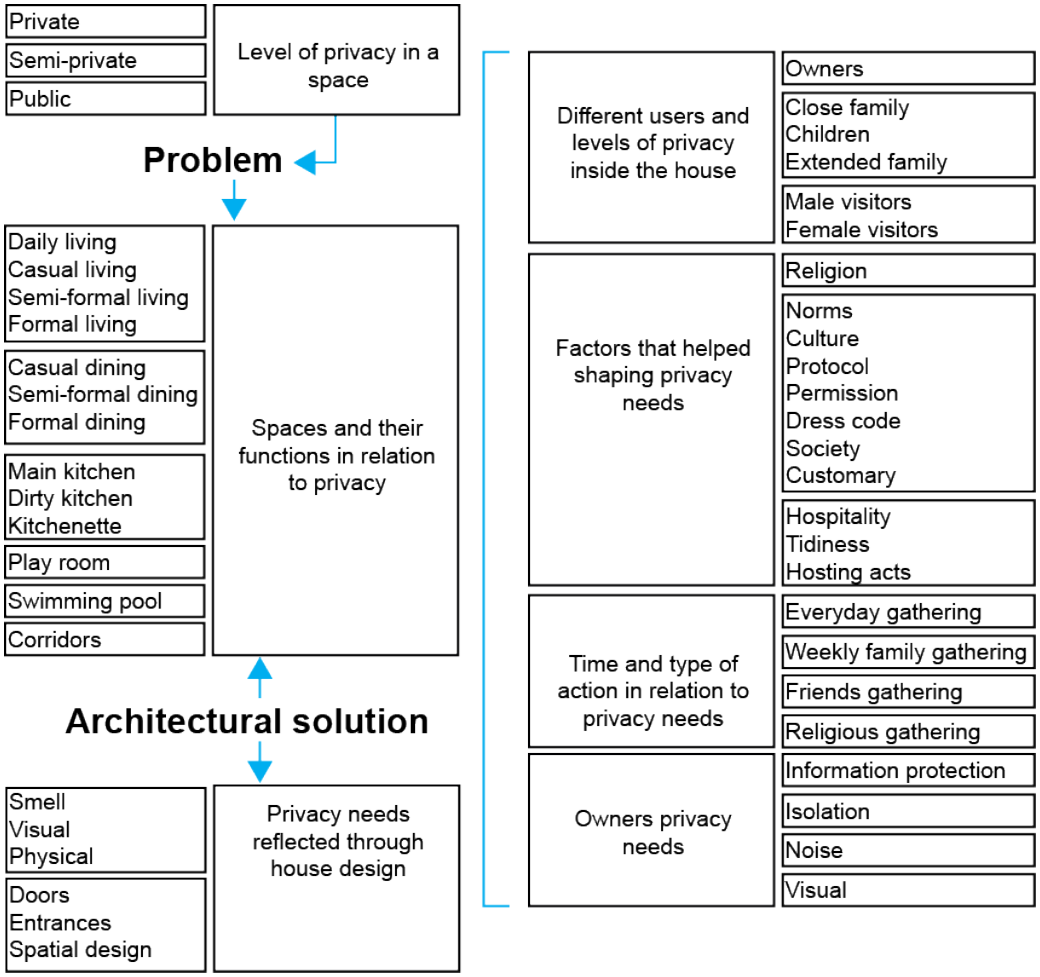


Figure 49 Themes and categories generated from 1st attempt

7.1.2 Second attempt

In an MSc thesis by Mavridou Magda (2003), the work of Giddens was discussed, and it was mentioned that not only does he focus on the actors and their actions but also on the way in which they took those actions, the type of interaction affected, and the type of interaction affected, placing emphasis on the relationship between space and time. This directed the researcher to revisit the observation notes once again so that the methods were pointed out as well as the outcome of the action notes.

After the first attempt, utilising Nvivo, the researcher chose not to repeat the exercise because it was time consuming. Rather, the codes were re-analysed using Microsoft Office Excel. The notes were re-visited following transcription of the interviews. First, observation notes were analysed manually, identifying actions that were relevant to the research question, then were placed in Microsoft Excel to be organised with the use of the Pivot Table tool. When that was done, modifications were made to the above diagram, which resulted in similar, but not identical, themes and categories.

7.1.3 Third attempt

This attempt was intended to confirm the results; to ensure that there would be no new emerging categories and that the ones created were relevant and included no unnecessary ones. The process was similar to that used for the second attempt, and resulted in forty-eight categories listed under eight themes (see Figure 50).

Level of privacy in a space		
Private	Public	Semi-Private

Factors that helped in shaping privacy needs				
Culture	Hospitality	Religion	Society	Permission

Spaces and their functions in relation to privacy			
Visitors' dining	Visitors' living	Family's dining	Family's living
Family's dining 2	Family's living 2	Bedrooms	En-suite bedrooms
Bathroom	Main kitchen	Dirty kitchen	Kitchenette
Play room	Swimming pool		

Owners privacy needs related to their senses			
Physical	Smell	Sound	Visual

The personal characteristics of owners that help shape house needs				
Comfort	Control	Information	Isolation	Ownership
Safety	Security			

The use of levels in the house as a privacy level indicator		
Ground floor	First floor	Second floor

Privacy needs reflected through house design			
Door	Entrance	Windows	Transition

Different users who access the house			
Owners	Family - female	Family - male	Children
Close family	Extended family	Visitors	House help

Figure 50 Final stage of observation thematic analysis

The resulting forty-eight categories, displayed in Figure 50, were the outcome of users' actions and reactions towards different type of users and patterns of use by different users through the house spaces in different events. The link between functional spaces, users and the concern of privacy was evident in users patterns of use; spaces they accessed and the time in which they accessed these spaces.

Different spaces in the house had different levels of privacy according to its function and location within the spatial design of the house; there are three different privacy levels that was observed and mentioned in literature (Sobh and Belk 2011). Therefore, the theme levels of privacy was an important resulting theme. Then themes that related to the internal and external factors that affected the decisions that the owners made were listed. Also there were the themes that touched upon the physical representation of the concern of privacy inside the house; interior architecture elements and functional spaces.

7.2. Interviews and observation data analysis outcome

The answers provided by both age groups were then compared to one another to examine their relativeness to the meaning of privacy, its importance and its representation inside the house. After the interviews were analysed, they were examined for similarities and contradictions to the meaning and importance of privacy to illustrate the evolution of privacy as a concept. The results of these observations of interview results are displayed in Figure 51.

Level of privacy in a space		
Private	Public	Semi-Private

Factors that helped in shaping privacy needs				
Culture	Hospitality	Religion	Society	Neighbours

Spaces and their functions in relation to privacy			
Living room	Dining room	Family living	Main kitchen
Bedrooms	Dirty kitchen	Laundry	Play room

Owners privacy needs related to their senses			
Physical	Smell	Sound	Visual

The personal characteristics of owners that help shape house needs				
Comfort	Control	Information	Isolation	Ownership
Exposed	Free	Observed	Permission	

The use of levels in the house as a privacy level indicator		
Ground floor	First floor	Mezzanine
Annex	Basement	Top floor

Privacy needs reflected through house design		
Corridor	Entrance	Open plan
Wall	Window	Door

Different users who access the house			
Husband	Family - female	Family - male	Children
Close family	Extended family	Visitors	House help

Figure 51 Interviews analysis

Acts of respect and consideration between the genders were apparent during the observation period. Males acknowledged the need for a visual barrier between themselves and females and respected that need, which was evident in their actions during the observation session. Also, interview participants have mentioned the importance of privacy was influenced by their husband's preferences. This visual barrier and separation is based on religious guidance. Before entering a space, men proceed with a vocal gesture first. Also, male members of the observed sample houses accept females' requests when asked to look aside when passing a female. This is not to neglect the efforts that female

members make in the observed houses − they are prepared and ready at all times to provide hospitality.

The generated themes reflected the three main points that respond to the research question: meaning, importance and representation of privacy in contemporary Saudi houses. Categories under those themes that have emerged from the interviews were similar to the ones emerging from the observation notes. Asking participants in the interviews what privacy means to them provided the researcher with a base-point concerning what they think it means and how they act upon what it means to them.

After revisiting the collected notes and resulting codes, categories, and themes generated from both observation notes and interview transcriptions, there were a total of forty-eight categories and sub-categories under eight main themes. Figure 52 displays the resulting themes.

Level of privacy in a space		
Private	Public	Semi-Private

Factors that helped in shaping privacy needs			
Culture	Hospitality	Religion	Society

Spaces and their functions in relation to privacy			
Living room	Dining room	Family living	Family Dining
Bedrooms	En-suit Bedroom	Main kitchen	Dirty kitchen
Laundry	Play room		

Owners privacy needs related to their senses			
Physical	Smell	Sound	Visual

The personal characteristics of owners that help shape house needs				
Comfort	Control	Information	Isolation	Ownership
Exposed	Free	Observed	Permission	Safety

The use of levels in the house as a privacy level indicator		
Ground floor	First floor	Mezzanine
Annex	Basement	Top floor

Privacy needs reflected through house design		
Transition	Entrance	Open plan
Wall	Window	Door

Different users who access the house			
Husband	Owners	Close family	Extended family
Children	Visitors	House help	

Figure 52 Resulting categories and sub-categories

The pilot interviews highlighted some points that to be taken into consideration when in the participants observation; social behaviour that responds to privacy boundaries and representation. Also, the observation analysis had its influence on the participants interview analysis. Having conducted the interviews after the observation notes were analysed helped in addressing the verbal and non-verbal

elements relating to the concept of privacy. Hence, Figure 52 presents a combination of the analysis outcome of both the observation notes and interview transcripts.

7.2.1 Privacy meaning

Literature has explored different angles of privacy and how it is represented in different environments, yet most of the obtained published material in relation to spatial meaning was part of old publications going back to the 1950s. later material was limited and the focus of the even recent material related to privacy and its boundaries related to cyber privacy (see Chapter 2). Through the participants observation and interviews the meaning of privacy was addressed to update the researcher's understanding of this concept and its boundaries and form. The verbal and non-verbal meaning of privacy was investigated and included the participants' actions and language used in the interviews combined with noted actions from the observation phase.

In part of Newell's paper (1995), definitions of privacy from different literature sources were reviewed, and these can be summarised as follows: isolation, control, intimacy, self-realisation, solitude, attribute of place, communication control and personal space. They reflect the noted personal characteristics found in the observed sample. The observation phase noted some of the non-verbal communication between the owners and family members who were allowed to be in the private sections of the house. The owners closed their bedroom doors; one needs to ask for permission in order to enter; yet having the door closed is a sign which indicates that the person needs private time alone.

Safety and comfort are terms used to describe privacy in literature. Interview participants used these words when they discussed privacy as a term and what it means to them. Also in the observation notes, it was noted that the private section of the house on the first floor had to be locked every night when the owners were asleep; this gave them a sense of safety and control, and therefore the comfort and peace of mind to sleep. The observation sample represented these needs, using physical locks on their doors and more conceptual locks like the electronic locks on their smartphones.

As mentioned earlier, interviews were conducted with two age sets to help trace the changes that might have accrued to the meaning of privacy; that is, change due to age difference. There were more similarities than differences between

those two sets of interviews, which showed a narrow window of change to the contemporary meaning of privacy according to the participants' input.

1. **Owners privacy needs related to their senses:** Owner's consciousness about being visually exposed; the need to have different spaces for male and female members; separating some functional spaces from other spaces. These concerns were evident in the relation between privacy needs and the senses. Physical boundaries, odour, noise and visual exposure were the generated categories that formulated this sub-theme.

For the participants in both sets of interviews that was by defining the physical boundaries of the room in which it was most private. One of the participants said

> *"Privacy is my room" (Participant 4).*

Also what they considered to be a room and what they thought was socially acceptable as a room, as owners and visitors, was expressed verbally in the interviews and during the house tour. As one of the participants said

> *"As long as the spaces have barriers and doors then they have privacy" (Participant 3).*

The rooms and areas that participants allowed the researcher to access represented the physical boundaries of the type of rooms that visitors are allowed to access. Physical boundaries were not only visual representations of privacy, but also physical barriers created acoustic barriers which afforded owners a level of comfort, when using the space, that they need not worry about being overheard by other users or visitors

> *"Acoustics are an important element of house privacy" (Participant 2).*

As illustrated in the findings, the three levels of privacy in the house were noted in the tours; these levels were represented by vertical levels of the house as a gesture for visitors:

> *"My privacy is that no one knows what I have upstairs" (Participant 1).*

In the second interview set, one participant expressed her independence from her neighbours, where her concern was more about her house interior

> *"It is not part of my concern if my voice is heard by the neighbours" (Participant 13).*

Other participants felt that noise generated by either their family or by their neighbours was a source of concern. For example, one of the participants linked

her ownership of the space in which she lived to the privacy of conversations in which she took part, as follows

> *"To have a space for me, where I can do things privately without being heard" (Participant 15).*

When participants were trying to contextualise the meaning of privacy, to illustrate its importance and boundaries, they referred to the physical boundaries creating the spaces, and this was similar to the researcher's experience with the first interview set. As Participant 8 answered,

> *"A room needs to have its own entrance",*

and Participant 6confirmed her understanding of the physical representation of privacy as follows –

> *"Without a door, there is no privacy" (Participant 6) (Figure 53).*

On the other hand, some participants found the link between privacy and defining the room physically was not as strong as mentioned earlier

> *"I do not need to have four walls and a door to characterise a space. Walls are more for bedrooms not living rooms" (Participant 12).*

Their approaches were for the most part similar, although some had almost opposing opinions. Most participants expressed the need for a room to be enclosed for it to be identifiable, to give it its characteristics, and to provide it with the required level of privacy.

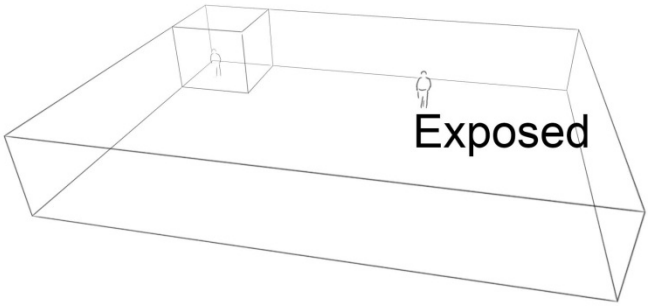


Figure 53 Closure as a physical definition of privacy

2. **The personal characteristics of owners that help shape house needs:** participants' actions in the observation phase reflected this personal need for privacy, those needs that shaped the resulting privacy boundaries. Again, in the interview answers participants expressed verbally similar personal needs. The boundaries originated from their need for comfort, control, isolation, safety, and ownership of the space, and the need to feel that personal information was under their own control. Also the need to be safe from

exposure and from observation by others, to have freedom to move about in the interior spaces, and to feel secure inside the house and with the people within it. There was an emphasis on the physical privacy that was represented in spatial preferences such as the bedroom (Ramezani and Hamidi 2010).

In the first set of interviewees, these personal needs were stated with greater emphasis. For example,

> *"I do not like to interfere with anyone and do not like anyone to interfere in my business in return" (Participant 13),*

refers to circulating boundaries and respect between people. Also they were clear with their personal boundaries, as in

> *"I do not want anyone to know things about me, not even my in-laws" (Participant 2).*

Some participants, to the degree that they isolated themselves from others to obtain comfort and privacy, modified these personalised needs to a greater extent

> *"Isolation … time to think. I think about my comfort, as in what suits my house, even though some would criticise my approach" (Participant 4).*

Sense of safety was linked to not only personal space, but also to the control of that personal space and a person's own house

> *"For me privacy is that I've got control of my house the way I want it" (Participant 1).*

If any, those statements express participants' consciousness about privacy within their own information and spatial privacy needs. For them, privacy starts with the smallest piece of information about themselves and extends to the physical formation of their house interior. From the generic expressions made by them, the physical visualisation of privacy in their houses is related to the visual and acoustic aspects of privacy. Isolation and control are two terms that highlight what privacy means to the participants; both are terms which Newell (1995) and Pedersen (1999) mentioned in their work.

Participants of the second interview set expressed the meaning of privacy by linking it to some rooms in the house. This gave a visual and more materialised understanding of what they meant in terms of the conceptual approaches in their minds. Bedrooms were the common answer participants gave

"the bedroom is the red line room for me" (Participant 8)

"Privacy is to have the bedrooms isolated, the living room isolated" (Participant 14).

Other participants, as in the first interview set, said that privacy was something that was their right, something of which they had ownership

"I love to have part of the house for me" (Participant 13)

"Privacy relates to things that belong to me and the people with me – ownership" (Participant 8) (see Figure 54).

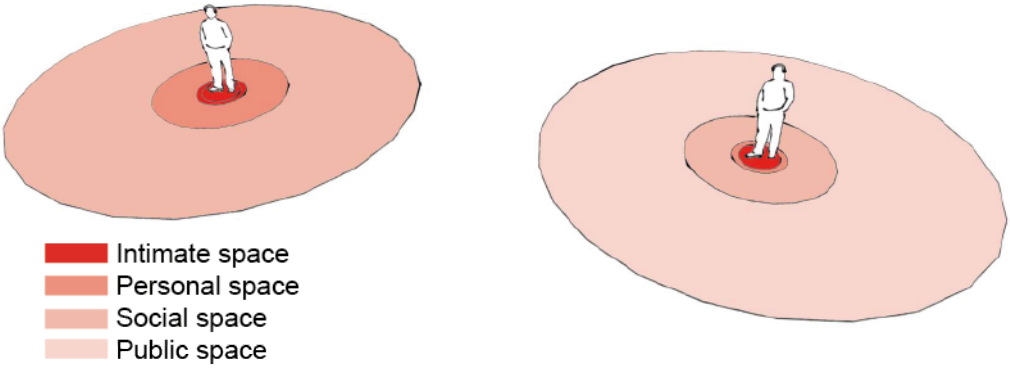


Figure 54 Information proximity scale (left) physical proximity scale (right) according to interviews

When participants were asked about privacy and what it was to them, they also included multiple adjectives, combining them in an attempt to generate what they felt while trying to verbalise the term. Amongst their answers was

"being free; to be able to act naturally without having a stranger around you; to be able to manage the house as I want" (Participant 10)

, in which freedom and comfort were the main keywords.

Rooms were not the only link that participants made with privacy; they also referred to the type of users of a space, where the concern related to strangers, especially male visitors.

"Visitors do not have to know or get close to our private lives" (Participant 6).

This knowledge was linked to personal information and physical existence, as in the next quote where control and physical movement were part of materialising the meaning of privacy

"the ability to walk in the house when there are visitors without feeling trapped" (Participant 9).

Although hospitality is part of Arabian heritage and a part which participants were keen to display, they did not want to be compromised whilst doing so

> *"visitors in the house ought not to affect people already in the house", and "privacy for me is not to be trapped in a room because someone came – a male visitor" (Participant 14).*

3. **Factors that helped shape privacy needs:** combined with owners' personal characteristics, there were other external factors that helped shape the meaning of this concept of privacy. Some of these factors present expectations, such as social requirements and cultural norms, while religion, for example, created guidelines that shaped owners' personalities and sense of privacy that were translated physically inside the house. The factors overlap one another and seem to be similar yet divergent at the same time, with culture, society, hospitality, religion, permission, and tidiness being the factors and sub-factors that shaped privacy, especially in the public spaces of the house.

For the second group, conceptual and physical descriptions were part of what privacy meant to them. Although in some cases they preferred lower levels of privacy, there were some who chose higher levels. These differences refer back to social expectations and background norms. In some cases, their requirements and understanding of privacy contradict their lifestyles and expressed actions. This was noticeable in their answers, where they stated their desire for more open spaces inside the house

> *"I do not want doors, minimum number of doors" (Participant 1), but "[I] would not go for a total open plan design because I'm part of a private society" (Participant 1).*

Social norms are somewhat influenced by religion. For example, separation between the genders is one of the points highlighted by participants

> *"there needs to be a total visual and audio separation between male and female visitors" (Participant 6).*

Expressing the view that norms and culture are related to the importance of privacy, they also mentioned the link between norms and culture and family background. The personal need for privacy is a reflection of social structure, as mentioned earlier and expressed by one participant who said

> *"I do not accept visual exposure between men and women at all because it is not comfortable" (Participant 8).*

There was an emphasis in participants' answers on the importance of gender separation, as one person clearly stated

> *"it is a very important issue to separate men from women" (Participant 17) (Figure 55),*

because it provides users with comfort while in the space they are utilising. Also, society and family background were linked to the size and ages of the family members

> *"as the family grows in size, an individual's need for privacy grows" (Participant 6 and Participant 14).*

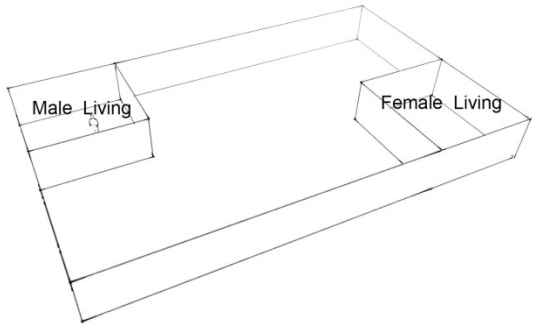


Figure 55 Physical and visual barriers between female and male users

According to participants' answers, a room needs to be enclosed for a person to feel the required level of privacy and this applied to rooms like the kitchen and family sitting area, generally in the semi-private areas of the house, but most importantly the bedrooms. The existence of physical boundaries was a result of religious and social needs for gender separation, to make each of them comfortable, both visually and acoustically. Also the concept of being in control in one's house was present in both groups, which reflected terms such as respect, ownership and isolation.

7.2.2 The importance of privacy

The importance of privacy depends on individuals, their backgrounds and priorities. This importance is driven by social norms that help in not only building one's privacy meaning, but also one's personality. The level of importance is also driven by social expectations and a partner's wants.

1. **Level of privacy in a space:** In the spatial design of the house, the relationship between spaces is a reflection of their functional relationship as well as spatial accessibility. These spatial relations are linked to the functional uses of the spaces and the type of people using them. Some non-spoken

definitions, which are socially and culturally tacit, are related to spaces and their functions. In accordance with these, users are able to access spaces to which they are permitted according to the level of privacy in which the spaces are categorised: private, semi-private, or public space.

These categories reflect the type of users allowed in the room, and therefore the level of access a user is allowed in the house. Architecturally that has been represented through different levels and/or multiple rooms with the same function, as mentioned earlier, connected through direct access to vertical circulation elements. Figure 56 displays different functional spaces and their privacy levels, obtained from observation notes. There are three different living areas, each is dedicated for particular users. Spaces with higher privacy requirement allow less types of users. For example, the very right and left sections of the first floor and the kitchen on the ground floor allow the main family members and some other selected users. While the area on the very top right on the ground floor allows all users to access but children without supervision.

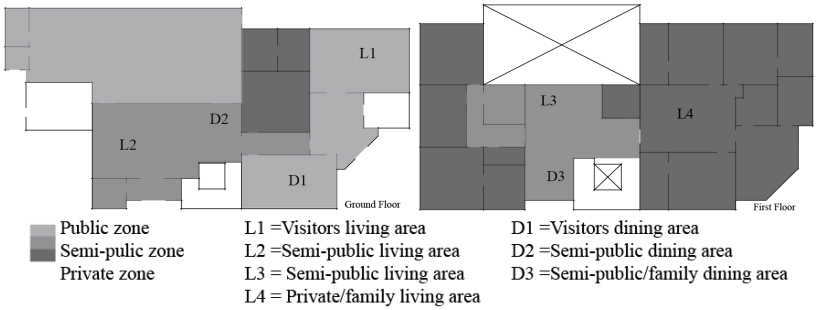


Figure 56 Different zones in the house and the rooms associated with them (Maryam et al. 2014)

The existence of these different privacy levels in a house affects the participants choice when selecting their house and are part of their decisions' rational: for example:

> *"Privacy was an important element when I was searching for a place to live - especially the gate's privacy; it has to have a personal entrance gate. Also I would want the bedroom section to be isolated, having its own privacy" (Participant 15).*

2. **Different users who access the house:** This refers to the people who use the space, such as the owners, their children, close family, extended family and people who visit them. This theme is related to the users who access different spaces, and permission is granted in accordance with the house owners' privacy boundaries. The theme illustrates a relationship between the size of the family, house owners' position in the family and the depth of the

meaning of, and need for, privacy. The theme includes the following users: house owners, female and male visitors, children, extended family, close family, house help, daughters and husband.

Newell mentions in her work that privacy requirements differ between the genders, with male members tending to pursue it to a greater extent

> *"Sex differences in territorial behaviours have been noted which suggest that men respond more aggressively to reductions in personal space" (Newell 1992, p. 25).*

With regard to Newell's work, when asked to evaluate the importance of privacy, participants supported her finding with statements such as

> *"for me privacy is 6 while it is 10 for my husband" (Participant 6).*

Daneshour pointed out that

> *"if privacy needs to be defined, it should be identified and analysed by its influential parties and involvers"* (Daneshpour et al. 2012, p. 1).

Therefore, knowing which users influence privacy meaning and its importance would be a step towards the creation of privacy boundaries. Figure 57 illustrates the three privacy levels in the observed house; these levels are linked to the type of users who access each level. There are external influences on participants; some are generated from affecting factors such as society and its needs and some are a result of other users who influence participants. These factors influence users use of pattern and privacy levels around the house. One respondent said,

> *"I would not say that society affected my privacy understanding, rather my family helped in forming it because of their experiences" (Participant 17),*
>
> *"for me where I grew up somehow affected my choice" (Participant 12).*

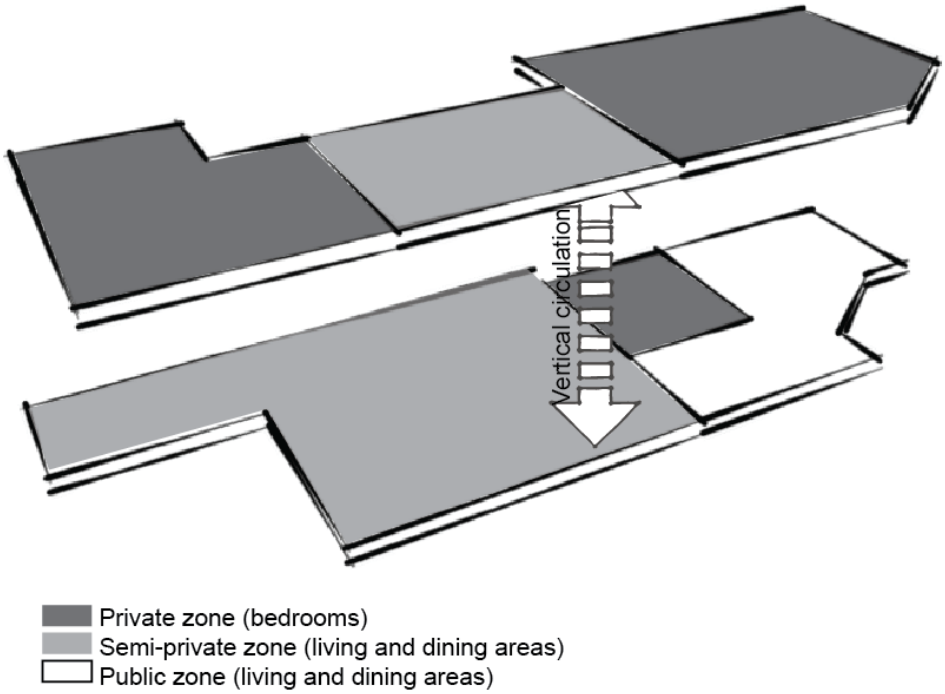


Figure 57 Different house zones and their related functions

3. **Factors that helped in shaping privacy needs:** As explained earlier explained earlier in privacy meaning, this theme also reflects the importance that privacy has inside the house. Social input to the lives of individuals affects their life patterns within their houses. Also there is the social ritual of hospitality where owners are to be modest while hosting their guests (Othman et al. 2013).

Some of the participants relate privacy to social activities, others to particular room(s) in the house. For the first interview set, hospitality was related to hospitality activities such as visitors' movement in their house and the preparation of spaces they access. For the second interview set it was more concerned with the rooms and the level of privacy into which they were categorised. Two rooms stood out in the analysis process, the bedroom and the kitchen, but there are also the living areas of the house, which varied in their location within the privacy level scale according to the users who were allowed to enter them. The creation of multiple areas that accommodate the same function, yet were assigned to different users, was the participants' physical interpretation of the requirement to provide hospitality. It reflected the privacy requirement, with both hospitality and privacy being linked to social norms.

Society is considered to be a major factor affecting privacy parameters, as stated by participant 15

"society has affected the meaning of privacy and its parameters".

Its effect is not only on privacy parameters but also on pattern of use inside the house and the times when visitors are welcomed

"that is reflected when hosting both female and male visitors at the same time" (Participant 6),

Some participants, however, commented that the importance of privacy

"is driven upon us because of society and culture" (Participant 6).

Even though the lifestyle in Saudi Arabia is not as it used to be, 'being prepared' is part of one's expression of hospitality; a strong concept that defines one's social status. Also, one's background affects one's perception of privacy. Interpretations of privacy boundaries vary from family to family. In-laws are special types of visitor, because the privacy boundaries between them and the house owners may differ and the two groups can have different understandings. One of the participants highlighted this difference and noted that when her in-laws were present it affected her hospitality. According to her

"My in-laws are more conservative" (Participant 15).

Visitors' needs are important to hosts; they take them into consideration while preparing for an event. One of the early steps in preparing for this is careful house design selection, especially with regard to the public zones of the house.

"People who visit me are conservative and love their privacy. So do I. It is not only the visual, also visitors are not to be heard. The living room needs to be an independent place where visitors can feel safe and comfortable" (Participant 3).

7.2.3 Privacy Representation

Patterns of interior spatial use in the observation phase displayed users' physical interpretation of privacy needs in the house. That interpretation was mostly linked to the functions of the rooms and the times when they were utilised. Similar representations were evident in the interview answers, where participants referred to physical aspects of the house as well as to the conceptual bases for which they needed these physical creations. These points provide representations of privacy within the house, which can be understood and utilised efficiently in new designs, as per the user's requirements. Some concerns were linked to rooms, architectural elements, the types of users in a room, and the functions and activities supported by the room.

1. **Privacy needs reflected through house design elements:** the creation of interior spaces with the use of architectural elements such as doors, walls, windows and corridors provides spaces with character and boundaries that respond to privacy needs. With these elements users are able to read the non-spoken signs of permission-granting or refusal, reinforcing the concept of privacy levels in the house according to type of users and the function of the space.

Open spaces were introduced in design and became popular worldwide. The concept was also introduced in Saudi Arabia and was welcomed by commercial, business and residential users. It was accepted for multiple reasons, including globalisation, accepted by foreigners living in Saudi Arabia for work reasons, and the media. They are now identified with newly constructed houses, both private and commercially built.

Al Naim (2006a) published an analysis of the development of the organisation of Saudi domestic houses for the twentieth century. In general the house was divided into three sections according to the privacy level required. Comparing his outcome with the houses included in this study, the results are similar. This is indicative of the continuity of the meaning of privacy inside Saudi house and its importance for users. One of the outstanding similarities between the house designs of most participants and existing development house designs was that there were two entrances that gave access to the interior spaces of the house

> *"the most important are the main entrance and the living rooms" (Participant 3).*

The importance of such elements was mentioned in literature (Jani 2011) and emphasised in the interviews that

> *"having one entrance is an exhausting thing when you want to invite male and female visitors" (Participant 6).*

From the interviews, some design elements were identified by participants as features, which accommodated their needs within the house. Some participants agreed with the open space plans; they wanted them in some cases, but expressed concerns regarding hospitality and potential exposure because of the open plan layout. Yet, some of the architectural elements were considered solutions by some participants, while the other part considered them to be problematic; like the corridors.

Centralised social space that navigates to multiple spaces, both private and semi-private, resembles the concept of a courtyard where the plan provides a central space from which other spaces are accessed. In this example the other bedrooms and one family living space were accessed through this space. The direct access to these spaces visually and physically assists the owners in their role as owners in their comfort zone, as well as in their role as hosts to family members who come and use the bedrooms designed for their visits (Figure 58).

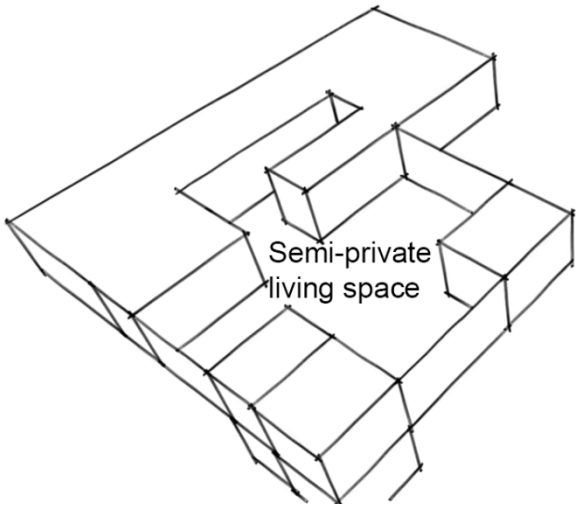


Figure 58 Spaces surrounding the semi-private living space giving owners visual access and control over navigated spaces

"A room needs to have its own entrance" (Participant 8),

because doors are utilised as a non-verbal communication tool between owners and other users, whether they are family, visitors, or friends. A physical element like a door gives users a sense of safety and of constructed boundaries

"If there is no door to close the room, then you are exposed" (Participant 6).

When a door is closed then access is denied unless permission is sought to enter, even if the room is empty. This reflects the connection between the personal characteristics of owners, the boundaries to access placed by the owners, and the room's level of privacy. Users have the door as a tool for expressing their privacy needs, making of it a link between the meaning and importance of privacy.

On the other hand, some participants said that they would like to use other methods to identify functional spaces. You

"don't need to have four walls and a door to determine a space" (Participant 12);

users can be open to different spatial solutions. The use of conventional physical room boundaries creates

"too many rooms and not enough open spaces" (Participant 10);

spaces that are limiting in contemporary houses.

2. **Spaces and their functions in relation to privacy:** Room types in a house, who accesses these rooms, and their location and spatial relationship. These points reflect owners' spatial needs and representations, and in some cases, their adaptation to a situation in accordance with their personal privacy boundaries. This theme is affected by the meaning of privacy and reflects the importance of privacy in spaces that are specific in function. The rooms vary in function from one house to another. The following rooms displayed privacy boundaries for the observed sample: visitors' living room, swimming pool, bedrooms, family living rooms, dining rooms and kitchens (Belk and Sobh 2009, Sobh and Belk 2011).

Throughout the interviews, some rooms were mentioned more than others, generally agreeing to the basic status of these rooms with some personal differences. Bedrooms, especially the master bedroom, are considered to be the most private rooms in the house, as they accommodate the owners in their most private state, where they feel most comfortable and free from outside communications and obligations.

Also frequently mentioned was the kitchen, and various views on its status in the house were expressed; most considered it important that it was accessed only by the owners, although there were occasional exceptions to this.

Living areas (their number is relative to the size of the house) accommodate different types of visitors depending on the occasion/reason for which they are invited to the house. From the data collected there are three activities for which living areas can be used; accommodating visitors such as extended family and general friends, which requires the use of a more formal sitting area; showing respect and social status while extending hospitality; or welcoming and entertaining guests. More casual living areas can be used to accommodate close family members or close friends, if there is no designated space for such activities. Lastly, there was the living area used by members of the household, which in most of the interviews appeared to be the room used by close family.

The need to have designated spaces for visitors to access is evident in the case of the living and dining areas, reflecting the mentioned hospitality requirement and the effect of social norms on users' lifestyles. These areas are influenced by the social activities that are held within them, they are a way for owners to provide hospitality to visitors. The link between tidiness and hospitality was emphasised by forbidding access to these areas, even for close family members, except on social or religious occasions.

The use of vertical levels in a house has an effect on spatial organisation and can reflect socio-economic status as well as helping with interpretation of spatial privacy.

In the observation phase it was noticed that there were usually four living areas, two on the ground floor and two on the first floor. Each of these areas served targeted users, according to their relationship to the owners and also depending on the occasion. Generally, participants who lived in multi-storey houses agreed that most

"visitors can access only the ground floor" (Participant 11).

The type of room and its assigned users are linked to the privacy zone, mentioned earlier (see Figure 11), in which the ground floor has the most public spaces and the participants' privacy exists in the fact

"that no one knows what [they] have upstairs" (Participant 1).

7.2.4 Relationship between themes

From the data collected and their analysis, some links between the resulting themes were noticed; some codes appeared under multiple themes. The intersection of those codes reflected the effect that the themes had on one another. Figure 59 displays the relationship between the three main themes, how they are linked in formulating one another. Figure 59 also illustrates the effect of privacy importance and meaning on the resulting interior of houses; traditional and contemporary, and representing the sample's needs.

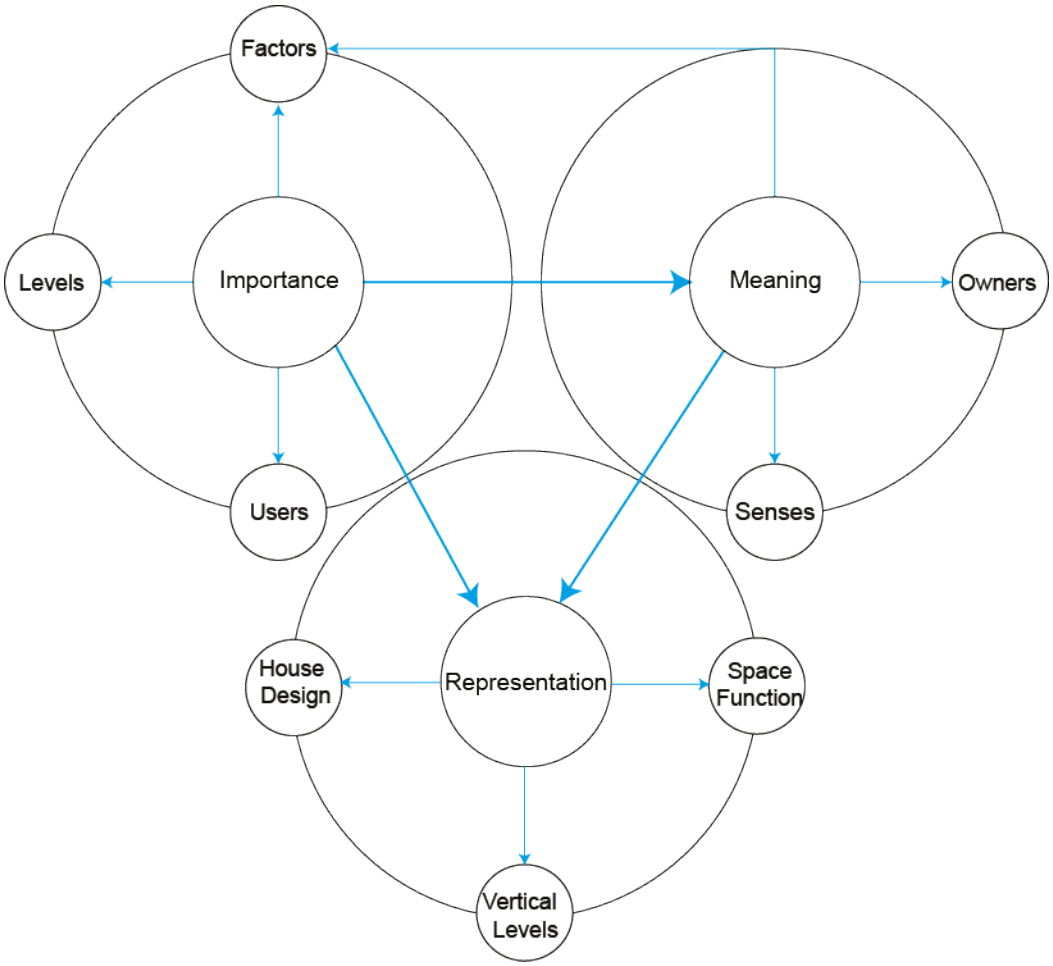


Figure 59 Relationship between the themes and categories

Figure 59 illustrates the connection between the three main themes: the importance of privacy helps shape the meaning of privacy and both the importance and meaning of privacy are represented in the spatial organisation and functional relationship of the house. Also, Figure 59 illustrates the relationship between the main themes and sub-themes. The importance of privacy is linked to privacy levels, house users, and the affecting factors that shape the importance of privacy. The factors that shape the meaning of privacy also affect the meaning of privacy, as one of the factors is socio-cultural. House owners and their means of sensing privacy affect the meaning of privacy that is formed. Finally, representation of privacy is achieved through spatial organisation, house design elements such as doors and the use of vertical levels to distribute functional spaces in the house.

7.2.5 Relationship between categories

When analysing the observation notes and interview transcripts, some codes intersected within the formulated categories under the main three themes. The

relationship between the categories mapped the lifestyle of users and how privacy functioned inside the house. For example it was observed that *"female family members go directly to the first floor"*, which was a source for multiple categories: visual, physical, family, owners, religion, cultural norms, social norms, every day and family weekly gathering. Although hospitality is a single act, it represents layers of personal and social requirements. This act raises and is linked to the concern of privacy that was apparent when collecting the data and in the literature.

Another example is the social connection created between hospitality and the way a place looks, also linking that to social reputation. "*All rooms need to be tidy all the time"*, which generated these categories: culture, hospitality, tidy. The perception that a place needs to be tidy at all times in general, and especially areas accessed by people other than the owners themselves, and linking that tidiness to the welcoming level with which the house owners provide visitors, visitors such as close family members or even friends, emphasises the social impact on users' lifestyles. Linked to that observation is the following: *"formal living spaces which visitors sit in when they visit are not to be accessed by children at any time."* This fact can even result in formal areas being abandoned for almost the whole year, except on big occasions. In the case of this observation sample, as in most houses, the ground floor is designed to host visitors, therefore most of its spaces are publicly accessed.

Similarly, in the interviews some codes were categorised under multiple categories reflecting the connection between the themes, as mentioned earlier, as well as between the categories.

> *"So that I can entertain my friends while my husband can go in and out freely, two entrances gives the house two independent sections" (Participant 9).*

The participant here expresses different needs that fall under multiple categories: personal comfort, house entrance, hospitality need, visitors and husband, physical boundaries, private and public zones of the house.

> *"The dirty kitchen, the one we cook and make a mess in is away from other users who are in the house and not in the family living area or so located with the storage" (Participant 1).*

Similarly, this participant acknowledges the functional space and surrounding spaces together with the effect each has on the other, spatially and socially, in relation to social and personal needs of privacy and hospitality. Categories

involve: dirty and main kitchen, the family living area, and references to the personal needs of physical and aroma control, and the level of privacy within which the spaces are located and type of users permitted to access them.

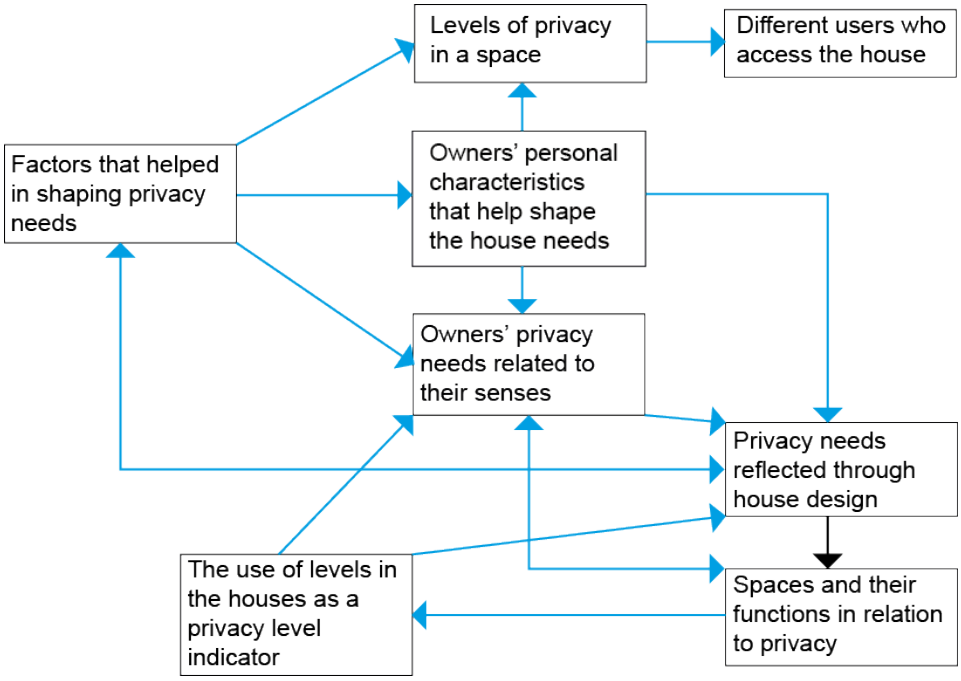


Figure 60 Relationship between categories

Figure 60 illustrates the relation between the generated categories, which was discussed in the sections above. Levels of privacy effect users, the rooms they are allowed to access. Where the owner's personal preferences and other social influencing factors determine the shape of these levels, which rooms to be allocated in which level of privacy. Also external influencing factors and owner's personal preferences in regards to the concept of privacy is reflected in the selected senses: visual, physical, smell and auditory. Therefore the house design decisions are affected by owner's personal preferences, external influencing factors and the sense to be controlled: like vision or hearing. These design decisions are reflected in the number and type of functional spaces created in the house on one hand, and the vertical location of these spaces in the house.

7.3. Summary

The Skype interview sample represented the market audience for new development houses that were built in line with new trends in the Eastern region of Saudi Arabia. While the observation and face-to-face sample represented a sample of current and past consideration and representation of privacy inside the Saudi house.

The process of analysing the collected data went through thematic analysis. In which data was read, understood and key points were highlighted. These points were then grouped into categories that were (categories) then grouped into even broader groups (themes) that responded to the research questions. The analysis results fell into three main themes: privacy meaning, privacy importance and privacy representation (see Figure 59). These three themes reflect data found in the primary data collected, literature review and the research questions. Though two of these three themes were conceptual, yet they formed the physical representation of privacy inside the contemporary Saudi house. Some of these representations were evident in the houses of volunteering participants, while some concerns were raised by the participants seeking appropriate physical reorientation responding to this privacy concern. For example, participants highlighted the need to address auditory privacy concern by spatial design suggestions as well as utilising new building materials.

The eight head categories that have resulted from the data collected related to one another and some were affected by others while some influenced other categories (see Figure 60). These categories were: owners privacy needs related to their senses, the personal characteristics of owners that help shape house needs, factors that helped shape privacy needs, level of privacy in a space, different users who access the house, privacy needs reflected through house design elements and spaces and their functions in relation to privacy.

From these themes, categories and subcategories the functional relationship design tool emerged to respond to the research question and aim: providing contemporary Saudi houses, particularly the Eastern region, which would be socially appropriate and user-friendly.

Chapter 8. Design tool

8.1. Introduction

This chapter discusses the development of the design tool which is the outcome of the ethnographic data collected; namely, the observation notes and participant interviews. Scholars such as Al-Thahab (2014) recommended a design framework or code and regulation that would acknowledge and provide privacy inside the house. The developed design tool is based on an understanding of the cultural and social needs that participants have expressed in relation to the concept of privacy. The design tool is intended to help interior designer and interior architects to produce designs that respect users' needs for privacy, amongst other social and personal requirements.

According to Hillier:

> *"Theories can be used, and often are used, tacitly or explicitly, in two quite distinct modes in the design process: as aids to the creative process of arriving at a design; and as aids to the analytic process of predicting how a particular design will work and be experienced" (Hillier 1996, p. 61).*

Therefore, the design tool is presented as a design process approach that links to functional relationships between spatial functions inside a Saudi contemporary house will introduce those functional relationships to people who lack the necessary cultural and social knowledge. Also the final form of the design tool places only limited constraints on designers' creativity. The tool is intended to be implemented in the first stages of the house design process, development houses in particular. Therefore it targets, as mentioned earlier, interior designers and interior architects interested in housing design; being professionals in the field with little knowledge of such project or students learning about this type of projects.

8.2. Space syntax

Space syntax, among other tools, assists designers with their design development (Dursun 2007), and for this thesis, with the process of designing contemporary houses in Saudi Arabia. Space syntax was discussed in Chapter 2, where the mention of two of its tools: axial and justification graphs. These two tools are to be used in the research. Space syntax is an analytic tool that

connects between the functional and social use of a space (Hillier 1996). The use of justification and axial graphs aim to illustrate the social and spatial pattern in the houses of interview participants.

For this section, participants 6 to 12, Skype interview participants, house plans were analysed via space syntax tools, justification graphs and axial analysis. The house plans face-to-face interview participants were not provided, and when asked permission to get description to draft and use in the research analysis the participants refused to include the drawings, therefore it was not possible to analyse them.

8.2.1 Justification graphs

Justification graphs is a space syntax tool that

> *"offer[s] a visual picture of the overall depth of a lay-out seen from one of its points" (Klarqvist 1993, p. 11).*

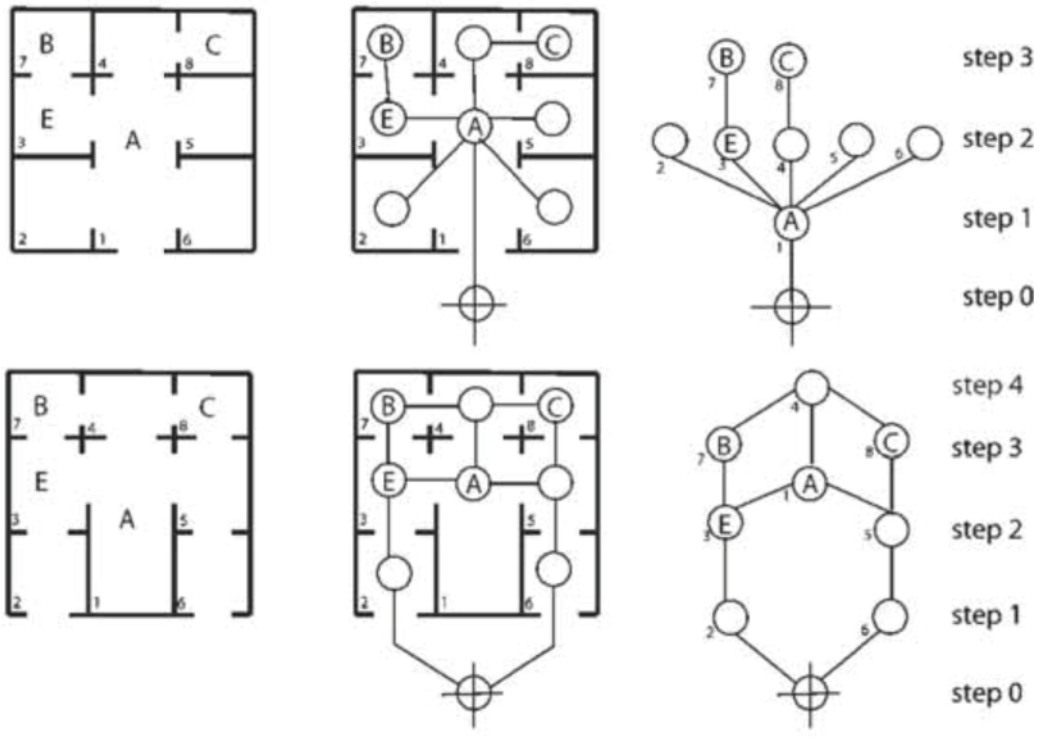


Figure 61 Generating justification graphs (Jacoby 2006, p. 30)

In Figure 61, justification graphs are to be applied on the plans on the left; the result is shown on the right. The middle drawing (combination of the graph and the plan) illustrates the spatial relation on the plan, which later was illustrated as a tree-like shape graph. This helps relate the depth of particular space from a

selected point; in the case of the produced graph in Figure 61 it is the main entrance.

This tool was used to record and illustrate the social behaviour of users inside their houses. Amongst the points that these justification graphs clarified were the spatial order, which was common between the participants' house plans, and the functional relationships between various spaces, which was a reflection of the complexity and size of the house.

Firstly, the house plans of interview participants were analysed using justification graphs, with the main entrance/ entrances as the base point, where other spaces branched out creating tree-like graphs. Then, after the drawings were all illustrated, they were compared. The comparison revolved around the depth of the spaces within the house and the number of spaces accessed in order to reach a specific room from the base point: main entrance(s). All house plans collected from interview participants had facilitating halls in common, which were located mostly by the main entrance(s) and before some other functional spaces in some houses. The house plans collected from interview participants varied in depth, between three and eight when considering the main entrance(s) to be the origin point (see Figure 62 and Figure 63 and Figure 64 and Figure 65).

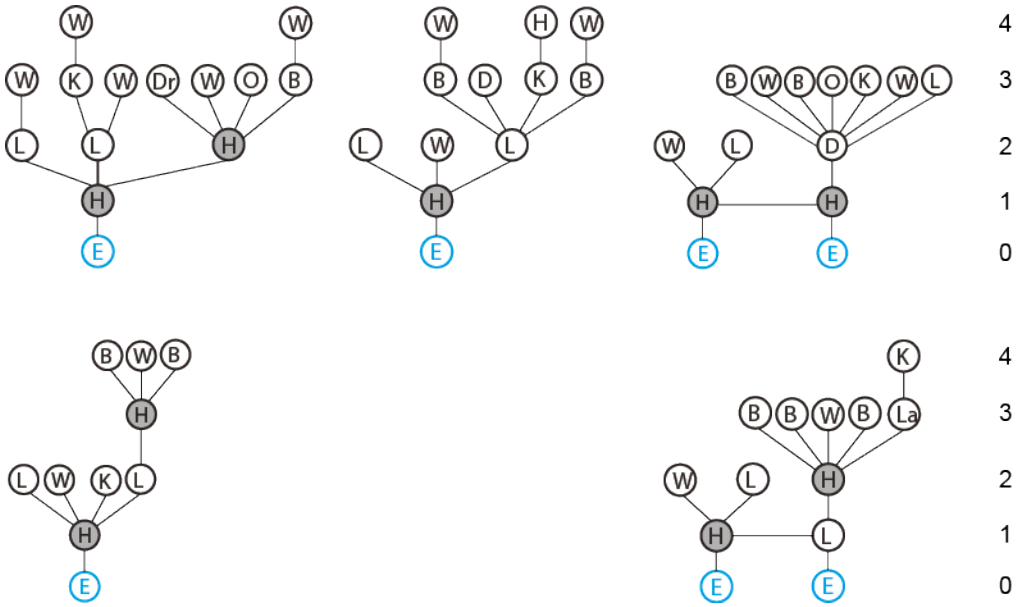


Figure 62 Justification maps of houses with 3-4 depth

The graphs in Figure 62 display levels 3 and 4 in spatial depth, starting with the main entrance(s) and ending with the bedrooms and toilets. This can be traced in the privacy levels as well, where entrance(s) are in the public zone of the house and the bedrooms and toilets are in the private zone. Also the halls are

highlighted in the graphs as they were pointed out in the participants' answers. The participants requested these introductory spaces and noted their importance as functional transition spaces. They considered them (the halls) as spatial, functional and personal introductory spaces that prepare both the owners and visitors before accessing (or not accessing) the intended space.

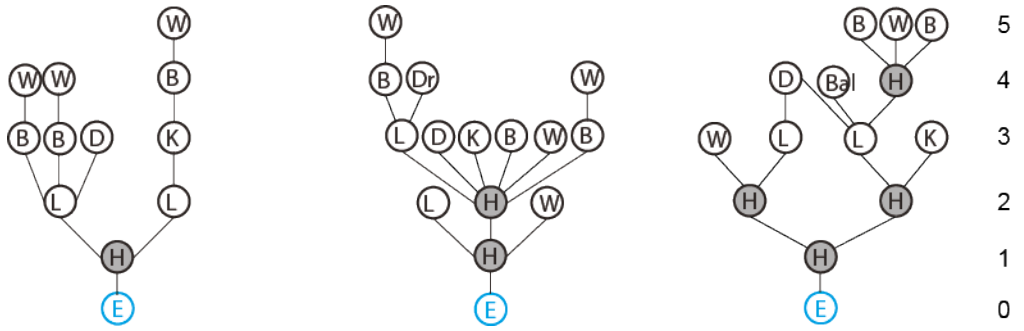


Figure 63 Justification maps with 5 depth

The graphs in Figure 63 display level 5 in spatial depth, starting with the main entrance(s) and ending with the toilets. Again the use of halls as transition spaces from one privacy zone to another are apparent, and also as an origin for accessing other functional spaces of the house.

Figure 64 Justification maps with 6 depth

Figure 64 displays graphs with level 6 in spatial depth, starting with the main entrance(s) and ending with the toilets. As with the previous justification graphs, halls appear to be used more than once in each example, displaying the role they have as an origin. Again the graphs in Figure 65 display levels 7 and 8 in spatial depth, starting with the main entrance(s) and ending with the toilets. This depth in levels reflect the complexity of the house, the need to access multiple rooms in order to reach a specific space, in these graphs it is the en-suite toilet. The deeper the space was located in the house, the more private (physically and

visually) it was. This complexity reflects the owners' selectiveness regarding users accessing those spaces.

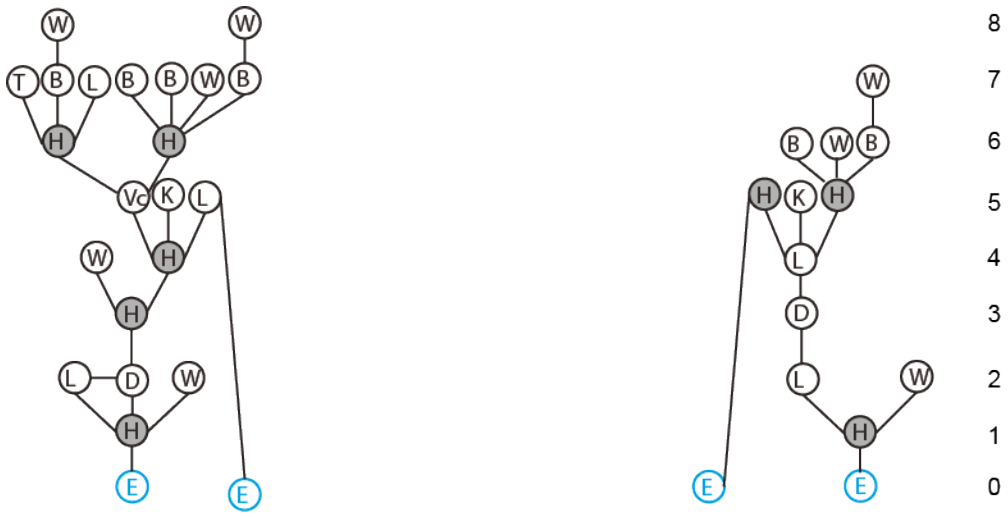


Figure 65 Justification maps with 7-8 depth

These justification graphs informed the research with the functional relation to privacy level. As mentioned earlier in literature (see Chapter 2), houses in the Arabian Gulf got three privacy levels in them: public, semi-private and private. There three levels were touched upon from the interview transcripts and the displayed graphs.

The presented justification graphs of house plans of interview participants (Figure 62, Figure 63, Figure 64 and Figure 65) displayed similarities in the depth level of similar rooms within the graphs (the depth represent the distance between a room and the main entrance). The depth also informed the number of rooms to be accessed in the process of reaching the intended room. Figure 66 presents the spatial access order in accordance with the spatial access order concluded from the justification graphs. As the design tool is designed to be part of the design process of development houses, this stage (highlighting spatial-functional order) was important for the development process of the design tool.

These justification graphs responded to the users pattern of use noted in the participants observation phase. The observed house was larger and hosted wider verity of users within it, but the interview participants lived in smaller houses, in area. Therefore, tracing patterns of use in from observation notes and the results of the justification graphs displayed earlier led to a generalized spatial access (Figure 66).

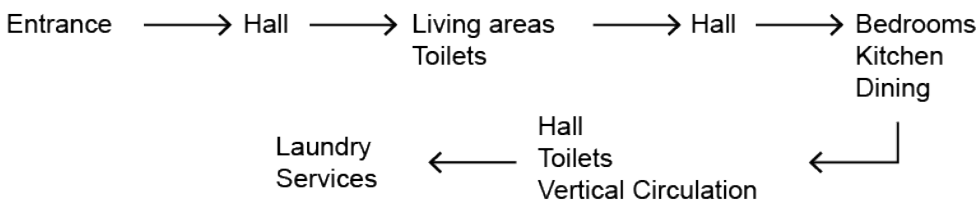


Figure 66 Spaces access order concluded from the justification graphs

8.2.2 Axial analysis of the plans

Like justification graphs, axial analysis is a space syntax tool that represents the spaces one can access from a particular point.

> *"[it is an] axial line is a straight line possible to follow on foot" (Klarqvist 1993, p. 11)*

Figure 67 Trafalgar Square (Space Syntax) (Dursun 2007, pp. 056–05)

Figure 67 displays an axial analysis for the Trafalgar Square to evaluate and understand the patterns of access by different pedestrians. The graph displays the access patterns before and after the study (Dursun 2007).

Axial analysis was used to trace movement patterns in the house according to the plans and the information given by the interview participants. The patterns were the owners' movements within the house. The following illustrations show the movements from and to spaces and the blue marks indicate those points of origins to multiple spaces. In most of the house plans provided these points were the facilitating halls, which interview participants have highlighted its importance.

8.2.2.1. Participant 6

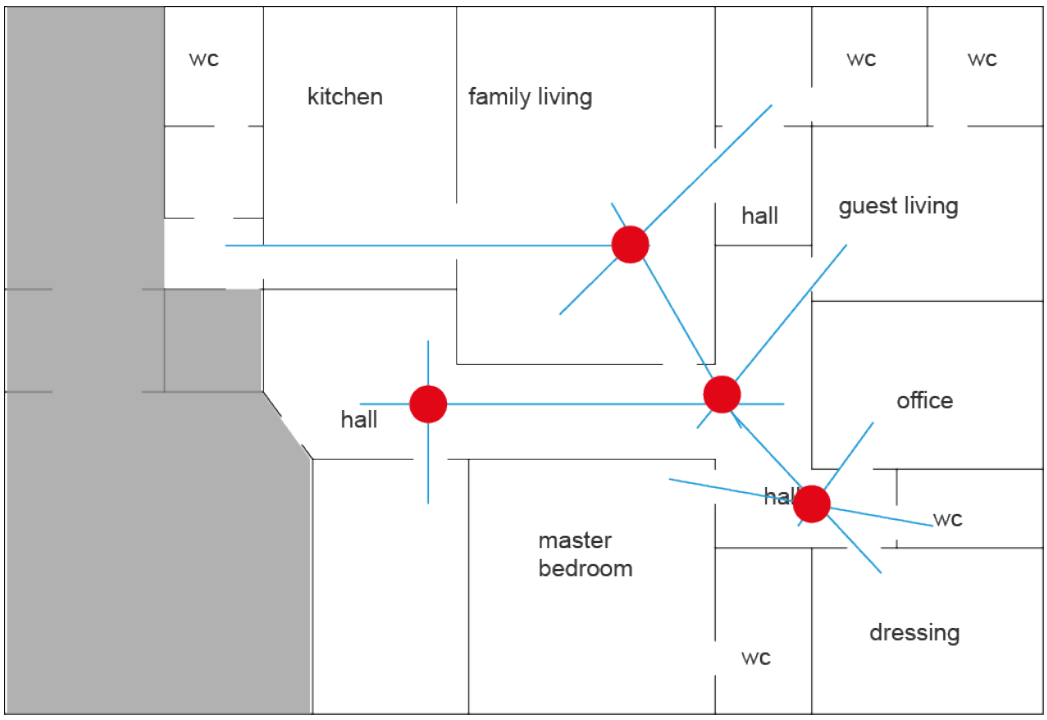


Figure 68 axial analysis of participant 6 floor plan

The participant complained about having only one entrance to the flat, explaining that this affected her most when hosting male family members who are related to her husband's:

> *"for male visitors to get to the mini living room they have to go inside the house which means I have to hide somewhere or in the kitchen till they enter the room." This links the perceptions of hospitality and preparation with spatial requirements where, "to welcome visitors in a comfortable manner physically and psychologically for you and them, there needs to be a zone for them to feel comfortable and not embarrassed in any way". Also "when I welcome visitors I don't want them to feel embarrassment but they have to enter into the mini living room. That happens after them waiting for my husband to make sure no one is on the route which gives the feeling of intrusion to the visitor."*

The reason behind the embarrassment, according to the participant, is the feeling the visitor may have that they are intruding because of the need for the householder to pause and make adjustments before the visitor is invited inside the house; as the participant states

> *"having one entrance is an exhausting thing when you want to invite male and female visitors."*

Having one entrance to the flat was an obstacle, which affected the level of hospitality preformed on her side. Also the participant made a link between the dedicated guest living area and the unspoken gesture of welcome and inviting

> *"if you don't have a living room then you are not welcoming guests to your home."*

In relation to functional spaces and levels of privacy, the participants highlighted two main spaces. First,

> *"I've got the master bedroom and the study room as red line[restricted rooms in the house]. Anything that would show who I am I don't want others to see."*

Then the participant said, the location of

> *"the current kitchen is part of family living so it has to be tidy because it is part of receiving visitors".*

She mentioned how that can be inconvenient due to the lack of a physical barrier.

8.2.2.2. Participant 7

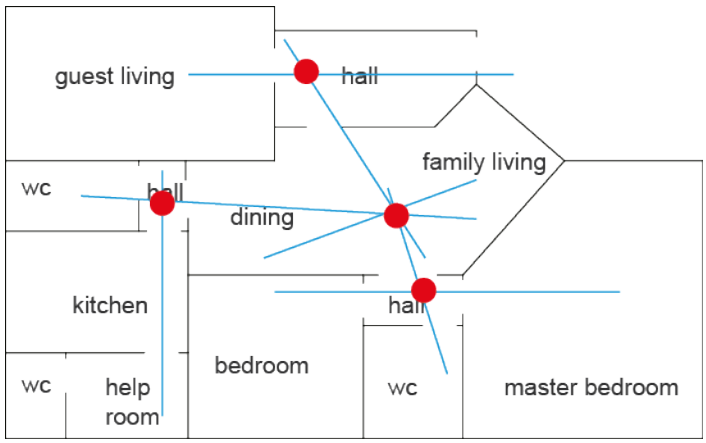


Figure 69 axial analysis of participant 7 floor plan

This participant also lives in a one floor flat where there is only one main entrance that connects the exterior and interior of the house.

> *"One entrance is enough because it is not that often that I get men and women at the same time and when that happens women are in the family living area and men are in the living room and I think that is fine with having those rooms not close to the kitchen because of the smell."*

For this participant, having one entrance does not seem to cause inconvenience, rather users of the house and visitors have learned to adapt to the situation.

The participant highlighted the importance of privacy in the master bedroom

"my bedroom is not to be accessed by anyone but myself and my husband",

ensuring that other users do not go into that room.

8.2.2.3. Participant 8

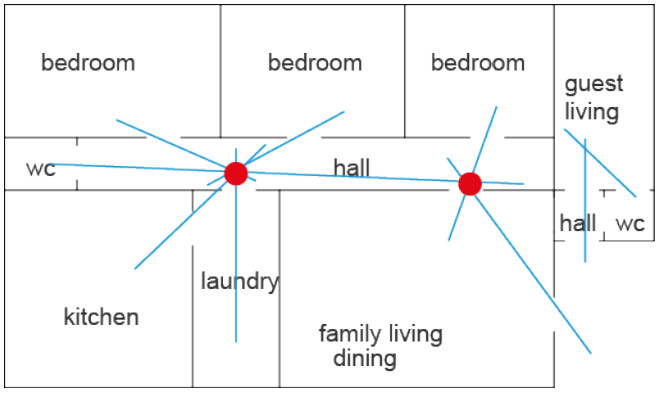


Figure 70 axial analysis of participant 8 floor plan

Having physical and visual separation between men and women was an important thing for this participant, and she tried to resolve this in her current flat by adding more walls

"I don't accept visual exposure between men and women at all because it is not comfortable."

Also there was some emphasis on the enclosure of spaces to achieve maximum privacy and spatial identification

"a room needs to have its own entrance."

8.2.2.4. Participant 9

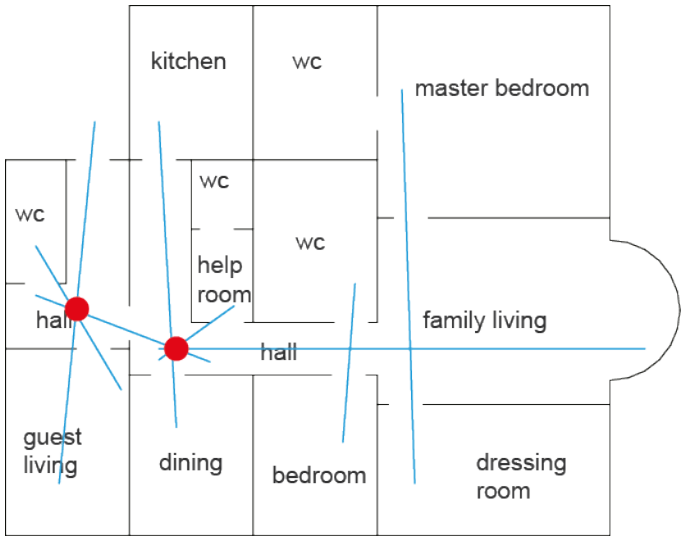


Figure 71 axial analysis of participant 9 floor plan

The participant does not feel settled due to the nature of her husband's work which results in them travelling. Being in control of the space and the movement throughout different parts of the house was important to her. The illustration shows, however, some of the obstacles that prevent free access to these spaces without being controlled by others, for example the one entrance to the house

"I wish the house had two entrances."

8.2.2.5. Participant 10

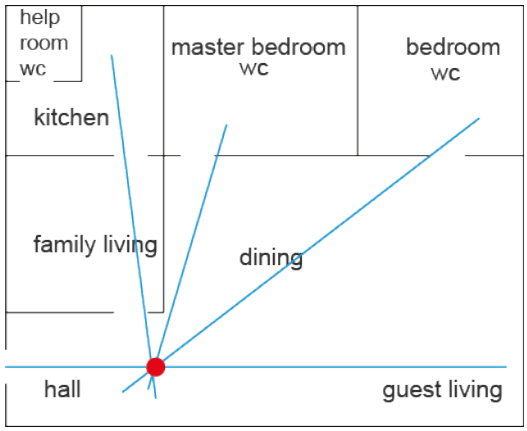


Figure 72 axial analysis of participant 10 floor plan

This participant had fewer concerns with visual privacy but emphasised the need for family members within the house to have their own privacy. A need for multiple entrances was, however, expressed

"I would like to have two entrances."

Currently in the house, there are

"too many rooms and not enough open spaces".

There is some conflict between what the participant wanted − open spaces with spatial connections throughout the house − and the desire for multiple entrances and different levels of privacy for different types of users

"I didn't want the house help visible around us, moving around us, she's got her own privacy as we too have our own."

8.2.2.6. Participant 11

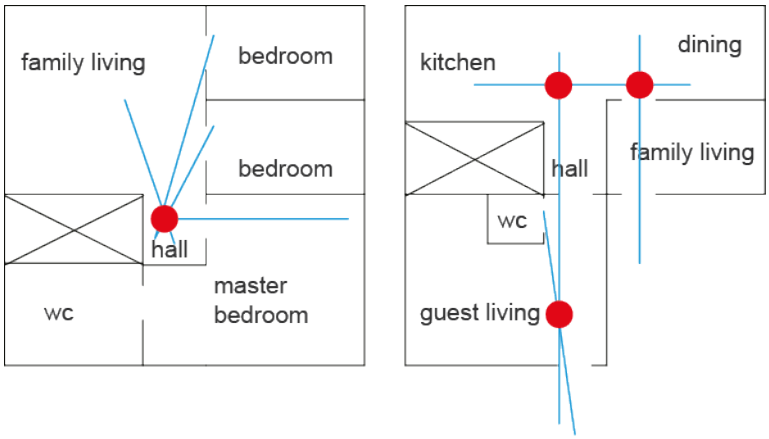


Figure 73 axial analysis of participant 11 floor plan

Privacy was not a concern to the participant, as she thought she could manage this either by adapting or adding elements to the house to achieve the required level of privacy. She interpreted the need for

> *"two separate places, one for me and one for women"*

physically to provide visual privacy. According to her,

> *"having everything isolated, the living room alone and family living room alone"*

is one method of achieving enhanced privacy. Also, in relation to privacy levels and access in the house:

> *"visitors can access only the ground floor."*

8.2.2.7. Participant 12

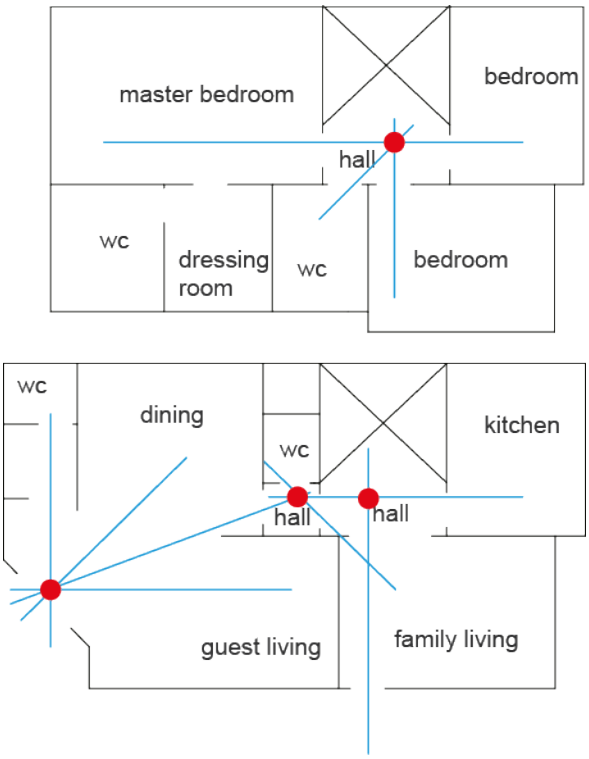


Figure 74 axial analysis of participant 12 floor plan

This participant lives in a contemporary duplex house that has multiple living areas. The selection and adaptation of the house were the result of certain criteria that the participant had. The house provided levels of privacy throughout and

> *"when female visitors come we sit in the living room which you enter into through the main entrance, then a hall into it, or if there is no one in the house and they are close family or friends we can sit in the family living area on the ground floor";*

this supports her concern with privacy which, she commented,

> *"is very important to me, scale 10".*

The participant did, however, state that there was no

> *"need to have four walls and a door to determine a space".*

With regard to spaces

> *"bedrooms in general and [the] master bedroom in particular are not accessible by strangers other than me and my family",*

which reflects the private zone parameter. Also there were some concerns about the additional kitchen, the so-called 'dirty kitchen',

"because the cooking smells, even if you've got the door closed, the smell finds its way out".

8.2.2.1. Participant 13

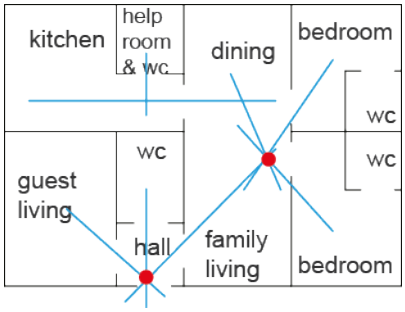


Figure 75 axial analysis of participant 13 floor plan

The importance of one's privacy, and the location of different layers of privacy, was mentioned by the participant. This was manifested spatially because the participant had

"isolated the guests section, therefore the rest of the house is not affected and can be open plan design because the rest of the house is for me and my family".

Emphasising the important role of the public zone

"visitors, whether men or women, they are restricted to a certain area and are not to cross".

In this way the participant and other family members have free access of other parts of the house.

The participant specifically needs *"a secondary kitchen which is small and easy to clean, while the main kitchen has the main cooking"*. The kitchen and dirty kitchen are both located in the private zone to fulfil personal and social requirements.

8.2.2.2. Participant 14

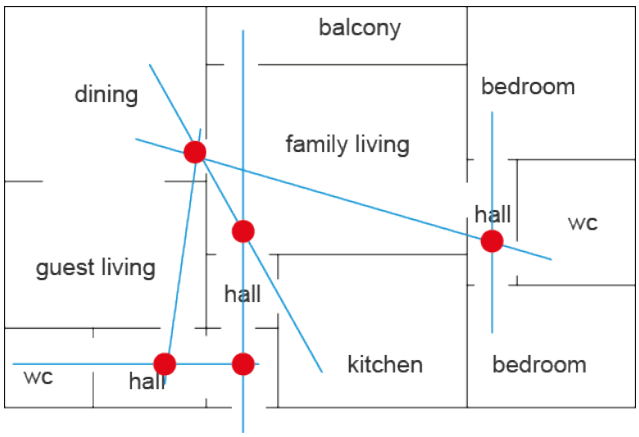


Figure 76 axial analysis of participant 14 floor plan

This is a flat with one entrance and shared dining room, a house that the participant has adapted to, both personally and socially;

> *"we rarely invite both male and female visitors at the same time, so I would love to have an open space living room, yet one which visually considers the existence of males and females in the same area, not exposing one to the other visually".*

The open space idea is to extend a more welcoming feel to visitors when entering and using the space. Also she would like a *"reusable house"*, which has multi-purpose spaces, serving multiple functions.

As with other participants, there were two functional spaces which were considered to be in the private zone of the house. This need for the creation of a private level was achieved by making *"the bedroom section, isolated with its own privacy"*. The second space was the kitchen

> *"if I'd got only one kitchen then I would not allow anyone to enter it."*

The availability of a dirty kitchen can provide more flexibility and access to the main kitchen, which for the most part would be lightly used.

8.2.2.3. Participant 15

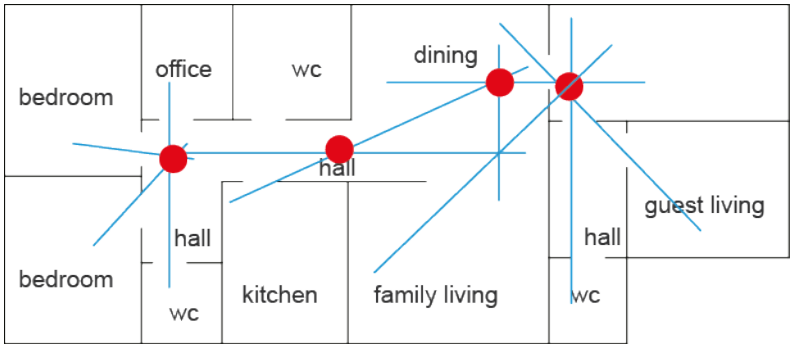


Figure 77 axial analysis of participant 15 floor plan

Physical separation between men and women was emphasised and reflected the importance of privacy to the participant

> *"there has to be a room for men and another for women."*

It is not only the rooms, but also the number of entrances to the house that reflected the privacy levels required inside the house:

> *"I would need to have two entrances: one for the family and another for the visitors that would access the living room directly."*

8.2.2.4. Participant 16

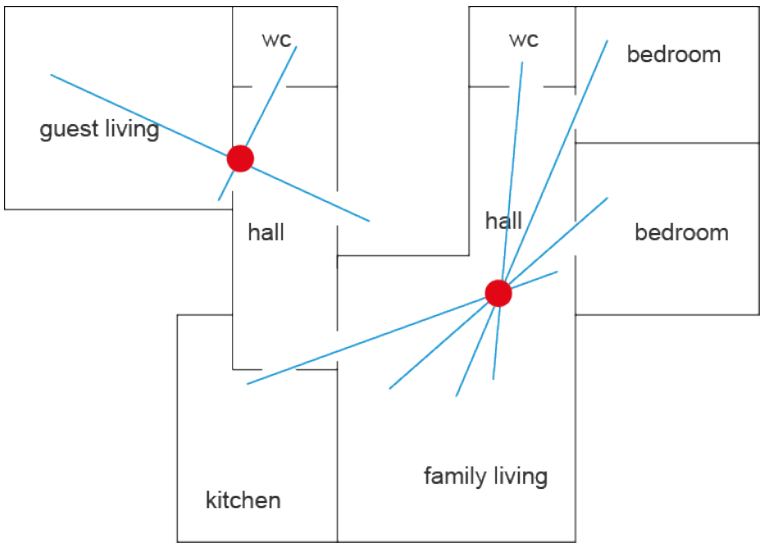


Figure 78 axial analysis of participant 16 floor plan

The participant lives in a small flat, but two points were emphasised; separation between men and women and the high level of privacy that the bedrooms had. In terms of the participant's social needs, there has to be

"separation between men and women, no exposure between the two".

With that came the personal belief that the *"bedroom is the red line"*, not to be accessed by anyone other than the owners.

8.2.2.5. Participant 17

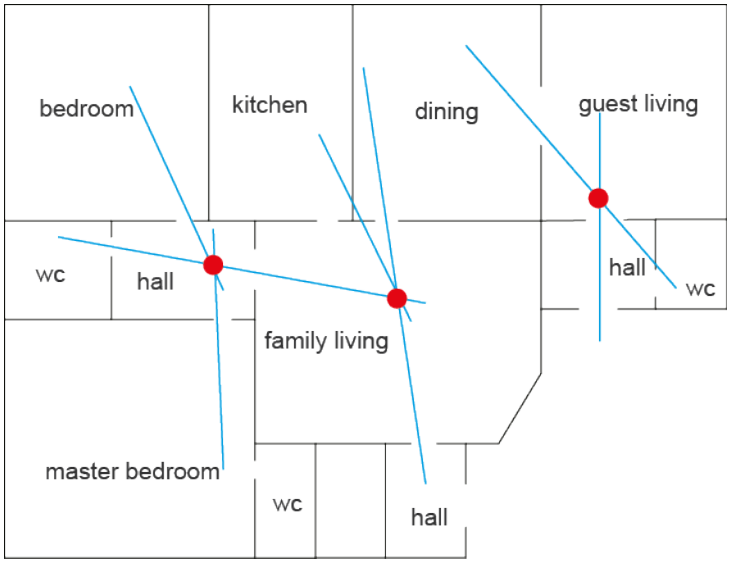


Figure 79 axial analysis of participant 17 floor plan

The participant has lived in various flats before the one she has now, and based on this experience she has spatial requirements for the place in which she chooses to live. The elements on her requirements list included "halls", introductory spaces,

"I don't like it when I have to hide behind the entrance door so as not to be exposed to the people outside the house".

The hall would be a transitional area between exterior and interior and also between interior spaces if needed. Due to her personal experiences, men and women visitors are not often invited together on the same time, which led her to want

"to have one big living room instead of two (one for men and one for women), so there would be one living room and one family living area".

That would serve as two separate living spaces for men and women in case they were both invited.

As for other participants, the kitchen was an important functional space placed in a grey area, but the participant

"would like to have the kitchen opened up, overlooking the family living area, with access to the dirty kitchen"

which would be private and accessed by the interviewee only. Also, she says, visitors are *"not to [access] the bedroom"*.

8.2.2.6. Summary

From the presented axial analysis of house plans of interview participants, three spaces are commonly accessed as mediating spaces; halls, family living and dining areas/ rooms. The halls are located in the three private zones of the house. The family living area is mostly located in a semi-private zone. Dining can be in either the public or semi-private zone, depending on the number of dining areas in the house, but when it is a mediator it is found in the public zone. The importance of halls (facilitating halls) was raised up during the interviews; few of the interview participants expressed the need for halls especially by the main entrances, as a transition space between outside and inside spaces of the house.

8.2.3 Space syntax summary

The outcomes from justification graphs and axial analysis were also noted in the analysis process of observation notes and interview participants transcripts. The important functional and spatial role the facilitating halls hold in the house and efficiency in allocating functional spaces. Users wanted the gender separation, yet not on the account of their own comfort, which led to allocating spaces such as the dining area to serve in both public and semi-private levels of the house.

On one-hand, space syntax tools presented a systematic analysis process for the house plans. On the other, it had influence on the resulting design tool shape and form.

8.3. Privacy levels

Contemporary Saudi houses, as well as traditional houses, have different privacy levels. This was highlighted in the observation and interviews. These levels of privacy responded to the permission that owners gave to other house users/ visitors. Private, semi-private and public levels of contemporary Saudi houses are important and were highlighted by participants, as well as being mentioned by Al Surf (2012). These levels control the permission one has inside the house, the functional spaces that visitors, extended family members and other visitors, can access.

Different privacy levels were identified in the twelve house plans provided by interview participants, and spaces were categorised in those levels according to the spatial function analysis (axial analysis and justification graphs) and participants' answers. The following figures present the house plans of interview participants with the three privacy levels (see Figure 80 and Figure 81 and Figure 82).

The house plans in Figure 80 and Figure 81 have two entrances were obtained from the interview participants. These plan drawings display the role of having two exterior entrances to the house. One door is dedicated to welcome visitors and the other is dedicated to the owners of the house; therefore, one entrance gives access to the public zone of the house then leads to the semi-private zones, while the other entrance gives access to the semi-private zones of the house. After that, one can access the private zone, if one has permission to access these private spaces.

Figure 80 Privacy levels in two entrances houses / interviews

Figure 81 contains house plans of two-storey duplex, where the vertical levels also contribute to the division of functional spaces in the three privacy levels. The second levels contain private spaces (bedrooms) and sometimes the family living as well.

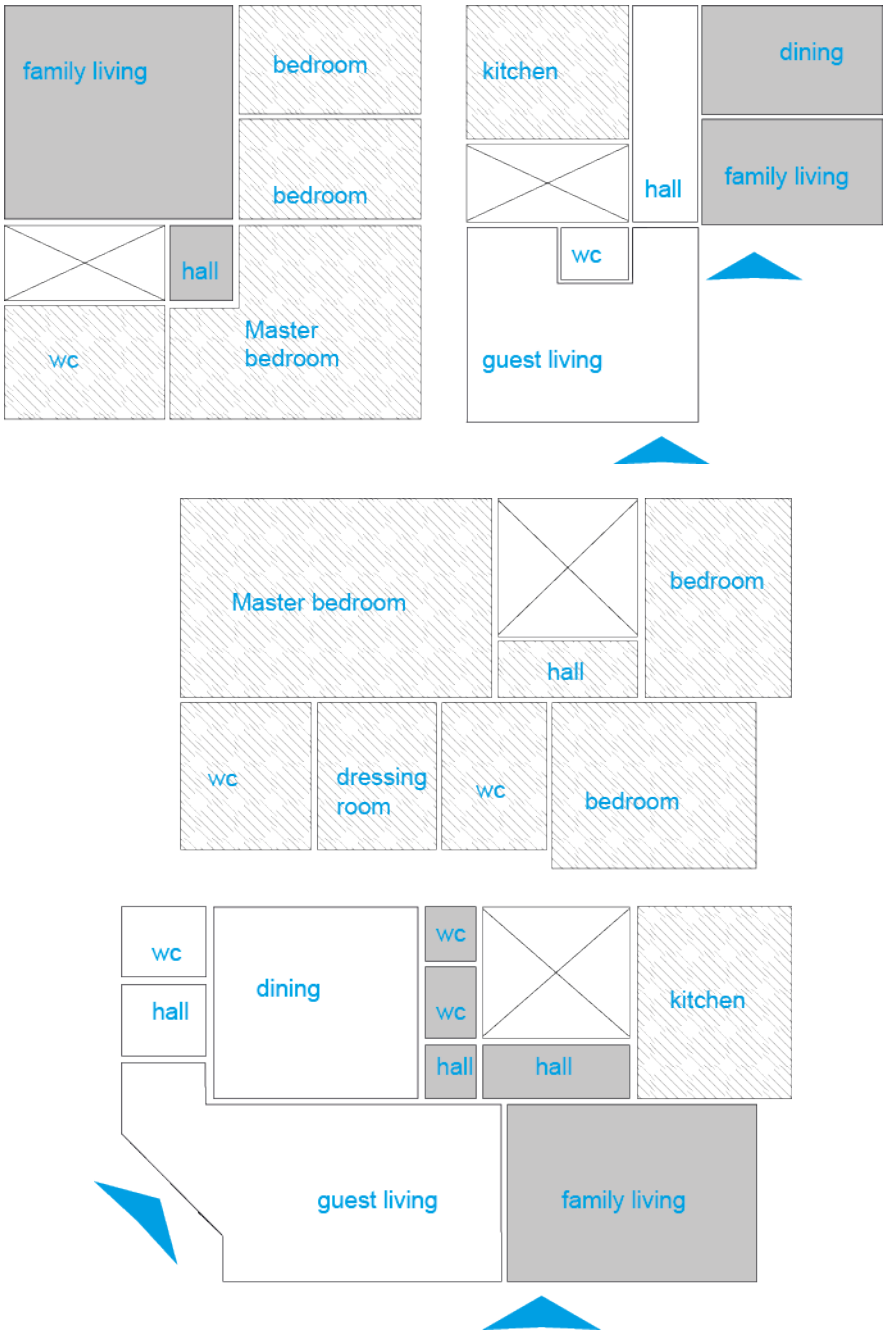
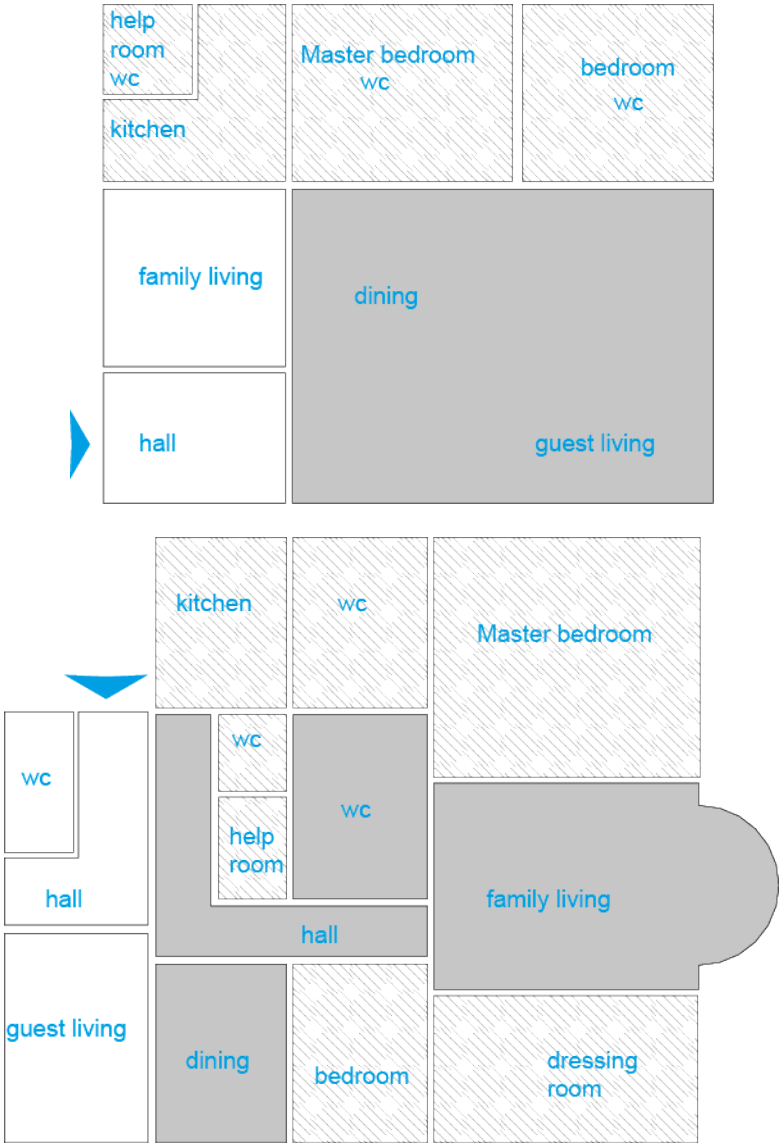


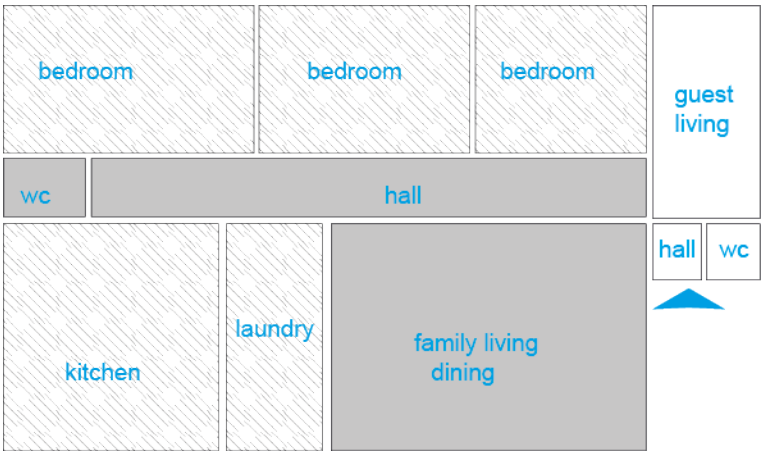
Figure 81 Privacy levels in multi-storey houses/ interviews

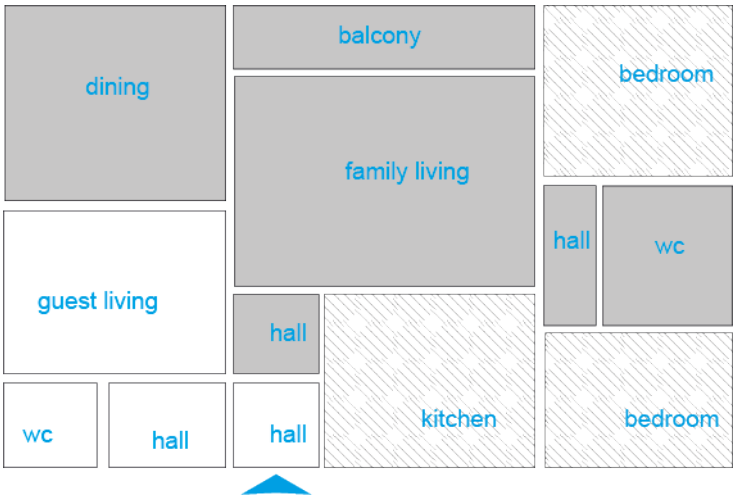
The following eight drawings are for floor plans of interview participants (see Figure 82), which have one exterior entrance to the house. Also, these drawings are of the flat type accommodation in which the interview participants live. As in the two entrance houses, these plan drawings display the spaces one needs to

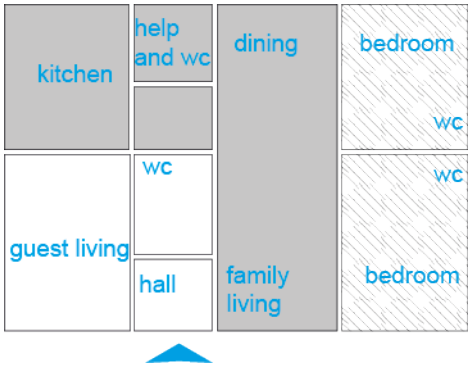
access, moving from one private zone to another, before accessing the private zone of the house. This gives owners in general more control over the space. Some drawings, however, display the interaction between different private zones of the house, utilising the halls as a spatial element, as a mediator. Even halls have their targeted users; these people can access the appropriate halls and are led to the targeted zone and spatial function to which they are linked.

House owners can navigate in their flats with some power, where they have some control over users accessing different rooms of the house. Yet, some interview participants have complained about the social inconvenience of having one exterior entrance to the house. That inconvenience is because the visual exposure it can cause between female and male owners and visitors in the case of a social event.




bedroom
bedroom
bedroom
guest living
wc
hall
hall
wc
kitchen
laundry
family living
dining


dining
balcony
bedroom
family living
hall
wc
guest living
hall
wc
hall
hall
kitchen
bedroom


kitchen
help and wc
dining
bedroom
wc
wc
wc
guest living
hall
family living
bedroom


guest living
hall
family living
wc
hall
dining
kitchen
hall
wc
help room
bedroom
wc
Master bedroom
guest living
wc
wc
bedroom
hall
hall
bedroom
kitchen
family living

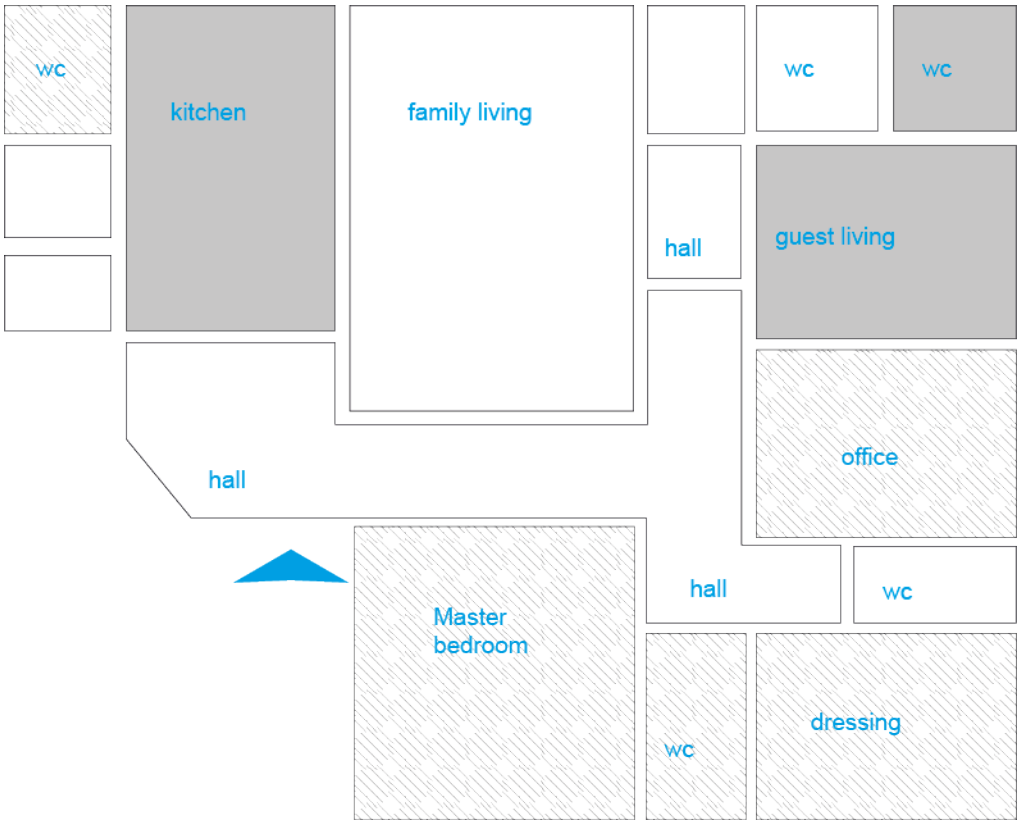


Figure 82 Privacy levels in one entrance houses/interviews

The use of such levels illustrations had some effect on the shape of the design tool, as it assisted in categorising different functional rooms under the appropriate privacy level, which was obtained from the interview analysis and the earlier displayed privacy levels analysis. Different rooms were located in one of the three zones inside the house; private, semi-private and public. The drawings also demonstrate the role of the semi-private zone, a transition zone between the public and private zones. The semi-private zone is either accessed from its own exterior entrance or through the public zone, where the public zone has its own entrance in all the illustrations. Generally, private zones of the illustrated samples are located on the opposite side of the public zone and main entrance, which is at the back of the house. The above illustrations led to an understanding of the status of current available house designs. From that analysis and participants' answers, generalised observations were pointed out in Figure 83.

The knowledge of privacy levels in the house and the functional spaces that help the transition from one space and level to another are illustrated in Figure 83. The interaction between the different privacy levels is facilitated through halls. From the interviews, users prefer these connecting (facilitating) halls to be part of the semi-private level.

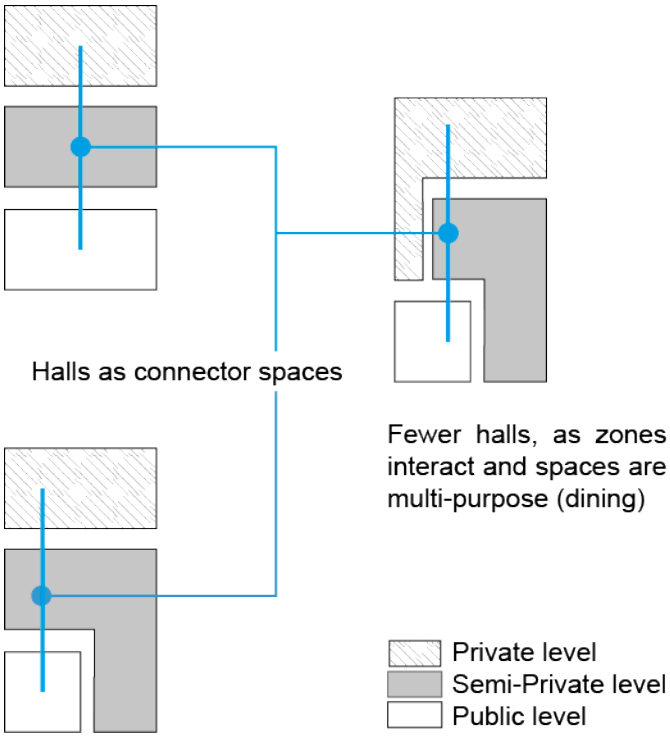


Figure 83 Privacy zones and the use of halls

Following the analysis of the houses, a design tool was developed to demonstrate the acquired knowledge. The commonly mentioned spaces in the interviews were listed and were then placed in the privacy zones as appropriate, according to the interviews (see Figure 84).

8.4. Design tool form

This section illustrates the development of the design tool, and the stages it went through to reach its final form. The design tool is a response to the analysis of the data collected from the interviews and observation phase, and also from the recommendations and suggestions found in the literature review. The design tool is also a response to the gap pointed out in the literature between architects and users (Jabareen 2005, Othman et al. 2013).

During the literature review phase some scholars (Al Naim 2006b, Al Tayash 2008a, Sidawi 2008) have suggested some design process systems for Saudi private houses. These suggestions varied from comparative analysis studies of the development of Saudi houses between the period of the 1920s and the 1990s (Al Naim 2006b) , understanding the functionality and patterns of use inside Saudi houses in the 1980s (Al Tayash 2008a) and the development of a tool that would assist designers in the design process of sustainable and affordable houses(Sidawi 2008). The last had privacy as a part of the design criteria that

designers are to be aware of (see appendix for the mentioned tools/ studies graphs). These studies and their resulting recommendations/ design tools were taken in consideration while developing the research design tool and during the collected data analysis.

8.4.1 First form

This model (Figure 84) was a result of spatial formulation of the notes taken from the observation and interview outcomes, depending on the privacy levels analysis and the rooms relations in them combined with the comments placed by the interview participants. It displays the different privacy levels, spatial functions of the house, and the order in which they are accessed. The recommendation, made by the interview participants, that the house should have two entrances, to serve different types of users (owners and visitors), was taken into account. When this model was tested by focus groups that consisted of designers in the field with some experience, focus group participants experienced difficulties in using it. These related to the limited functional spaces provided, and the fact that some other important spaces were not mentioned. Also, the participants found the functional relationship to be unclear. The comments made by the participants were taken into consideration to improve the model. The applied improvements resulted in the final model of the design tool.

Figure 84 displays the first form of the design tool, which was presented to the first pilot focus group that was organised to test the design tool. The focus group participants expressed their confusion at first with the present design tool process. They were not clear what this diagram presented to them, the aim of it and the means in which it will help them design. According to them, this diagram was standard and leading, not giving the designer space to be creative (see Chapter 6).

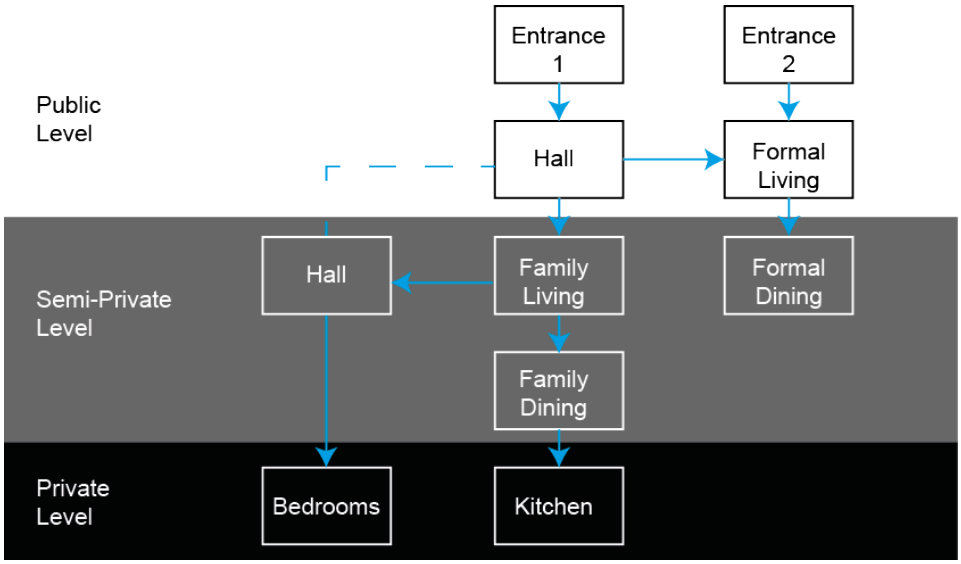


Figure 84 First model of the design tool

After that first pilot focus group, the researcher combined the formed tool with the display found from the justification graph (see Figure 66) and the outcome form the axial analysis of these house plans. The result of this combination was linked also to the different vertical levels of the house and presented in the second form (see Figure 85).

8.4.2 Second form

Figure 85 illustrates the final form of the design tool that was later evaluated through another two focus groups. Informed by primary data collected from the interviews and literature (Al Tayash 2008b), the tool was based on the main and minimum Saudi house requirements, which was not far from the needs found in traditional houses. This tool responds to the vertical, spatial and privacy needs in the house, according to the contemporary needs of Saudi female users. As the pilot focus group participants pointed out, more functional spaces were present. The colour coding and vertical relationship were considered and represented visually in this model. Although the privacy levels were not mentioned, as in the previous model, they were the basis of the functional relationship in the access path illustrated.

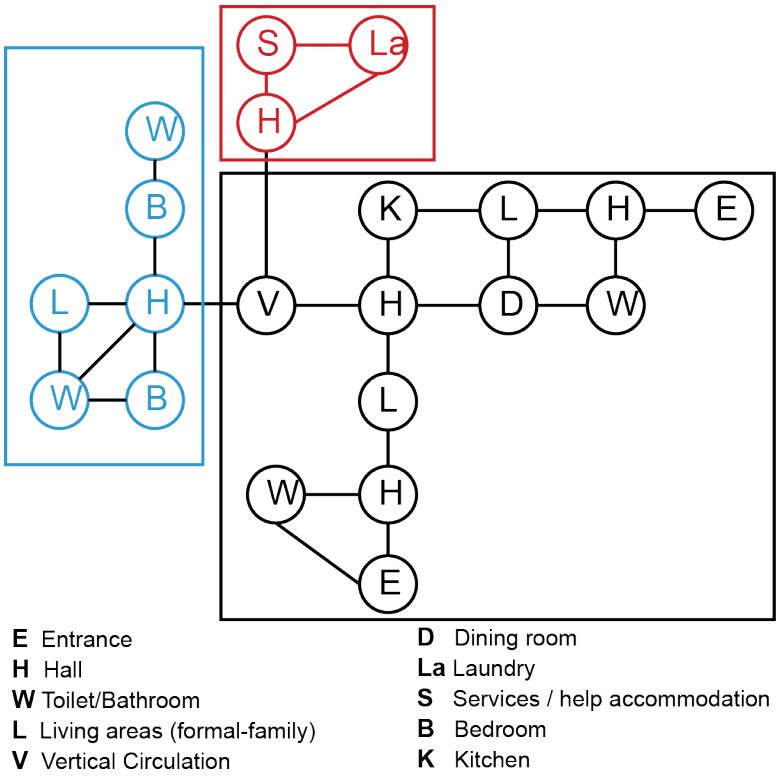


Figure 85 Developed design tool

8.5. Summary

This chapter discussed the development of the design tool as an outcome of this research. The design tool responds to the research questions, which is related to the concern of privacy in Saudi houses with respect to the female perspective to the meaning of privacy. That was achieved by utilising space syntax analysis tools: justification graphs and axial analysis to the house plans of interview participants.

In the process of analysing the plans different privacy levels in the house were identified, which were complementary to what was mentioned in literature. These three privacy levels represented the boundaries interview participants had expressed, and represented the control they have over the functional spaces of the house. Having control and power in giving the right of special access to different users (visitors and other family and extended family members) responded to the meaning of privacy to them; the meaning that was concluded from the interviews analysis and related literature review. Also, the tool responds to the socio-economic changes, land size and type of housing systems adopted by development projects by the number of functional spaces and their variations.

The use of space syntax alone would not have contributed to the understanding of the behavioural patterns in the house. The interview analysis combined with the space syntax tools applied in this chapter emphasised points that the interview participants had highlighted. From these points there was the importance of the physical boundaries between private and public spaces. Also, participants discussed the functionality of semi-private spaces of the house, their role and complexity, which was noticed in the axial analysis. As for the justification graphs, their input to the design tool was by influencing the form of the design tool, improving its visual communication with designers with different experiences.

The design tool with its form is to guide designers (interior designers, interior architects), professionals and students, in their design process of houses. Being influenced by the participants, the tool provides a guide for functional relationship with minimum restriction on the physical location of the functional spaces. As design is a creative process and the personal and social needs of house users keeps modifying, the tool is flexible to accommodate these modifications. Therefore the tool was tried out within the environment of focus group that contained professional from the field; interior designers, interior architects and architects.

Chapter 9. Examining the design tool

9.1. Introduction

In accordance with the research flow, focus groups (which are techniques used by qualitative studies) were utilised to evaluate the design tool developed by the investigation. A series of pilot sessions were conducted first with female and male designers, to optimise the structure of the focus group, and when it was deemed ready, a couple of focus group sessions were then conducted, also with female and male designers. These focus group sessions were intended to test the design tool, which was for use by people who are interested in designing houses in Saudi Arabia, and the design of housing development projects in the Eastern region of Saudi Arabia in particular. The chapter will discuss the pilot phase of the design tool and the focus groups conducted after the pilot phase (see Figure 86).

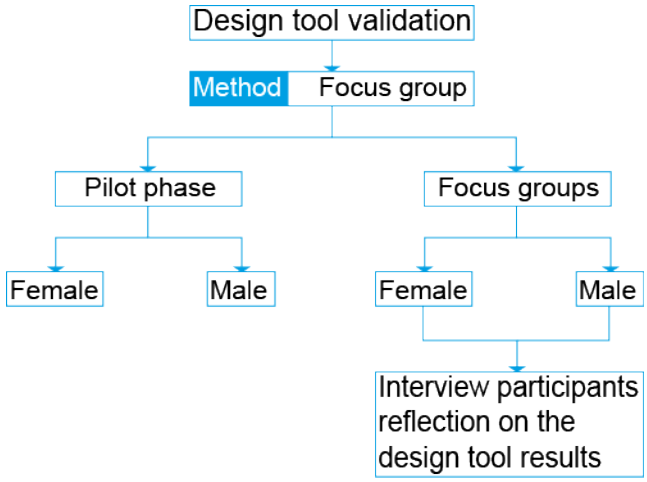


Figure 86Design tool evaluation chapter flow

9.2. Focus groups to test the design tool

The method of focus group was applied in evaluate the design tool, which aims to correspond to privacy needs in contemporary Saudi houses. These focus groups had designers as its participants and aimed to test the functionality and practicality of the concluded design tool. Focus group participants were involved in trying the tool and giving feedback on its functionality and suitability and were not involved in its form.

Four pilot focus group sessions were conducted, two were with female designers to test the proposed session structure after that two were conducted with male designers. These sessions were held on July 2014 and August 2014. The type of information

requested from the participants was to apply their professional experience on the design tool and give their insight about the functionality of the proposed design tool. The order in which the pilot phase went was starting with two sessions with female interior designer. That gave the researcher an opportunity to test the first form of the design tool then improve it, after that another opportunity to test the second form of the design tool before giving it with the guidelines to the male moderator. The male moderator did two pilot sessions, and that was to get better session control skills and improve the quality of resulting data.

9.2.1 Pilot phase

9.2.1.1. Female designers

Pilot one

The two participating designers were introduced to one another; also they were introduced to the research topic. The researcher provided the participating designers the required drafting tools: pens, pencils and some paper. Firstly, participants were given a contemporary Saudi house and were requested to enhance its level of privacy based on their knowledge of clients' needs and what privacy means. That task was scheduled for twenty to thirty minutes. The researcher had to tell the participants to speed up, which might have created pressure on them. After that they were introduced to the first form of the design tool (see Chapter 5 - Figure 84), the tool was explained to them. The three privacy levels of the house were highlighted in the design tool and the researcher pointed that out and the relation between the privacy levels and functional spaces allocated in them. Later, the participants were requested to modify their resulting designs in accordance with the suggested design tool, this task too was timed for twenty to thirty minutes long.

For this first pilot session, the researcher was concerned with the flow that the focus group session had, which is something that came up in the discussion with the participants. The participants suggested that the researcher either replace the given plan with a Western designed house or with a plain land on which designers could create their designs then be introduced to the design tool. That was because most, if not all, houses constructed in Saudi Arabia had some level of privacy which would make the benefit out of the tool to its minimum. Also, the pilot participants expressed the view that the design tool could be presented more clearly, as with its current form misled the participants and confused them.

Pilot Two

Taking what was suggested in the first pilot, the design tool was re-formed (see Chapter 5). After that, a second pilot was organised with the aim of testing the design tool in its second form. In this pilot focus group session, eight female interior designers were approached to participate in this pilot session, but only five responded. Unfortunately, on the scheduled day for the focus group session three of designers excused themselves, which left only two participants. As the first pilot focus group session, the researcher provided the participating designers with required drafting tools: grid paper, transparent paper, plain paper, pens, pencils and rulers. Firstly, they were introduced to the research topic and the aim of the focus group session was explained. They were then handed each a grid paper with a rectangle drawn on it. The rectangle represented the proposed land area that the participants were to generate their designs in; the proposed land area was12 x 26 m, with one facade looking over the street and the other three overlooking neighbours. The researcher explained to the participating designers what is expected from them; the session is to test the functionality and efficiency of the design tool and that they do not need to feel pressure. The researcher mentioned the time scale that the session will be taking: thirty minutes for the design production and then a brief break, after that another thirty minutes for incorporating the design tool into their work, after which another fifteen minutes for discussion, which can go to more if needed.

The participating designers started the first task, producing designs based on their personal knowledge of clients' needs with respect to privacy and social requirements. The task took more than thirty minutes, around forty. Later, the researcher presented the design tool in its second form (see Figure 85) to the participants and explained how it functioned, then the participants were requested to compare their design process and functional relationship to the one proposed in the design tool. That task took around thirty minutes as planned.

Finally, there was a discussion around the design tool where the participants expressed the relevance it had to what clients want and need personally and socially. From the points that the participants have highlighted was the repetition of some functional spaces can be requested by some house owners, but as this tool targets development duplexes then it would not be necessary to have them; the space mentioned was the dining room.

9.2.1.2. Male designers

A mediator was contacted to conduct the focus group with male designers; a total of two pilot sessions and one final session were conducted. The mediator appointed was an academic in the field of design. A detailed email was sent to the mediator to explain the nature of the focus group, its aims and objectives (see Appendix). After that, the moderator was contacted by phone to explain the steps again to confirm that the necessary files were received and that the information was understood. The moderator was contacted a number of times after each focus group as a follow-up and to clarify misunderstandings from the first two focus groups.

Pilot one

The moderator organised the first pilot session with five participating designers and gave a brief about the research in hand, and then the moderator explained to participating designers what is expected from them this organised session. The design tool was presented to the percipients and time was given for them to produce their designs within the limited land area. The design process took around thirty minutes after which the moderator collected the designs and started the discussion.

When the session was over, the moderator sent electronic images of the produced designs and some clips of the discussions that occurred. From the electronic information that was sent to the researcher, there seemed to be some misunderstanding between the moderator and the researcher, as the results were five floor plans that seemed to be the designers' personal input, not following the proposed design tool. Also, the designs were out of scale, the plans were only of one floor and not all functional spaces were present. The participants had not paid much attention to the given tool; also the discussion was about explaining the designs not about the tool and its usability.

Pilot two

The moderator was contacted to clarify the misunderstanding. Another focus group session was organised, in which four designs were produced by another four participating designers. The moderator gathered the participating designers and gave a brief about the research, then presented the design tool. The participants requested working on the computer, that they are more accustomed

to the speed work that way. After around thirty-five minutes, the participants have had their drawings done and while they were in the discussion they managed to finish some complementary additions to the drawings (adding dimensions and furniture and space tags). The resulting drawings were better in quality than those of the previous group: all had functional spaces, and scale was respected, but the land size varied, yet the land dimensions were not as mentioned in the guide sent to the moderator (see Appendix). Still, the discussion that the group held was again not about the tool, it was more about the resulting designs − analysing them and what went wrong with them. Most of the discussion revolved around criticising the size of the land and therefore the resulting room sizes.

9.2.1.3. Pilot focus group outcome

The diagram provided for the first focus group pilot was a generic guidance diagram, and the participants strongly recommended that adding more details would help improve its efficiency. Also participants experimented with the space syntax justified maps and its calculations. When this was revised, the efficiency of the justification maps calculations was not valid (i.e. the relationship between the resulting values and privacy levels). The map itself was helpful but not clear to participants therefore it was not used later as part of the focus group structure.

In the second pilot focus group, it was noticed that the resulting designs, generated before the design tool was shown to the participants, already followed the suggestions made by the proposed tool. Therefore, participants did not feel the need to adjust their designs after the design tool was presented. The focus of the discussion therefore shifted from the privacy perspective to what participants know and experienced when designing houses.

After the first two focus groups conducted by the mediator, the researcher conducted the next focus group. However, although the focus group session design had been finalised, there were still some problems with its application. Therefore, the mediator conducted another focus group after the researcher had explained to him in detail the design of the session. The mediator was given guideline questions to ask the participants, flexibility boundaries regarding the design time, and options to give the participants.

Based on the focus groups conducted by the researcher and the mediator, the researcher modified the focus group flow. Participants were to receive a brief about the research topic then the design module would be explained to them. After that they would be requested to design the house inside the suggested

empty plot. The discussion would be about the resulting design and its relevance to the suggested tool, on one hand, and the usability of this tool in the field on the other.

9.2.2 Focus groups

After the pilot focus groups were conducted, the researcher and mediator gained some experience in managing the focus groups. Two focus groups were conducted after the pilot phase, one with a female group and the second with a male group. The researcher managed the female focus group. Whereas, the assigned male mediator managed the male focus group. When the participants were grouped, the researcher and mediator gave them a brief of the research and the expected aim of the focus group session (see Appendix a on p. 231).

The focus group participants were given a generic idea of the research interest then the design tool was presented to them with tools such as papers, pens and pencils. Participants were given the plot dimensions and reminded about the building regulation of walls offset. The example image in Appendix a on p. 231 was for the mediator's reference only when the researcher was explaining the session, what was expected and how did the given tool work. The image was not shared with the participants. The plot size was 12 mx 26 m, and participants were to consider that the given tool would assist in generating a starter home, which would accommodate a small family up to four members. Also, participants were to consider their designs to be part of a development project of development houses for new families.

9.2.2.1. Female focus group

The focus group consisted of four volunteering designers who had different work experience: two in office design, two in refinery amenity design and one with designs which varied from offices to residential. When all participants were gathered together, the researcher briefly explained the nature of the research to make them feel involved and encourage them to give their input. The researcher provided the necessary drafting tool: plain paper, transparent paper, grid paper with land area drawn on it as a guideline for the participants, pens, pencils and rulers. Later, copies of the suggested functional relationship design tool were handed to the participating designers and the task was explained to them. They were to utilise the given space, in accordance with the building and safety regulations to create a spatial design for a duplex. The functional relationship design tool included the most common rooms, as a result of the interviews and

literature (see Chapter 5), but they were informed that they had some flexibility over the design tool presented. Also they were advised that their input is valuable and there will be a discussion time where they can reflect on their design experience and give their feedback on the design tool.

When the flow of the focus group had been explained to the designers, they asked some questions; for example, what was the source of the information − designers or users? And did the task involve designing a private house or a generic development house? In response the researcher explained that the functional relationship was a result of in-depth interviews and observation with users to formulate the updated picture of privacy in Saudi Arabia from a female perspective. With regard to the task in hand, the researcher again highlighted the use of the suggested functional relationship in generating the designs.

The designs were generated in the allotted time (thirty-five minutes: thirty minutes as planned and five extra as per the designers' request to finalise their designs), after which the discussion began.

9.2.2.2. Male focus group

This focus group had seven volunteering designers with practical experience that ranged between two and six years. The designers were gathered in an informal environment, which helped with the type of feedback obtained in the discussion. The mediator gave the designers a brief about the research, the type of housing the research was aimed at, and what was expected from them in the focus group. As with the female focus group, the male designers were handed the design tool and the mediator went through it with them, to ensure their understanding of what was to be done with the tool. The designers were informed about the boundaries and flexibilities they had with regard to how to apply the design tool. They were also given drafting tools. The designers needed around thirty-five minutes to generate their designs.

Although there were seven designers, only four of the resulting drawings were used. That was because two of the designers claimed that there was insufficient information to enable them to complete the task. Another did not apply proper scale in his drawings, which resulted in small rooms. Participants were led to a twenty minutes of discussion after they used the design tool to give their feedback and reflect on their experience.

9.2.3 Focus group results

In total, eight designs were obtained from the participants of the focus groups. These were digitally drafted using AutoCAD software in order that the drawings would be ready for the next stage of the evaluation: reflective feedback of interview participants. Some designs from the male focus group were not involved in the final process (see Appendix for all produced designs), and that is because of the participating designers perspective about the design tool, its applicability and usability.

In general, the designs had some similarities due to the unified area of the given land, which was limiting, but at the same time there were variations in the produced designs. Different in design was found in the ground floor and some of the first floor designs, but the top/ second floor designs were almost the same. The following are the designs produced by the participating designers. The ordering numbers are according to the order they were shown to the interview participants, so the knowledge of the gender of the designer would not affect their feedback.

Female focus group designs

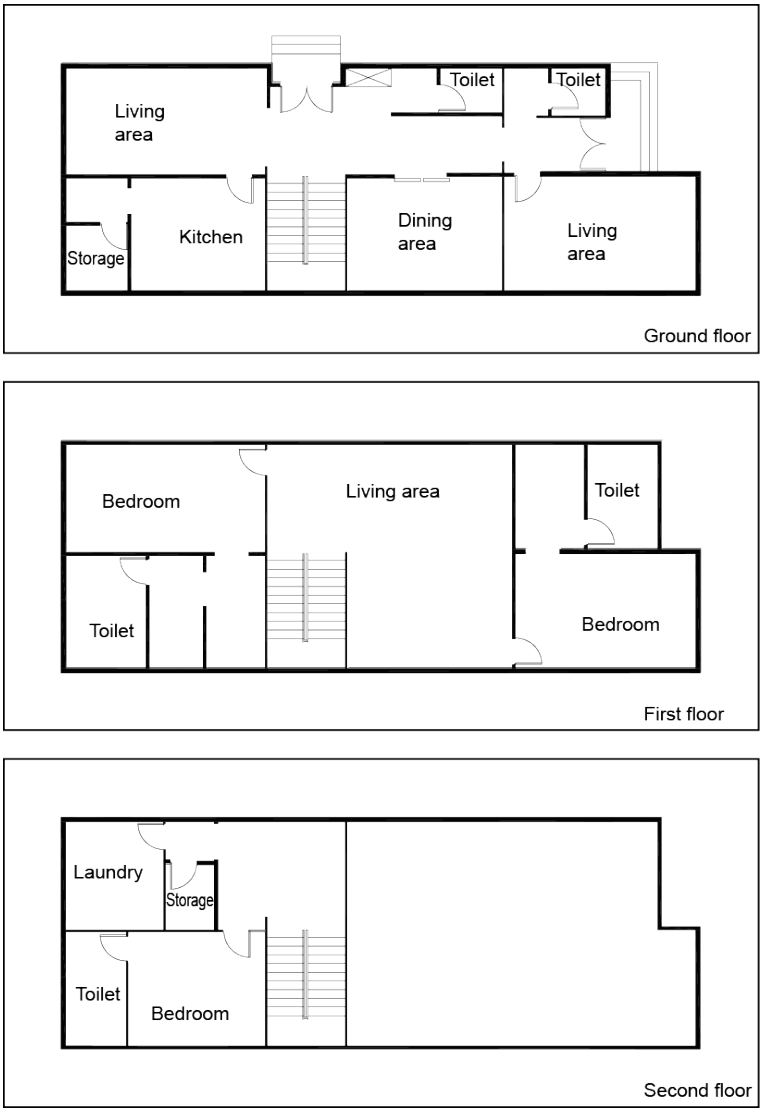


Figure 87 Design option two

This design in Figure 87 follows the design tool guideline by creating multiple entrances and their halls, but the resulting living spaces and bedrooms are rather small. The living room on the first floor is larger than the ones on the ground floor. Again, the dining room, though allocated next to the public and semi-private living areas, is exposed to the family entrance.

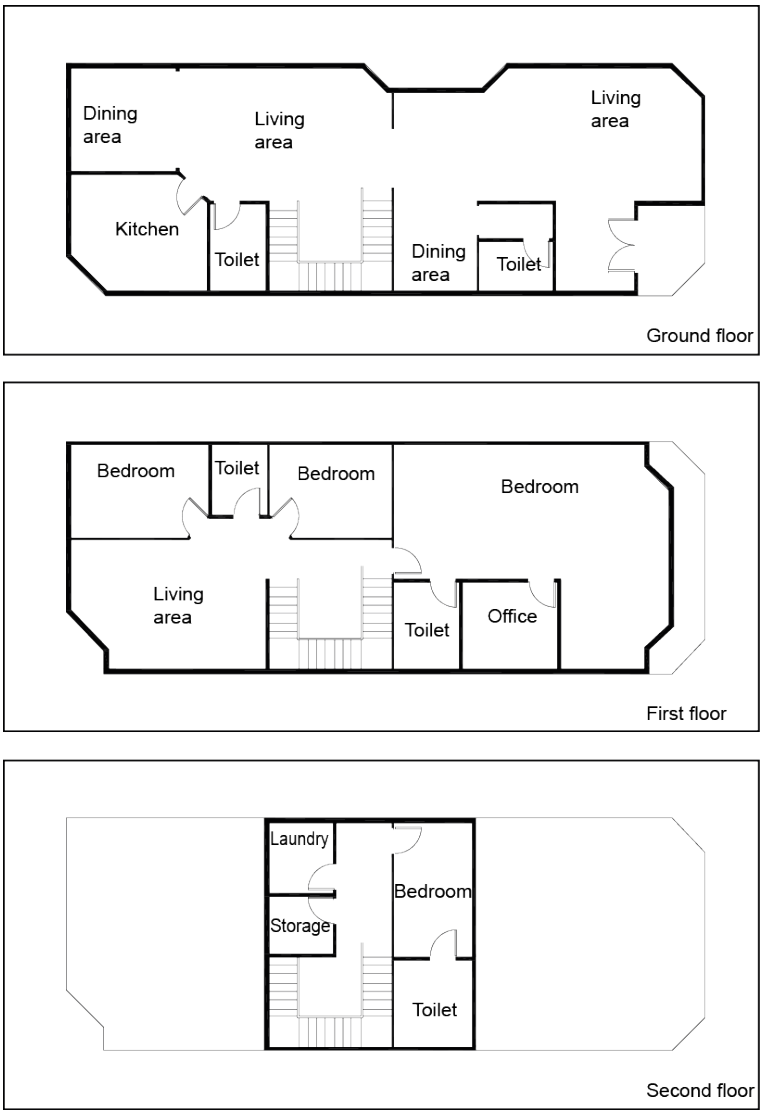


Figure 88 Design option six

There are two dining spaces in this design (Figure 88), and although they are small in size, each serves a living space on the ground floor. There is an additional bedroom on the first floor resulting in two small bedrooms and one spacious master bedroom. There is only one entrance to the house, to the main living area, and no direct external access to the casual living area. Having a single entrance to the house compromises its users privacy boundaries, even though the participating designer placed two different living rooms with their dedicated dining areas, for one to access the semi-private and private section from the exterior of the house, one needs to access the public section.

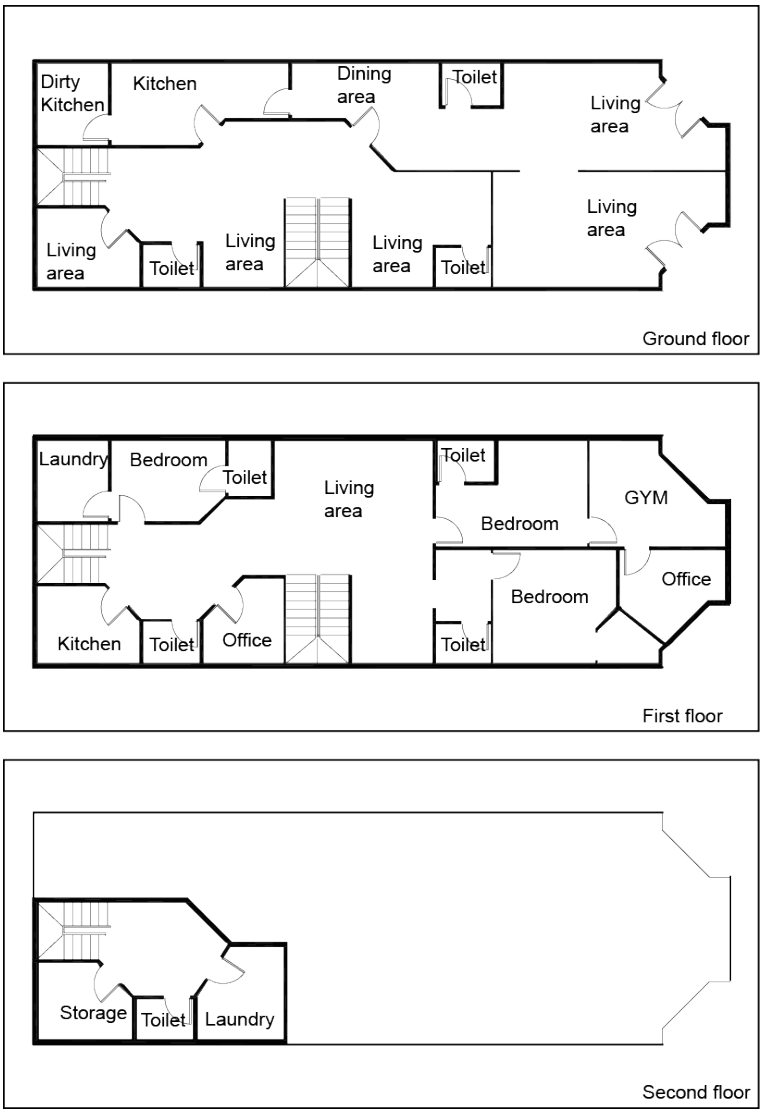


Figure 89 Design option seven

The design in Figure 89 tried to apply an open plan approach on the ground floor. There are two entrances connecting the exterior to the two living rooms, and there is one small dining area by the casual living space. The designer tried to include multiple small sitting areas on the ground floor but that does not suit the land area. The designer also added a kitchenette on the first floor with service area for laundry and an office space. The resulting bedrooms are small in size. The participating designer followed the functional relationship design tool and added more spaces to it. The result was a separation with some connection between each privacy level; public is connected to semi-private and semi-private is connected to public but no direct connection between public and private. Yet as mentioned the rooms resulted are small in area, which can be a social inconvenience in relation to hospitality, an important factor that shapes privacy.

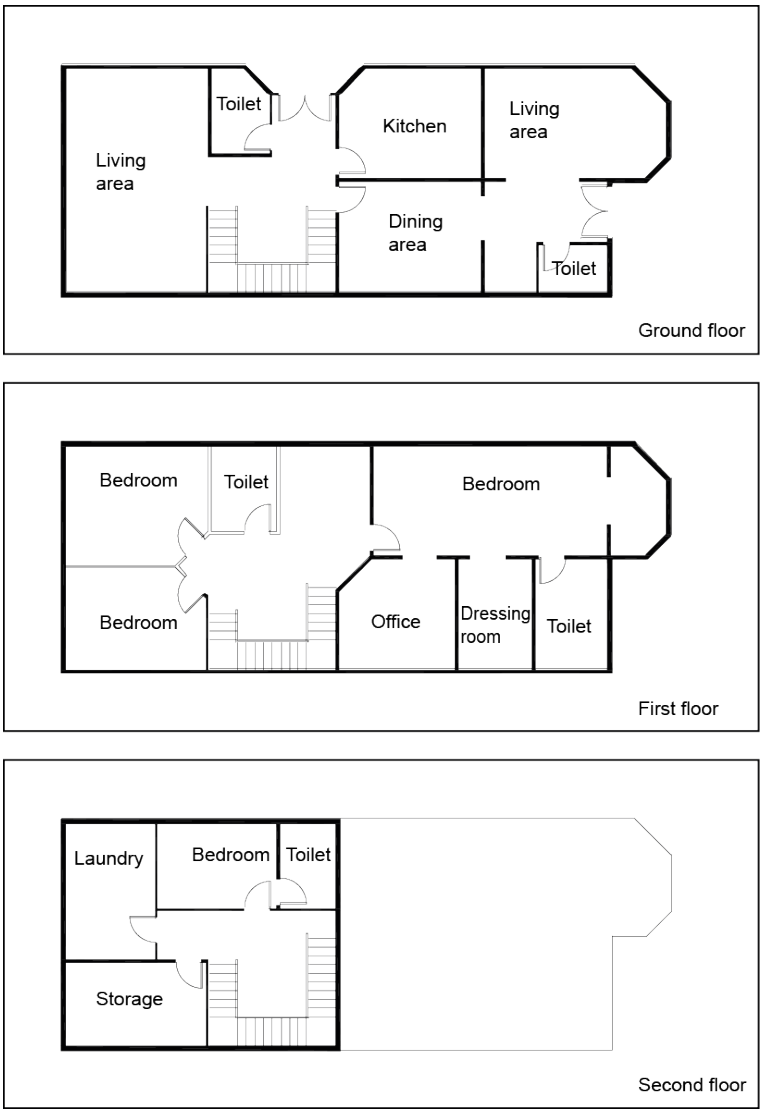


Figure 90 Design option eight

This design in Figure 90 uses the dining area as a connecting space between the semi-private and public spaces of the house. There are two entrances, one gives access to the formal living area and the other to a hall and is close to the kitchen. The casual living space is not exposed to other spaces of the ground floor yet is easily accessed. The designer added a bedroom and an office that is a part of the master bedroom. The living area on the first floor is rather small in area. As mentioned in option 1, 3 and 5 this design also isolated the public section from the house, yet with the dining area as the transitional space from the public section to the semi-private section. The second entrance directs to the family semi-private section of the house with close connection to the kitchen, which provided users in the semi-private living area privacy and less exposure.

Male focus group designs

Figure 91 Design option one

This design in Figure 91 has an additional small living room facing the kitchen. There is a direct connection between the second entrance and the vertical circulation. The space for casual living on the ground floor is combined with the dining area. On the first floor there is a small space that acts like a kitchenette for necessary supplies, which overlooks the living space.

The design isolated the public spaces of the house from other spaces, yet the dining room, which was considered to be in the semi-private level, was exposed to the family entrance. Also the isolation method in the design resembles the one found in traditional houses. For other functions the design seems to respect the design tool guideline.

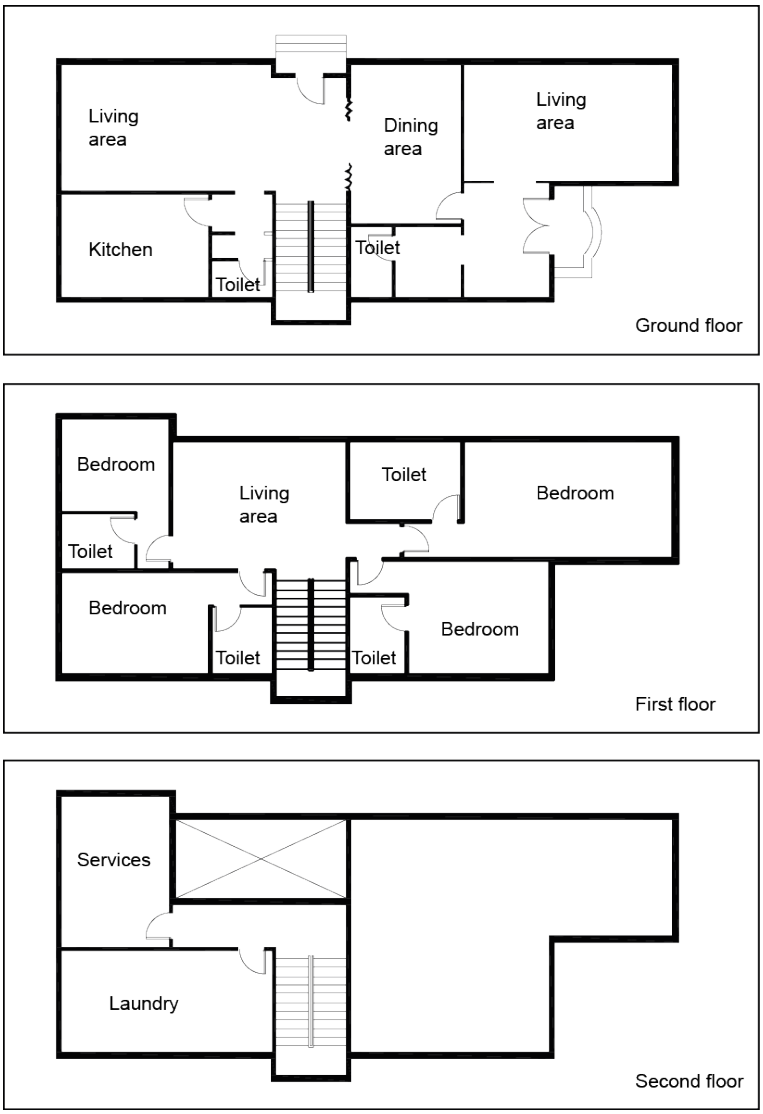


Figure 92 Design option three

In the design in Figure 92, both living spaces (formal and family) have direct access to the dining space. The designer added two bedrooms with their toilets on the first floor, which resulted in more rooms, although smaller in size. Also there is direct access to the first floor living area from the vertical circulation. As per providing privacy, the three privacy levels are connected through doors or transitional spaces, but at the same time isolated from one another. As in option 1, the isolation of public section resembles the one found in traditional courtyard houses found in the gulf countries (see Chapter 1).

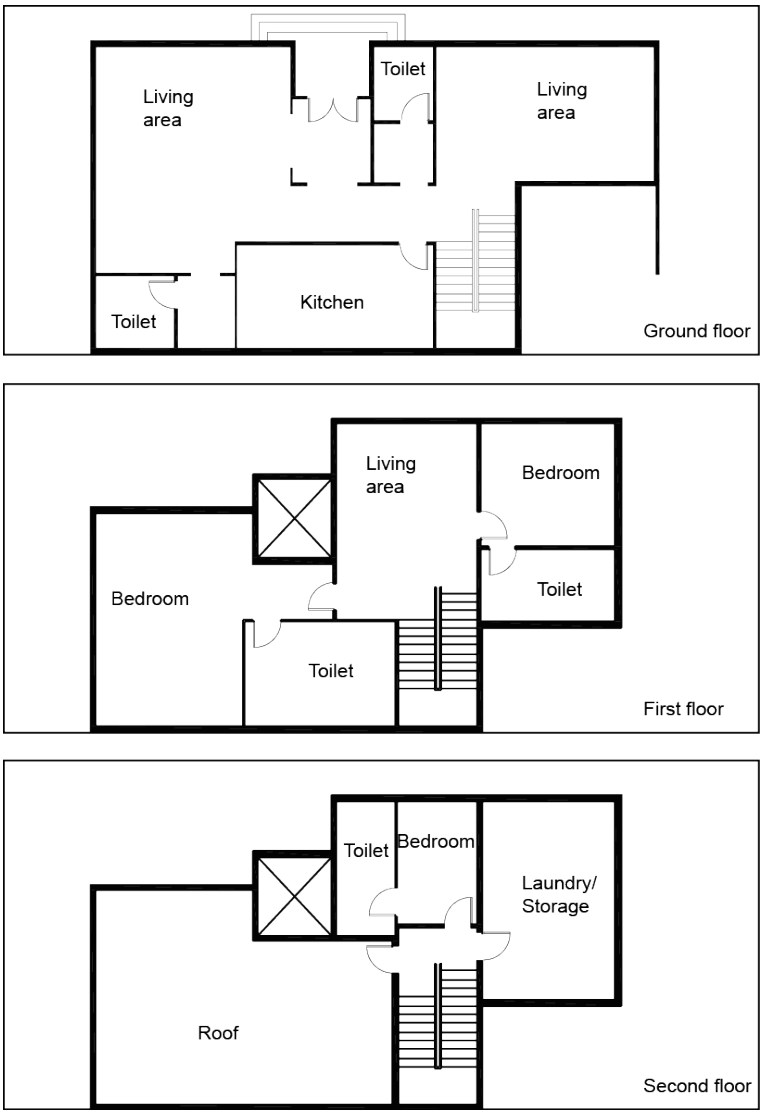


Figure 93 Design option four

This layout in Figure 93 has only one entrance, not as recommended by the design tool. It tends to follow an open plan design, merging the main living area with the dining space. Vertical circulation on the second floor has direct access to the living space. Generally this design has more open spaces and fewer doors. Because of the one entrance provided, owners are exposed to visitors and that results in movement intervention. As privacy relates to the control one has over their properties and decisions (Altman 1975) (see Chapter 1), this design does not provide it in the public and semi-private section of the house, which is located on the ground floor.

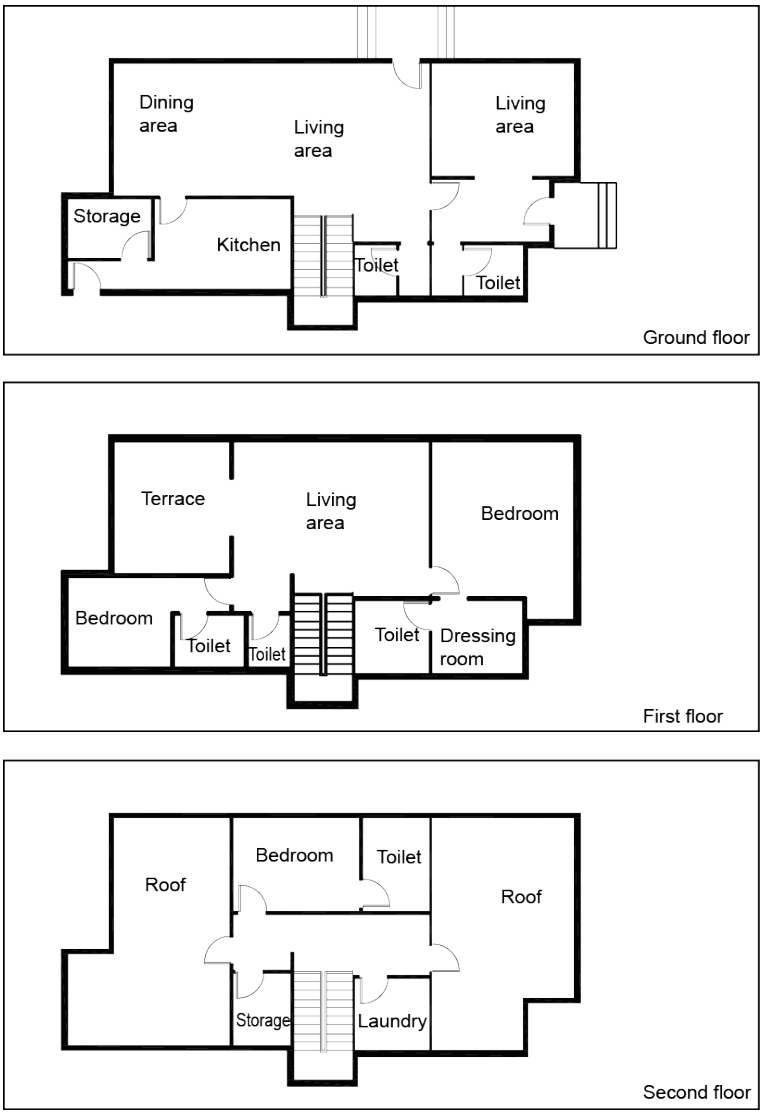


Figure 94 Design option five

The designer here (Figure 94) added an additional entrance that gives direct access to the kitchen. Also the designer added two storage spaces to serve the house. The dining space was located close to the kitchen and casual living space, away from the formal living area, making it difficult to access the dining space without being in the casual living space. The bedrooms are small areas, but the living space is considerable for a first floor living area and the designer added a terrace space on the first floor. As with the in option 1 and 3, the public section of the house is isolated physically and visually well from the rest of the house. Yet the dining area is located closer to the semi-private section of the house with much exposer to the family entrance and the vertical, which might be an inconvenience.

9.2.4 Group discussions

After the design tool was explained, designers applied it in their designs. When they finished their designs, the designs were displayed; part of the discussion preparation and the researcher/ moderator started the discussion about the design tool. Following are the discussion results from the final two focus groups (female and male).

9.2.4.1. Female discussion

This discussion resulted in highlighting some existing design limitations; building regulations and small land area available for this type of houses. Also the designers pointed out their insight to the usability and suggested additional areas to be included. This insight was a result of their fieldwork and personal experiences.

Firstly, the designers expressed that the tool was found to be simple and easy to use. As a functional relationship tool, it met the social needs, yet in regards to privacy, there was some doubt to its representation in the tool. That doubt was met with justification of the current existing limitation of land size and building regulations, as mentioned earlier. From the interview participants data analysis (see Chapter 4), some of the concerns raised by the designers were upon points interview participants thought are not necessary in contemporary houses because of the changes that happed to the social patterns. Such concerns made by participating designers related to the single dining and the location of the dining to the both living areas (public/ formal living area and the semi-private living area), which interview participants found useful and more practical due to the modification that happened to the social patterns; in social events, male and female visitors are not invited at the same time as they used to be.

The designers suggested adding some functional spaces to the design tool diagram; multi-purpose space inspired from traditional houses culture, a study room that could be either close to the master bedroom or one of the main entrances to access as a private and public space if necessary and a secondary vertical circulation element (either a second staircase or a lift).

Also, the participating designers addressed the usability of the functional relationship design tool. They found it easy to follow and easily understood, which makes it a suitable learning tool for interior design and interior architect

students who are to be introduced to housing design, not only development houses. The tool presents a functional relationship that explains the social and cultural needs inside the house. Therefore, designers who are not familiar with the Saudi culture can also use the tool.

9.2.4.2. Male discussion

In this focus group discussion, designers started with the stage in which the functional relationship design tool to be used in. most participating designers argued the design tool to be a preliminary functional zoning tool for what is commonly known. Some designers pointed out that this, the design tool pointing out what some might consider commonly known, is the benefit of having the tool for design student and other non-Saudi designers who would not have enough background about the social and cultural needs of Saudi houses.

Yet, the designers thought the tool lacked some details to it, it might have represented the cultural style yet there are personal differences that the tool does not present options for. Also, that can affect designers; control their designs and limit their creativity combined with the limiting building regulations; it also forces a linear process of thought, which does not support the designer in achieving his aimed design goals.

9.2.4.3. Summary

The two conducted focus groups, with female and male interior designers and architects, tested the proposed functional relationship design tool. After trying the design tool, there was a discussion around the design tool, its usability and efficiency. Both focus groups participating designers agreed with the target audience for this tool, that it would be best suited for interior design/ interior architecture students or designers with limited knowledge with the housing projects and social background in Saudi Arabia. Members of the focus groups argued that this can limit the abilities and creativity of designers, dictates the flow of thoughts. Yet, the designs produced varied in relation to level of privacy provided, functional relation and design layouts.

9.2.5 Focus group reflection

9.2.5.1. Female focus group

In the pilot sessions, it seemed that participants were intimidated by the task, feeling that they were being judged. This point was tackled in the main focus

groups, where they were reassured and it was made clear that it was the tool's productivity and efficiency that were being evaluated.

During the task in the main focus groups, the designers were pointing out the setback, part of the building regulation, and the reason behind its existence; where some did not agree with it, some supported it. Also the designers were somewhat hesitant of their work being evaluated, which affected the speed of their design judgments. Here the researcher reassured them that the functional relationship was to be evaluated through their generated designs therefore they need not hesitate or worry. This was intended to make them feel comfortable and to encourage more involvement.

9.2.5.2. Male focus group

There seemed to be some misunderstanding of the nature and intention of the focus group run by the mediator. The participants were given the design tool and were requested to use it to design the houses, a step they managed to follow, but with little respect for scale. The discussion was more about explaining their plans than referring to their experience of using the design tool. Also this focus group seemed to have designed a flat rather than the intended multi-floor duplex house. Even though, four out of five of these designs followed the proposed design tool, the modification in entrances and addition of a functional space demonstrated participants' confusion, which may be a reflection of a misunderstanding on the part of the mediator.

As mentioned earlier, during the main focus group with male participants, two did not finish the design, stating that architects need to have more contact with their clients in order to know their needs and wants.

9.2.6 Focus group result analysis

The method of the focus groups was decided at a late stage of the research to evaluate the design tool's performance (see Chapter 3). The design tool was the outcome of primary and secondary data collected in the research journey (see Chapters 2, 5 and 6). The interviews provided updated information in relation to the females' perspective of the meaning and representation of privacy in contemporary Saudi houses, and the literature was the base from which the study was formed. These items of information were placed into consideration when formulating the design tool, which was presented as a spatial and functional relationship diagram.

Eight house designs were the result of the focus groups, in which the participating designers incorporated their knowledge with the assistance of the provided design tool (see Chapter 9, Section 9.2.2). The following is a comparative analysis of the ground floor of the resulting eight design options.

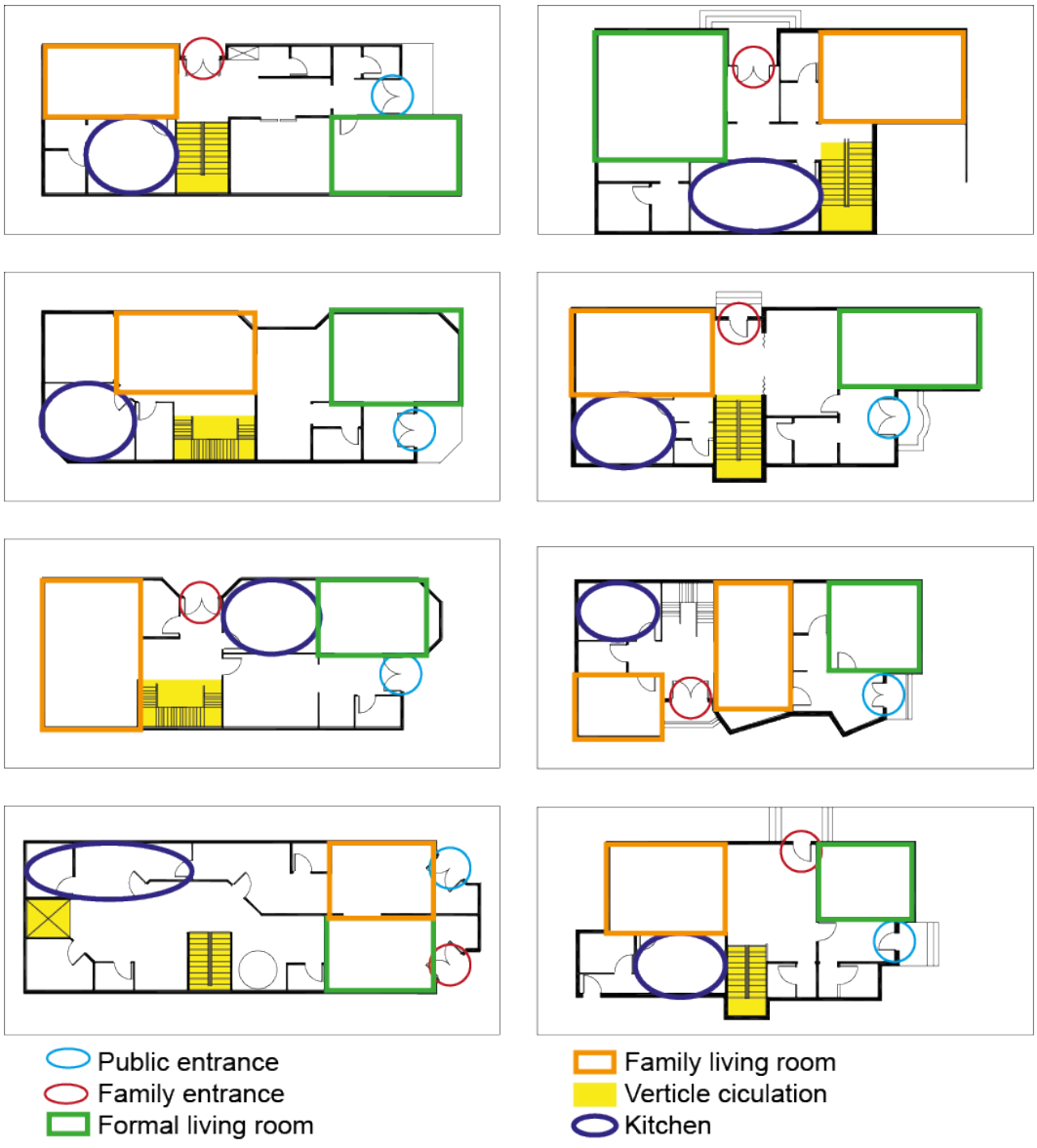


Figure 95 Focus groups' designs outcomes comparison

Figure 95 highlights the main functional spaces that the concept of privacy has influence on, as pointed out by the interview participants. These eight resulting designs displayed similarities and differences that were noted as follows:

- Most designs followed the design tool, where most designs had two main exterior entrances.
- The family entrance, when available, was found on the right or left façade of the house.

- Most designs located the vertical circulation on the middle of the left side of the house but one design had the vertical circulation almost on the middle of the right side of the house.
- All public living spaces were allocated to the front of the house, near the entrance, either left or right.
- The kitchens were located deep in the house on the ground floor, which provided limited access to them.
- The location of the entrances, vertical circulation and bedrooms in the functional relationship design tool had influenced most designs produced by participating designers in the focus group.

Since the design tool was the result of data collected from interviews, there were clear similarities between the designs that used the design tool and the house designs of the interview participants. These similarities were in the spatial order of functional spaces. Also, only two of the interview participants lived in a two-floor house, while the rest of the interview participants lived in one-floor flats.

Figure 96 illustrates the main areas of the ground floor, which influences privacy levels and house users; this illustration relates to the two interview participants that lived in two-floor houses. Both houses had two exterior entrances, as suggested in the design tool. Also, there were two living spaces, each close to one of the exterior entrances, with the family living close to the kitchen. In the generated designs (found in Figure 95), some designs had a similar spatial approach. The location of the kitchen varied between close to the family living room and close to the vertical circulation, with some cases close to both. Some of the contemporary houses included in the sample had more than two living spaces, which resulted in spaces that would not be used unless visitors were around.

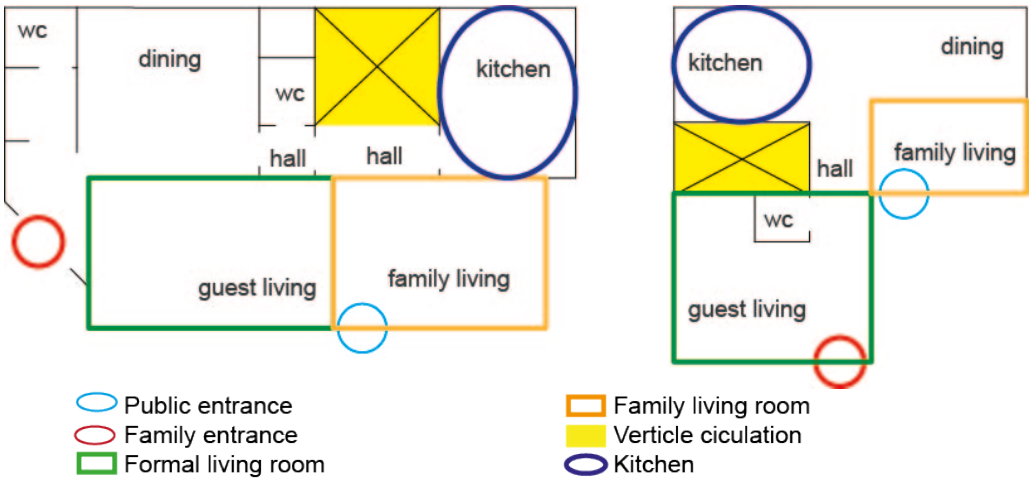


Figure 96 Two participants' house plans that had two levels

After the interviews were conducted, more development projects were introduced in Saudi Arabia; most are still in the process of construction. These projects were either private or organised by the governmental housing department (Eskan). These projects varied in plot size from 150 m^2 to 800 m^2. These land areas had detached and attached multi-floor houses that could go up to three floors, leaving the house with a total area size of between 250 m^3 and 600 m^3.

Samples of the development house projects (which are part of the governmental development housing plan designs) were viewed. There were eight suggested designs on the housing governmental website that were approved for construction (http://housing.gov.sa/ar/Projects/Pages/FellaModels.aspx). Four of these designs had similar plot size to plot assigned to focus group designers. Therefore, these four designs were selected to view in this research and to compare it with the data obtained from the interviewees and to the focus group generated designs. It was noticed that their designs were close to two of the houses found in the participants' house drawings. Governmental plans were selected here, as there were studies made before selecting those designs, which the government chose from the development house design options presented to them. Therefore, these houses can be considered to represent people's needs in contemporary Saudi houses (see Figure 97 and Figure 98).

Figure 97 Houses A1 & A2

Figure 98 Houses B1 & B2

House plans were obtained from the interview participants. These designs had common functional spaces that were involved with their daily patterns of spatial use. Table 5 compares the functional room numbers between participants' houses. It is noticed that though most of the houses in question were one-floor plans, the number of spaces were almost similar. Some spaces such as the office were available in two houses, yet were requested by participants during the interviews. Also, participants complained about the lack of storage spaces.

Table 5 Functional rooms in interview participants' houses

	Living rooms	W/C	Dining Rooms	Kitchen	Bedrooms	Services	Entrances	Office / study
Participant 6	2	4		1	1		1	1
Participant 7	2	2	1	1	2	1	1	
Participant 8	2	2	1	1	3	1	1	
Participant 9	2	3	1	1	2	1	1	
Participant 10	2	2	1	1	2	1	1	
Participant 11	3	3	1	1	3	1	2	
Participant 12	2	4	1	1	3	1	2	
Participant 13	2	3	1	1	2	1	1	
Participant 14	2	2	1	1	2		1	
Participant 15	2	3	1	1	2	1	2	1
Participant 16	2	2	1	1	2		1	
Participant 17	2	3	1	1	2		2	
Average	2	3	1	1	2	1	1	1

Likewise, the resulting designs from the focus groups, which had the design tool assistance, were compared (see Table 6). It was noticed that functional room numbers were similar. Also, it was noted that some had particular functional spaces that were not part of the design tool. These spaces were the office and the gym.

Table 6 Functional rooms in focus groups' resulting designs

	Living room	WC	Dining Rooms	Kitchen	Bedroom	Services	Entrances	Office / study	Store	Gym
Option 1	4	5	1	1	3	1	2		1	
Option 2	3	4	1	2	2	1	2		2	
Option 3	3	6	1	1	4	1	2			
Option 4	3	4	1	1	2	1	1		1	
Option 5	3	5	1	1	2	1	3		2	
Option 6	3	4	2	1	3	1	1	1	1	
Option 7	5	7	1	3	3	1	2	1	1	1
Option 8	2	4	1	1	3	1	2	1	1	
Average	3	5	1	1	3	1	2	1	1	1

When access was gained to the chosen governmental housing development projects, four of the designs (which had similar total built areas) were analysed (see Figure 97 and Figure 98). From Table 7 it was noted that basic spaces were available. Similar to the designs resulting from the design tool, these designs had three floors. Also, the services section was isolated on the third floor in two of the governmental selected houses. Two of the designs had three entrances to serve privacy and users' functional needs. One entrance was designed for a public zone; the second entrance was for a semi-public zone (accessed by family members and their close relatives); and the third entrance was designed for direct access to the kitchen, which was used by house owners and the house help.

Table 7 Functional rooms in the selected houses from the governmental development housing project

	Living room	WC	Dining Rooms	Kitchen	Bedroom	Services	Entrances	Store
Type 1	2	5	1	1	4	1	2	
Type 2	2	5	1	1	4	1	3	1
Type 3	2	4	1	1	3	1	3	1
Type 4	2	4	1	1	3	1	2	1
Average	2	4	1	1	3	1	3	1

Table 8 Comparing average functional room numbers: interviews, focus groups and the governmental housing development project

	Living room	WC	Dining Rooms	Kitchen	Bedroom	Services	Entrances	Office / study	Store	Gym
Interviews	2	3	1	1	2	1	1	1		
Governmental	2	4	1	1	3	1	3		1	
Focus Groups	3	5	1	1	3	1	2	1	1	1

The average of those three tables was compared in

Table 8. From that table it can be noticed that there was consistency in the number of kitchens and dining rooms. The main variation in room numbers was noted in the number of toilets. That can be referred back to the number of toilets servicing the bedrooms, as in the governmental housing development projects it was aimed to provide each bedroom with its own en-suite toilet, which was not touched upon in the focus group designs and house plans obtained from interview participants.

The aim of the design tool is to guide architecture students and inexperienced designers; the result of the focus group supports its usability. From the results that the focus groups produced and the discussion that participants reflected on, the tool was suitable for accomplishing the intended aim of the design tool.

9.3. Interview participants' evaluation of the resulting designs

The eight resulting designs were presented to three of the interview participants, who have agreed to be contacted for a follow up interview, to obtain their feedback as part of the evaluation of the design tool. The participants were notified that both female and male designers generated the designs, but they were not aware which designer produced which designs. The participants were not informed so that their responses would not be bias to the designer gender. The aim of these short (follow up) interviews was to get interview participants feedback on the produced house designs while using the functional relationship design tool. The main question that the short interview aimed to answer is the level of privacy provided in those newly produced designs. At first the interview participants were sent the eight option plans via email to examine before the interview took place. After that they were contacted via Skype, as they were in the interviews earlier (see Chapter 4). The participants were asked to select the least likely plan to live in and the most preferred plan to live in. The participants had some questions about the plans, questions to help them understand parts of the plans provided as the plans were unfurnished to not influence their decisions.

All interview participants agreed that most designs provided privacy on all house levels, but they collectively chose 1, 2, 3 and 8 as options that best provided the required levels of privacy. On the other hand they collectively selected 6 and 7 as designs with low levels of privacy, exposing the owners to visitors. They chose those three options (option 1, 2, 3 and 8) because of the clear privacy level division in them, which provides the user with their freedom inside the house and control over movement of visitors in the house. Also the two external entrances made a difference to the interview participants, as they have criticised the designs that had only one entrance, as they would be more suitable and approachable if they had two external entrances. Designs that provided two kitchens were desirable by interview participants in their feedback on the resulting designs from the focus group; these that had the secondary/ dirty kitchen help isolate the odour that might come from cooking.

9.4. Summary

This chapter aimed to evaluate the design tool. That was achieved by using focus groups with interior designers and architects as its participants. These focus groups are discussed in this chapter; the pilot focus groups and the final ones; the process of testing the design tool in both its forms (see Chapter 6 for the design tool forms) with male and female designers and the discussions that were held after the design process.

At first the researcher organised two pilot sessions with female designers to test the developed tool in the form it was generated (see Chapter 5). After those two focus groups, the researcher organised with a moderator to organise a focus group with the male designers. It was difficult for the researcher to conduct the focus groups with male designer herself because of the social and cultural norms, which led the researcher to ask for the help of a male designer to be a moderator for the male focus groups (pilot and final). That resulted in two pilot focus groups sessions with male designers before conducting the final focus group discussed with interview participants.

On one hand, the process of using the design tool was tested; it's usability and complexity. On the other hand, the comments and points raised in the focus group discussion enriched the context of the evaluation process. Finally, the focus group participating designers agreed on the benefits that the tool brings, yet they were specific on the users the tool is to target: designers with limited knowledge with the Saudi culture or housing projects and design students. Also, the interview participants contacted after the focus groups were conducted viewed the resulting designs for their feedback per the suitability of the resulting designs. The interview participants evaluated the designs with general common of the designs suited their needs: social and personal and provide their privacy needed inside the house.

The evaluation phase explored the design tool in both its phases. It was noticed in the focus groups that participants found the first form unclear, while other participants who were given the second form of the design tool found it limiting. There were comments made by different focus groups participants in relation to the design tool form and its usability. Most comments were placed on the second form of the design tool, where participants agreed on its easy-to-use form, yet expressed their concern about the limitations it places on designers and their

creativity. These differences in understanding the tool in its different phases resulted in a hybrid (see Figure 99). The dotted lines refer to the optional relationship between the spaces, while the solid lines refer to the direct relation between the spaces. Diagrams in Figure 99 refer to functional relation also allocation within the different privacy levels of the house. These different privacy levels inside the house were discussed in literature (see Chapter 3) and in the discussion of the interviews outcome (see Chapter 7). Placing the house different spaces in those three privacy levels gives the designer flexibility and more creative opportunity in the design process while respecting the functional relationship and privacy needs. The second form of the design tool, which was described as limiting by the focus group participants, placed circulation as part of the functional relationship diagram (see Figure 85). Meanwhile in the hybrid design tool vertical circulation was not mentioned as to give the designer more flexibility to where to place it in order to serve privacy and functional requirement. Figure 99 not only provides designers with main spatial elements, but also with other optional functional spaces that were in the previous design tool forms and in the outcome of the interviews and focus group discussions (see Chapter 7 and Chapter 9).

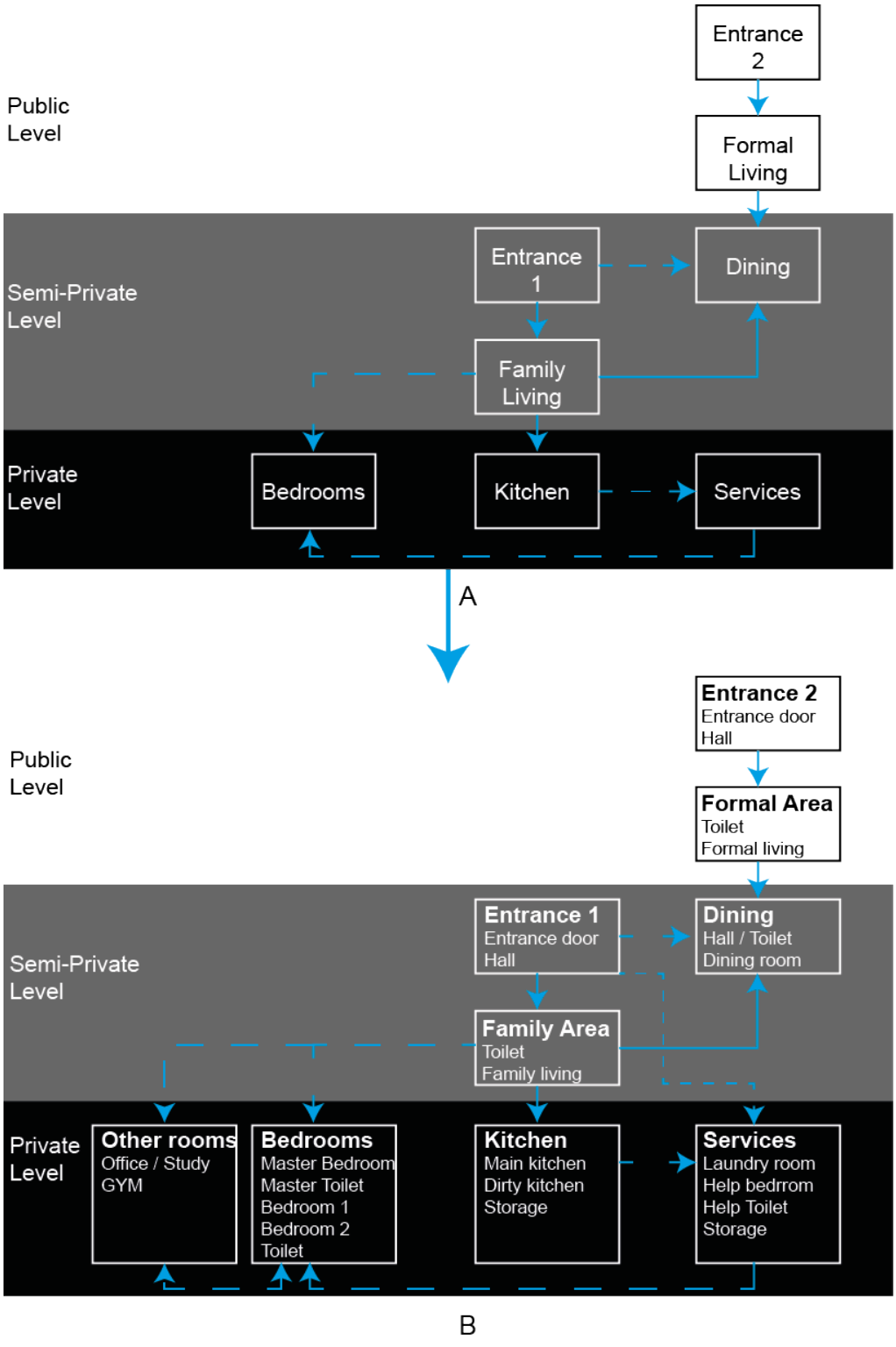


Figure 99 Hybrid design tool

Chapter 10. Conclusion and contribution

10.1. Introduction

This research has explored traditional and contemporary Saudi Arabian houses, with a focus on those in the Eastern region of the country. This focus was a result of the familiarity and access that the researcher has there. The research has examined users' requirements inside their houses in relation to the concept of privacy, which are a result of cultural and social needs. Duplex houses, which are part of development projects, were the targeted house type in the research, as this is a contemporary type of accommodation trend in Saudi Arabia due to its financial convenience for young people seeking a house.

The lack of communication between users and architects, which intensifies the gap between users needs and designers knowledge was highlighted in literature and in the interview transcripts. This gap drives away prospective house owners from this type of house, and when they do own them there are much modification applied to the original designs. Therefore, the research explored the gap between clients and designers to help better inform interior architects about users needs and requirements inside their houses, in particular the concern of privacy and its social implications and spatial representations.

The research followed a qualitative methodology to seek answers to the research questions; the meaning of privacy, its importance and representation inside the contemporary Saudi house from the perspective of its female users. Through this methodology, information about traditional Saudi houses was explored and patterns of use were traced through the architectural and interior elements. The development of Saudi houses was observed from literature and from the fieldwork that the researcher conducted; observing sample family and interviewing female participants living in contemporary Saudi houses. Information about lifestyle, patterns of use and socio-cultural needs inside the house, related to the concern of privacy levels, was gathered in the fieldwork under the ethnography research approach.

Observation and interviews were the methods that the researcher applied to investigate the concept of privacy in the perspective of contemporary female users. The meaning of privacy was concluded from the participants description in the interviews and from their actions and pattern of use during the observation phase. These meaning revolved around the control the owner has on their

surroundings; giving permission and having knowledge of people in the house and spaces they access. Also, privacy related to the social requirement of hospitality rituals, as a characteristic, Arabs are well known for their hospitality, which can invade one's privacy boundaries. Yet, from the data collected and literature, it was apparent that hospitality and privacy complement one another as they are both a result of socio-cultural factors.

The analysis of the data collected resulted in the functional relationship design tool, which responded to the research questions. This functional relationship design tool was formulated from the data analysis outcome and was tested by professionals from the field, interior designers and architects both female and male. The process of testing the functional relationship design tool also touched upon the knowledge that designers already had in relation to social needs of users, reflecting upon the raised concern in literature: gap between designer and users.

The research presented the representation of privacy in contemporary Saudi houses from the perspective of female users, as it also presented the meaning and importance it had for the users, personally and socially. The knowledge produced from the research process and analysis formed the functional relationship design tool.

10.2. Privacy as a concern in Saudi houses

The focus of this research was the concept of privacy and its role in shaping and configuring the contemporary Saudi house due to social and cultural requirements. This concept was explored broadly through the literature from the perspective of Western culture at first then in from the literature of Arab scholars. However, despite the level of concern with privacy in Saudi culture (discussed in Chapter 2), limited work had been undertaken to examine the privacy requirements for interiors in contemporary Saudi houses. Therefore, the researcher examined the concept thoroughly using participant observation and interviews conducted in Saudi Arabia.

The literature discussed the concept of privacy in Western culture as a personal preference and the degree of control, looking at privacy mostly from a personal perspective; personal characteristics, preferences and behaviour. Then relating it to the user's need for personalised physical spaces. Pedersen (1999) and Newell (1995) discuss the personal meaning of privacy, resulting in a personal need for privacy, that information was utilised more in the cyber fields. While works of

Altman (1977) and Hall (1990a) dealt with the areas of personal needs in a space, interaction with people, and the creation of physical boundaries, interpreting the physical boundaries of these needs.

Abu-Gazzeh (1995) wrote about physical barriers as a response to Saudi users' concern for privacy inside and outside and between different gendered users of a house. Other scholars (Bahammam 2006, Zako 2006) have referenced and recommended the use of the courtyard house design to accommodate privacy levels. Yet, the use of courtyard houses needs more study because it does not meet current Saudi building regulations, or with contemporary cultural acceptance.

The research considered the users as affecting factors when observing participants and analysing the notes and the interview transcripts. Due to that fact and the Western effect on contemporary Saudi culture; as Altman (1977) concluded, privacy is culturally specific and users (observed and interviewed) input varied.

Participants in the interviews expressed what the meaning of privacy was to them verbally, these answers varied yet emphasised the importance of the physical privacy inside the house. Referring back that importance to the social norms and religious need of physical separation between male and female members, in order not to expose female members to those male visitors who are not related. Also, the data from the interview participants informed the researcher with the changes that occurred to the social activities and events that took place inside the house. When it was custom to have events that held male and female members in the house at the same time in the past decade or so, currently that is rare to happen because the size of the contemporary houses and the socio-economic requirement that come with organising this type of events. That affected the house design and spatial/ functional organisation of contemporary houses, therefore the patterns of use.

The collected data revealed users' physical interpretation of their concern with regard to privacy levels inside their houses. Also, two aspects of privacy were analysed: the visual and information, and their interpretations was analysed.

10.3. Design tool

When reviewing the literature, scholars (Al Naim 2006b, Sidawi 2008) have addressed different social aspects that have affected house design and

recommended the development of framework or a design tool that would tackle these aspects and involve them as part of the design process of the house design. Literature review and the collected data in this thesis, the researcher was able to highlight the physical interpretation of the concept of privacy inside contemporary Saudi houses. These interpretations related to architectural elements that were already present in the existing houses, where traditional houses inspired some more contemporary house designs. The personal preferences that were touched upon during the interviews were varied yet common. As mentioned, the meaning of privacy derived from interview participants touched upon physical and visual aspects of privacy. The allocation of a function in a space was completed by its physical boundaries.

The design tool aimed to fill the gap between users' needs and architects' knowledge of these updating needs. The tool was designed to be used by interior architects and interior designers involved in the design process of development duplexes in Saudi Arabia, the Eastern region in particular.

The research investigated this conceptual need from the perspective of contemporary Saudi female users. This investigation led to the identification of boundaries to the concept of privacy inside contemporary Saudi houses, which in turn led to the design tool. This design tool aimed to connect interior architects with users' needs and house interior updating requirements.

The design tool is a functional relationship that reflects the concerns that interview participants had regarding privacy boundaries and levels inside the house. Adopting the flow of the functional relationship design tool aim to produce houses with spatial designs that are more accepted by contemporary users with different privacy level concerns, as such concerns varied between the participants.

10.4. Contribution and recommendations

Through the journey of exploring the concept of privacy, the focus was on its existence within contemporary Saudi houses. During which, the researcher was able to touch upon the boundaries of this conceptual term: privacy. As discussed in Chapter 5, privacy meaning had influential factors, both internal and external. The identification of these factors and acknowledgment supported the resulted importance and physical interior representation of privacy need inside contemporary Saudi houses.

The research went upon exploring the meaning of privacy, importance and representation. The meaning of privacy according to female users of contemporary houses in Eastern region of Saudi Arabia:

- Privacy was about having control over the house
- Placing spatial boundaries that associated with users allowed to access them. Privacy means freedom, control, personal space and ownership.

The users' needs were translated through the different functional spaces:

- Multiple spaces with similar functions to host different users.
- Spaces allocated in privacy levels to respond to owners privacy needs.
- The use of different vertical levels in the house.
- The use of facilitating halls as introductory and transitional spaces.
- Spatial design and functional relationship that responds to the pattern of use and level of privacy required.

Also, in the process of conducting the interviews, different methods were applied (face-to-face and the use of Skype). These different methods enriched the collected data, for in which the researcher was able to notice the nonverbal communication during the Skype interviews and experience the social behaviour during the face-to-face interviews. The use of Skype is not recommended as face-to-face within the qualitative research (Holt 2010, Hanna 2012), yet within this research it provided the researcher with advantages:

- Overcoming the distance barriers
- Provided an informal environment for the participants, giving them comfort and were more relax and responsive for such a sensitive topic.
- Avoiding the social interruption that was faced during the face-to-face interviews
- Flexibility in scheduling/ rescheduling the interviews.

During the focus group discussions, designers' comments were

- The design tool was suitable to be used as an introductory tool for new graduate interior architects, interior architectural students and non-Saudi architects.
- Also, some of the participating designers in the focus group thought the tool was clear and could be used as a means of communication between users and architects for private villa designs, and not only for designers aiming towards the design of development duplexes projects.

- Yet, it was argued that the tool could limit the creativity of the designer, forcing him/her to think linear.
- Also, it was stated that the information that the design tool provided was commonly known by designers, did not add to their knowledge, hence it was suggested for students and designers unfamiliar with the culture.

From the evaluation of the functional relationship design tool (see Chapter 6), the design tool corresponded with the developing social needs of contemporary Saudi users, which was a reflection of its flexibility.

10.5. Research Limitations

The research faced some limitations due to the sensitivity of the topic. Firstly, due to time restrictions, it focused only on the Eastern region of Saudi Arabia. Secondly, the cultural and social necessities that allowed the researcher to only able to communicate with female participants. However, the fact that the participants were female could be considered a strength rather than a limitation; also, previous research in a similar topic area also had female participants to get insight to their feelings about the studied issue inside the house (Akbar 1998, Al-Kodmany 1999, AlNafea 2006). Also, the same social and cultural necessities, the researcher had to use a moderator to conduct the focus group with male designers in the functional relationship design tool, which resulted in some miscommunication before it was conducted according to the plan that was placed by the researcher.

10.6. Future work

This work structured a base for the concept of privacy in contemporary Saudi houses from the perspective of its female users. For future research, it is recommended to involve both male and female participants in the process of developing a more generalised knowledge of what the meaning, importance and boundaries of the concept of privacy in contemporary Saudi houses. With this knowledge the gap between architects' and users' needs would be narrowed. Another approach would be to apply the design tool and examine it with a larger number of professionals. Also the application of the design tool in the design process within the academic program for student to benefit from the functional relationship it provides that responds to the cultural and user need of privacy inside the house.

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Appendices

Appendix a. Interviews

Consent form - Interviews

بسم الله الرحمن الرحيم

My name is Maryam AlKhateeb. I am a PhD researcher in Bournemouth University, Bournemouth, UK. As part of my study, I am conducting interviews about the importance and meaning of privacy within contemporary Saudi houses.

The study aims to improve the design process of Saudi houses to suit the users' social needs. I would be very grateful if you could help by giving the time to answer some questions.

Interviews will be via Skype software and conversation will be audio recorded for the researcher's reference. If requested, a copy of the interview can be forwarded to you. Your response will be treated in complete confidentiality. Data handling complies with the UK data protection act of 1998 (UK), which Bournemouth University follows. If you do not want to answer any question, do let me know.

MK

I confirm that I have read and understood the participant information sheet for the above research project and have had the opportunity to ask questions.	
I understand that my participation is voluntary and that I am free to withdraw at any time without giving reason and without there being any negative consequences. In addition, should I not wish to answer any particular question(s), complete a test or give a sample, I am free to decline.	
I give permission for members of the research team to have access to my responses. I understand that my name will not be linked with the research materials and I will not be identifiable or identifiable in the report or reports that result from the research.	
I agree to take part in the above research project.	

المشارك المشروح: _____ التاريخ: _____

الله قيم:

انا الباحثة / مريم الخطيب من جامعة بورنموث البريطانية ، واقوم حالياً ببحث لنيل درجة الدكتوراه في دراسة تطوير مراحل تصميم المنازل السعودية للتلائم مع الاحتياجات الاجتماعية لمستخدميها.

اشكر مشاركتكم و وقتكم الثمين بالسماح لي بإجراء المقابلات الشخصية لتجميع البيانات اللازمة لهذه الدراسة.

ستكون هذه المقابلات بإستخدام برنامج "سكايب" وسوف يتم تسجيل صوت المحادثة كمرجع للباحثة (ويمكن إرسال نسخة من المحادثة لك عند الطلب)، كما سيتم التعامل مع هذه المحادثات بحرص وسرية تامة وبتوافق مع قانون حماية المعلومات لعام 1998 (بريطانيا) والمتبع استخدامه من قبل الجامعة).

ان المشارك المتطوع في هذه الدراسة غير ملزم بتقرير اجابته ، وله الحق في الإمتناع عن الاجابة لاي سؤال او الرفض ، كما يمكنه التوقف في اي وقت شاء.

والباحث يؤكد أن إسم المشارك المتطوع لن يرتبط بما يقدم من مواد وبيانات للبحث ، وستكون أجوبته للفريق البحث مجهولة الهوية ، ولن يتم ذكر مايساعد على التعرف على شخصيته من خلال البحث.

الباحثة / مريم الخطيب

يقر المشارك بأنه قرأ وفهم ان المطلوب الحصول هي شراعية منه و لاغراض البحث العلمي وأن إجابته جزء من الدراسة البحثية.

المشارك المشروح: _____ التاريخ: _____

الله قيم:

Interview questions (Pilot)

Standard questions (this line is for my own reference)

Location, age, education, work status, what type of houses do you live in? Eg. Villa, apartment, flat..., rent or owned, how long have you lived in this house?

What does privacy meant to you in your home (this line is for my own reference)

What does privacy in the home means to you? Would you kindly prioritise your reasons?

How would you like your dream house to be like?

Your current house, would you kindly describe it to me, take me through a tour in it verbally. Draw a simple floor sketch.

What is the house that you would never consider living in?

How important was privacy when you select a house? Kindly scale it between 1-10, having 1 as low in importance and 10 very important

If renting, for how long are you planning to stay and why? Are you considering to extend the rent contract and why?

Are you planning to move and why?

What are the architectural elements that helped in providing privacy in the house (this line is for my own reference)

Refer back to the house she lives in, if not already pointed out the elements try to indirectly ask her about them.

Were there any adjustments that you had to do in your current house to overcome some privacy breaching? (to know and emphasise on which are the architectural elements)

What are the sources that influenced your interior design choices? (wait for participant's answers then might add some more suggestions: movies, magazines, internet, TV shows, other houses that they visited, interior designer, other) (to know what are the influencing factors on decision making)

If the participant states TV shows as an influencing source: what programs do you watch?

In your home, how frequent do you get visitors and how long do they stay? State if family related or friends

When visitors visit, what are the ones that they are expected to be in (for both male and female)

What is the importance of privacy (this line is for my own reference)

Do you travel for vacation abroad? If yes, for how long and what type of accommodation do you live in?

How would you rank the privacy level you got living in that type of accommodation?

If you were to move to an open space plan house that provides blind spots in some areas, to provide visual privacy, how comfortable and accepting to the idea will you be? Will that provide you with the privacy you need? (this point is to know if it was a good idea to proceed with the concept of blind spots and spatial privacy, to help the participants understand the question, some images will be provided as an example of the concept)

Interview questions (final)

Standard questions (this line is for my own reference)
what type of houses do you live in? Eg. Villa, apartment, flat..
how long have you lived in this house? Are you planning to move and why?
Sketch privacy creation from owner's description
What are the architectural elements that helped in providing privacy in the house (this line is for my own reference)
Is there anything in your home that you wish to change? Why? (as in what is the reason, is it only aesthetic or functional)
Were there any adjustments, architectural or decorative, that you had to do in your current house to overcome some of the things that you didn't like? (to know and emphasise on which are the architectural elements)
What is the house that you would never consider living in?
How would you like your dream house to be like?
What are the sources that influenced your interior design choices in solving or to help you in adapting to the house if that is the case? (to know what are the influencing factors on decision making)
What does privacy meant to you in your home (this line is for my own reference)
How important was privacy when you select a house? Kindly scale it between 1-10, having 1 as low in importance and 10 very important
What does privacy in the home means to you? Would you kindly prioritise your reasons?
Privacy and hospitality
Visitors and hospitality customs and privacy, tell scenarios, in each scenario what are the privacy protocols taken, spatial and customs and functional areas used.

1. When you daughters' friends come over
2. When you sons' friends come over
3. Family gatherings (daughters and sons and their spouses)
4. Neighbours
5. Other family members (such as sisters and brothers ext)
6. Men visitors

If you were to move to an open space plan house that provides blind spots in some areas, to provide visual privacy, how comfortable and accepting to the idea will you be? Will that provide you with the privacy you need? (this point is to know if it was a good idea to proceed with the concept of blind spots and spatial privacy, to help the participants understand the question, some images will be provided as an example of the concept)
What is the importance of privacy (this line is for my own reference)
Finally, do you travel for vacation abroad? If yes, do you feel that privacy is an issue and why

Appendix b. Focus groups

Focus group invitation / consent letter

My name is Maryam AlKhateeb; I am a PhD researcher in Bournemouth University, Bournemouth, UK. As part of my study I am conducting focus groups to test my findings. The research is interested in the issue of privacy inside contemporary Saudi houses, mostly development houses such as duplexes. Hence, the findings led to a design tool that aims to enhance the quality of newly designed houses from the point of providing privacy. I would be very grateful if you could help by volunteering to participate.

The group members participating will be gathered to test the research outcome and give their insight regarding what they thought of proposed tool. The process of the focus groups will be audio recorded for the researcher's reference only. Your participation will be treated in complete confidence.

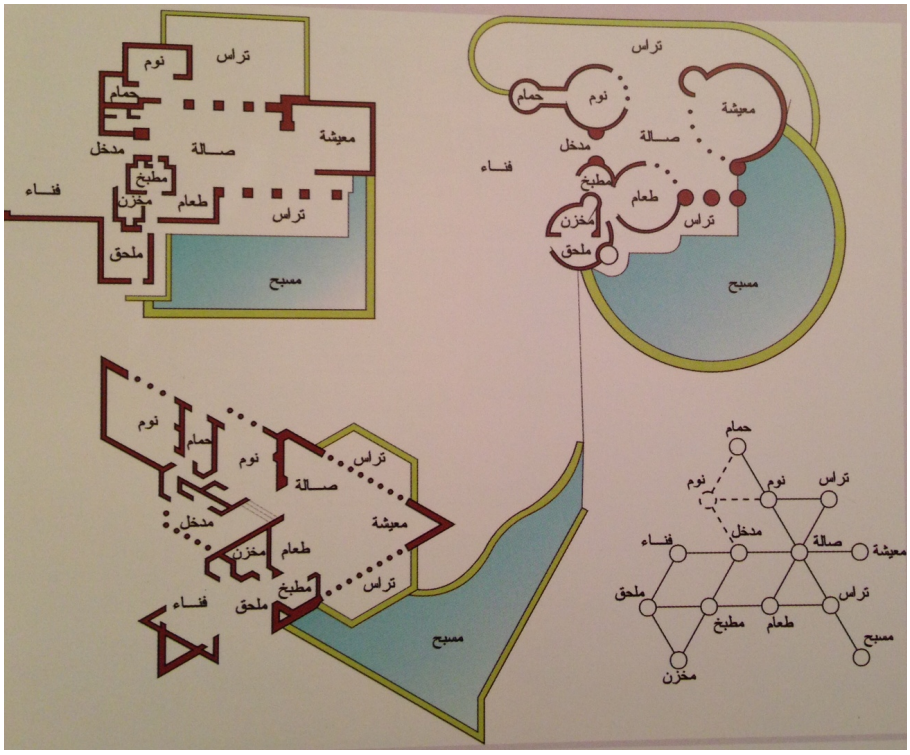
Focus group plan

If you could provide participants with couple of A4 papers (preferable grid papers to get scaled drawings) when I did mine I had grid paper per participant and some transparent paper, whatever you can provide.

Participants would get a brief of the nature of the research; following points are to be included:

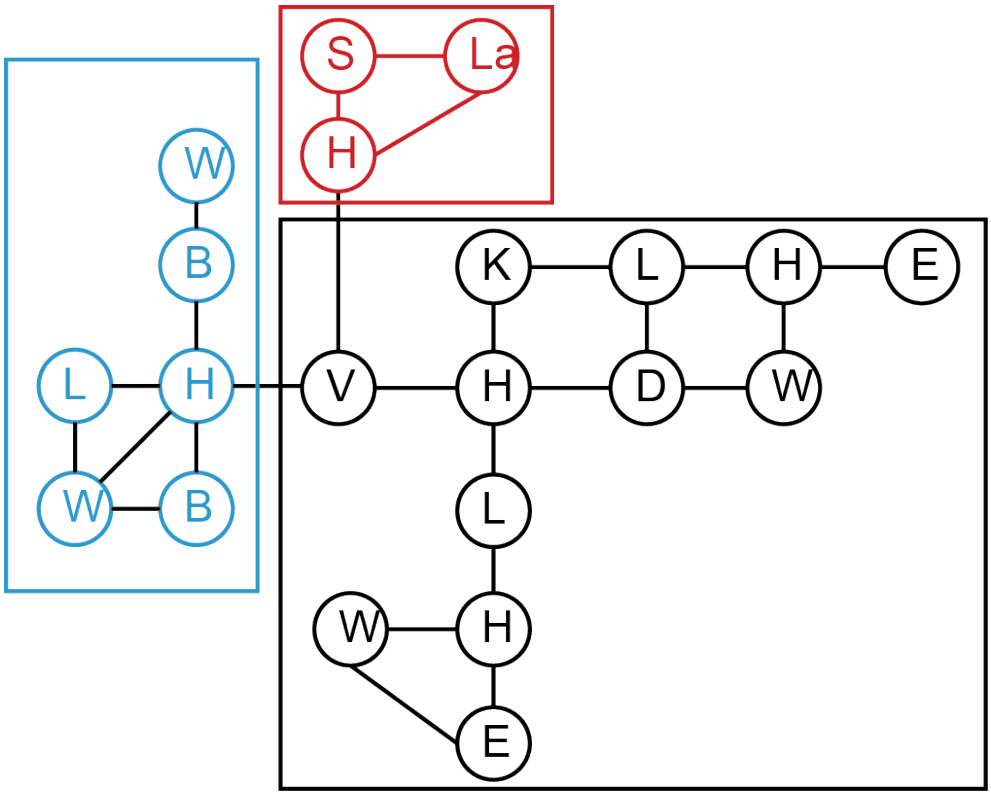
1. Focus on development houses
2. Privacy within spatial design of Saudi contemporary houses
3. The focus group requires participants to design a house
4. The focus group is to test the tool not participants' as individuals
5. There would be audio recording of the focus group only for my reference which will be destroyed after taking the necessary points from them

After the brief and the mentioned above points, give them the area in which the design to be in (a 12m x 26m land) they can go up to 2 floors and a roof level.



For your reference only (unless you thought that would help the participants use the tool better view the following image: one diagram (bottom right) yet 3 different resulting designs

Before they start designing the duplex style house, please show them this image (as it is the design tool I'm trying to test) each dotted group of spaces represent the privacy level they are in. this task is to take around 30 – 45 minutes



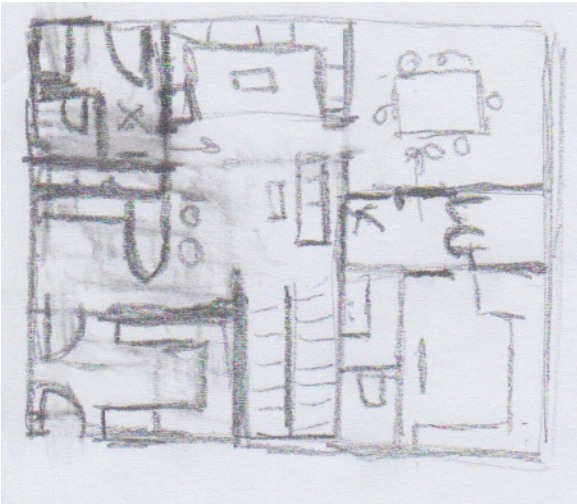
E Entrance
H Hall
W Toilet/Bathroom
L Living areas (formal-family)
V Vertical Circulation
D Dining room
La Laundry
S Services / help accommodation
B Bedroom
K Kitchen

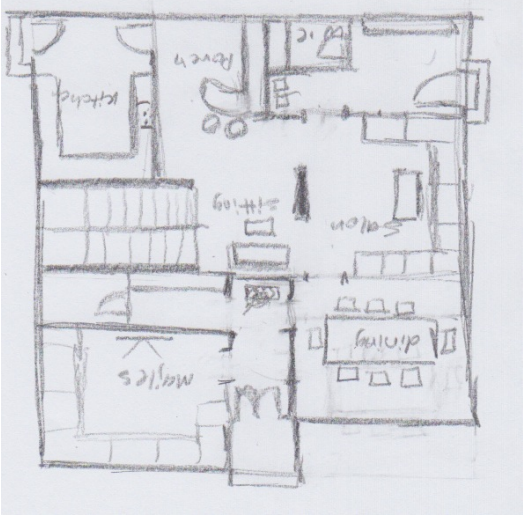
After they are done designing, there is a small discussion (this is the most important part to be audio recorded). Participants are to view one another's work and the following points are to be involved in the discussion:

1. The tool presented: was using it easy? Did they find it handy? In what way did it assist in the design process?
2. Are there any suggestions/ additions recommended to the design tool to improve it?
3. Who would benefit most from such a tool (development groups? Students??)

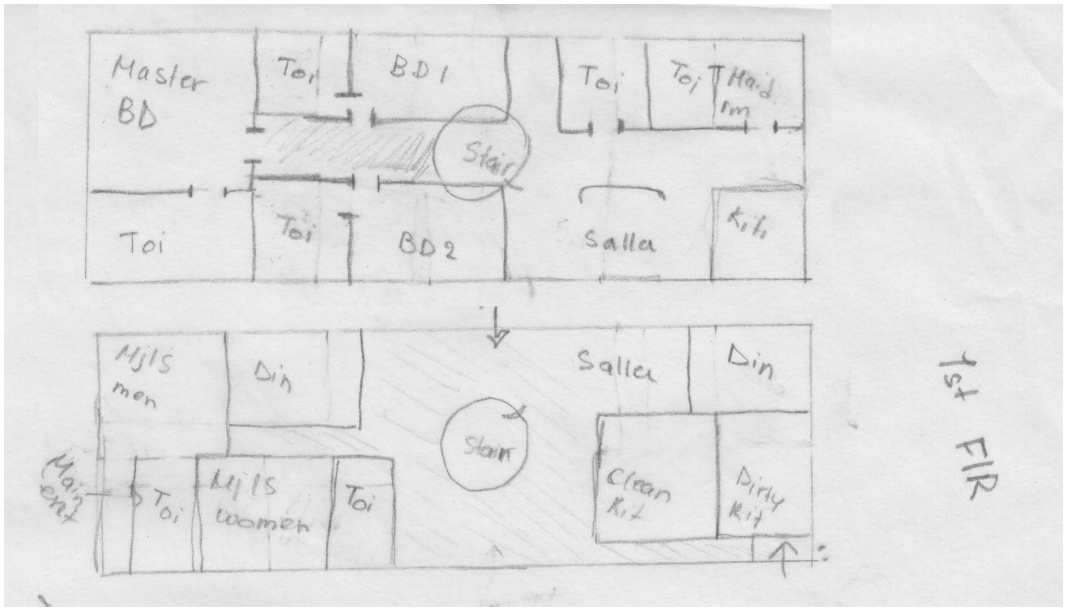
One important point to keep in mind, this tool relies on the issue of privacy, so practicality is important but maintaining privacy is also important. Having said that, the designers have the flexibility of adding or taking away spaces as they see necessary but they need to mention why they thought it was necessary to do so in the discussion. That also would reflect their use of walls and other architectural or spatial design elements.

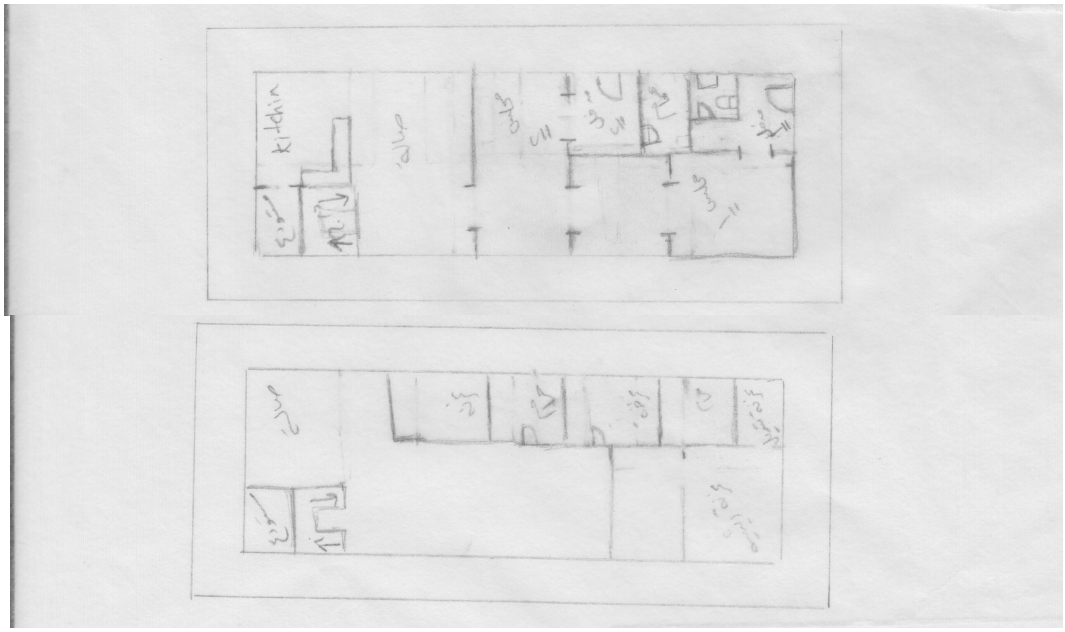
Focus group pilot (female 1)



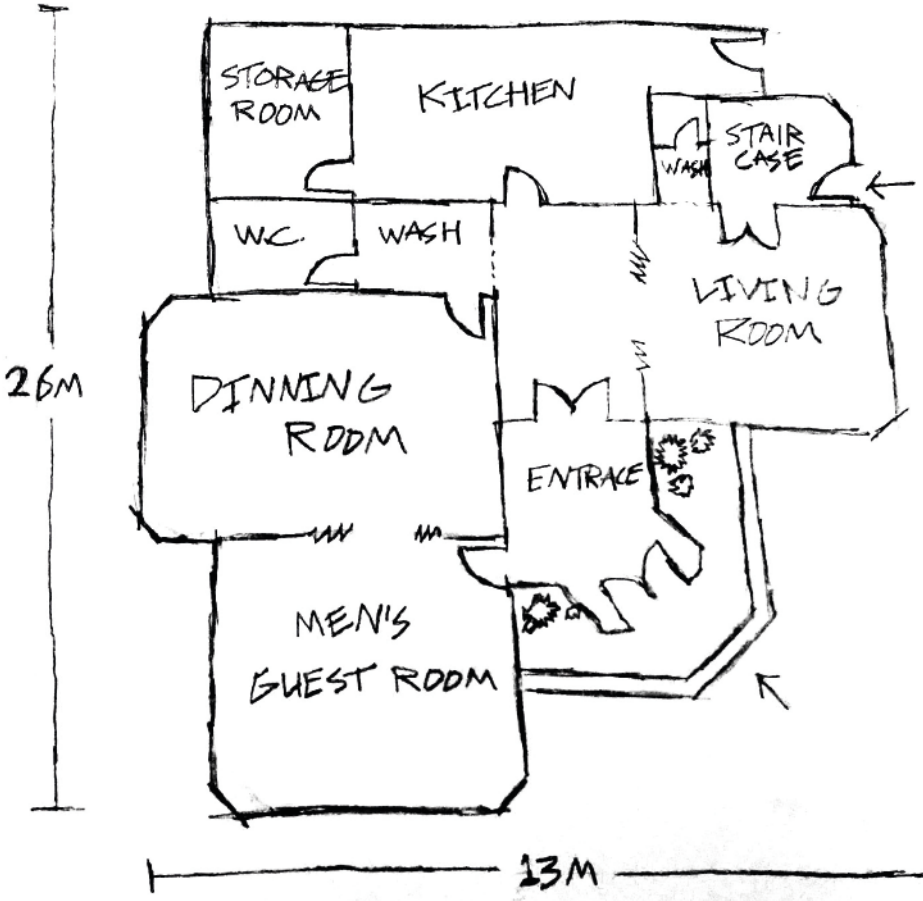


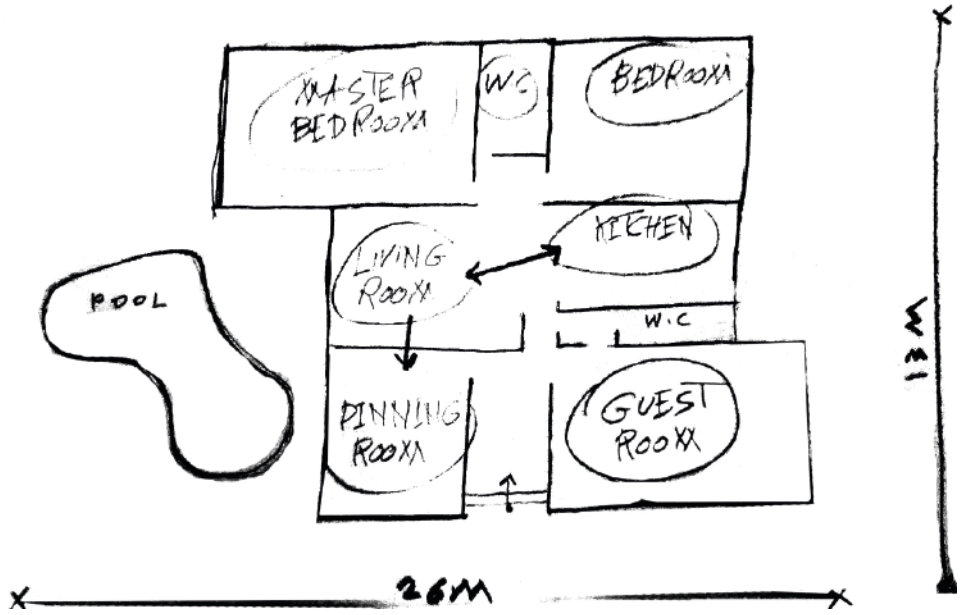
Focus group pilot (female 2)

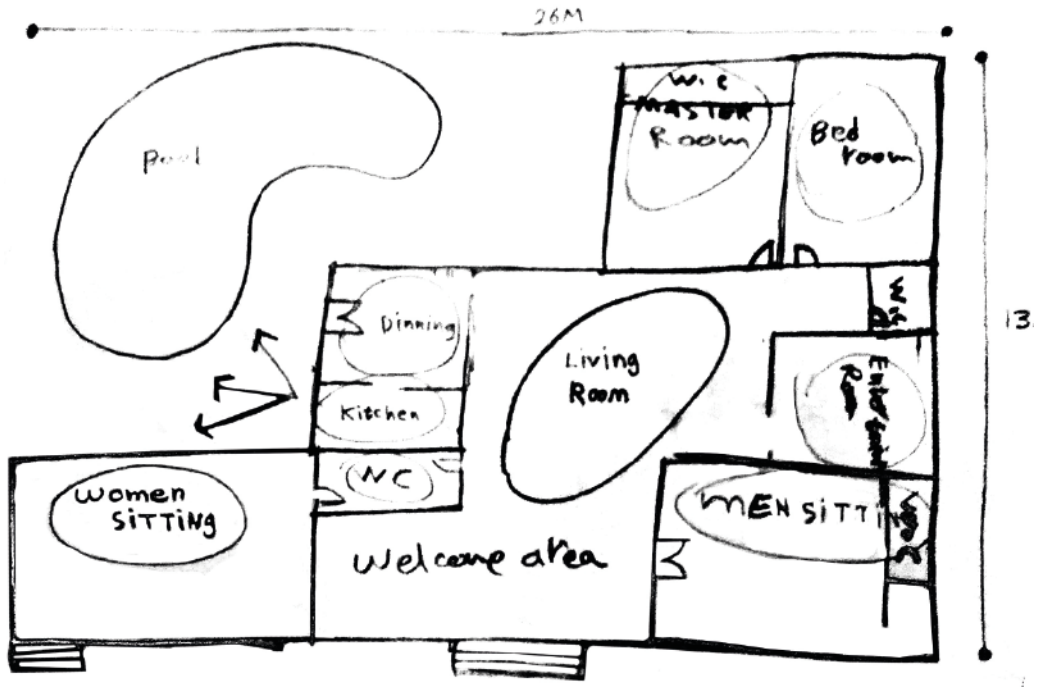


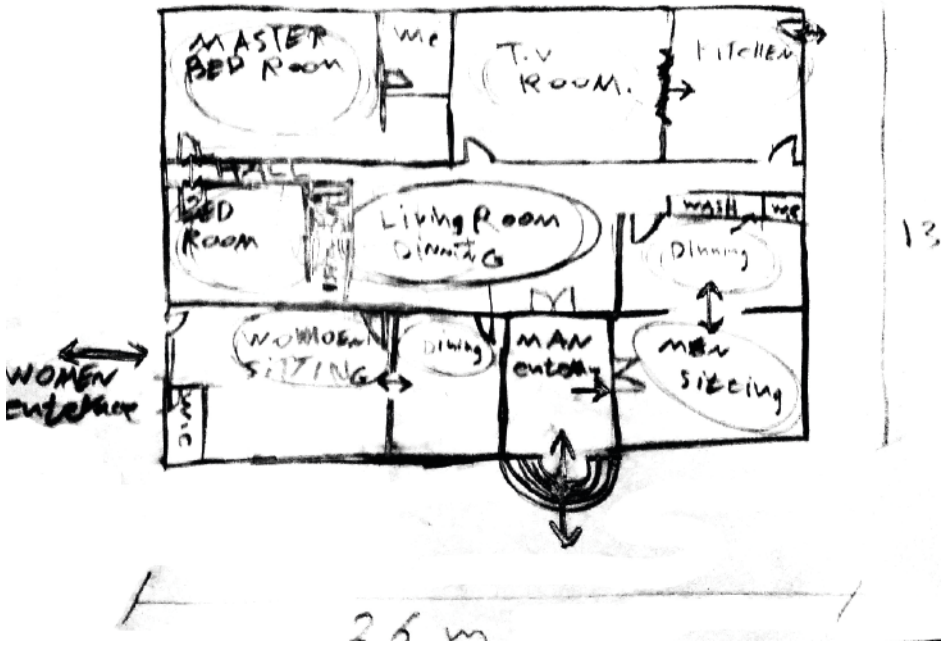


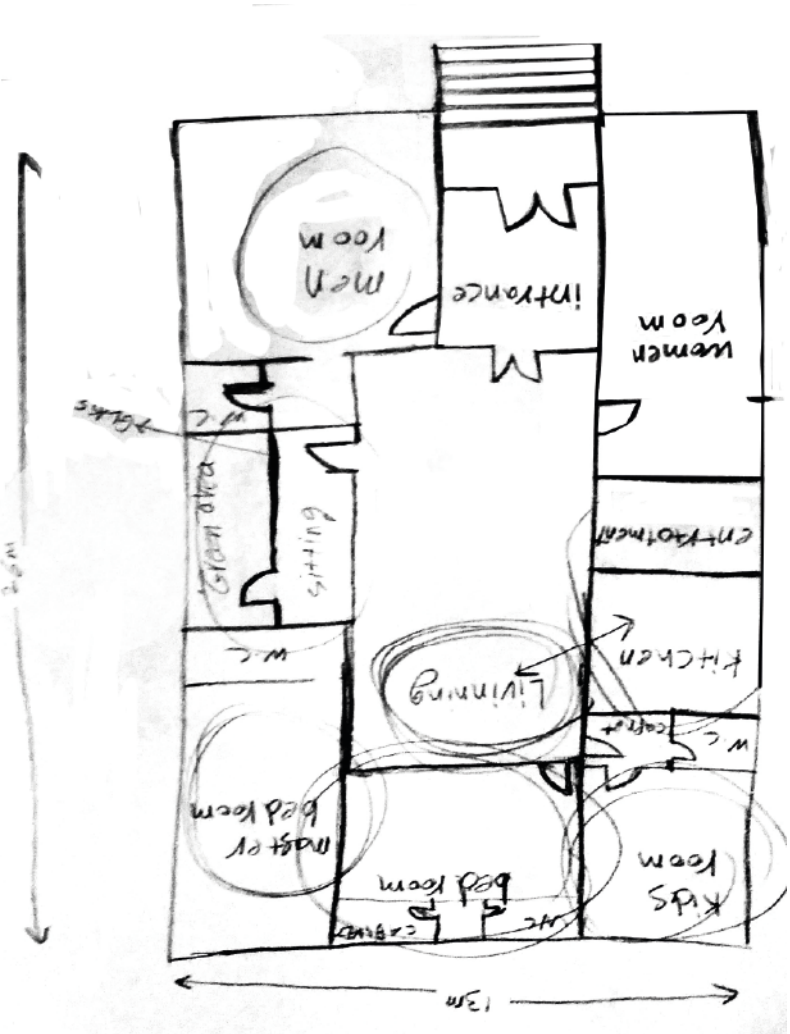
Focus group pilot (male 1)





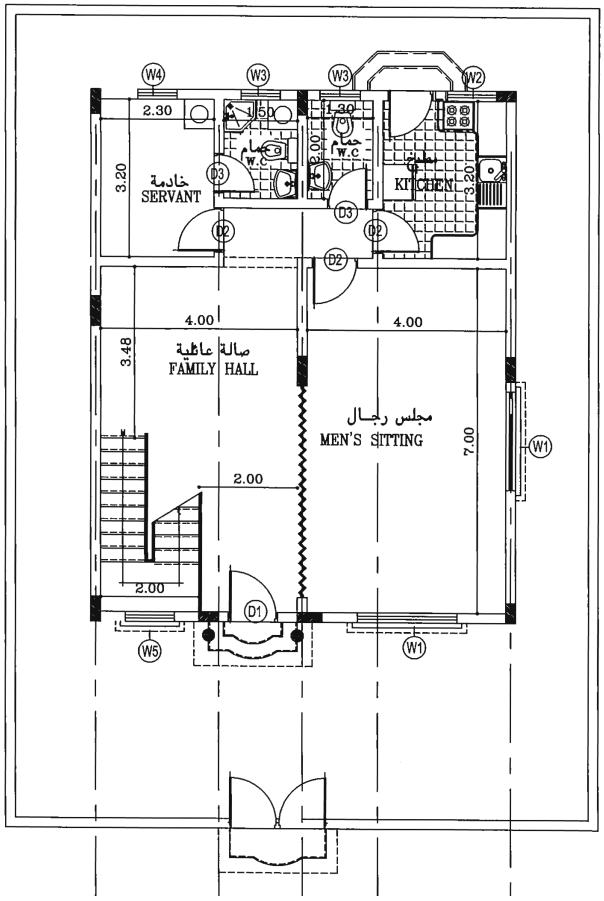

26M
Pool
W.C
MASTER Room
Bed room
Dinning
Kitchen
Living Room
W.C
Entertainment Room
13
women SITTING
WC
Welcome area
MEN SITTING

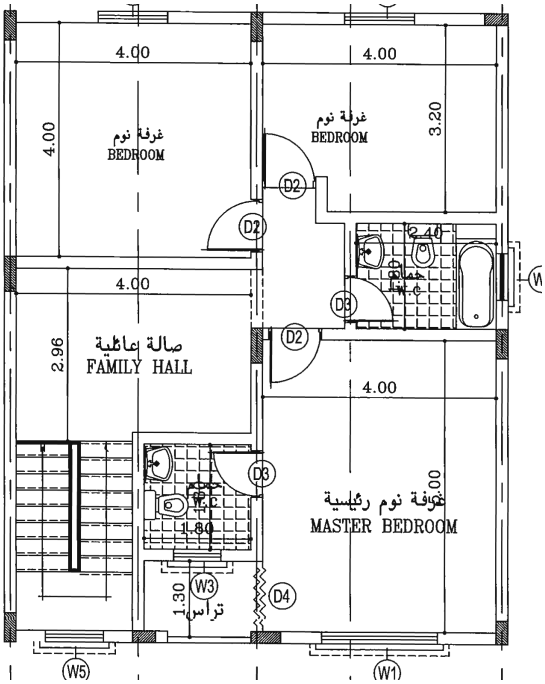

MASTER BED Room
W/C
T.V ROOM.
KITCHEN
BED Room
Living Room Dinning
WALL
W/C
Dinning
13
WOMEN entrance
WOMEN SITTING
Dining
MAN entrance
MEN sitting
26 m

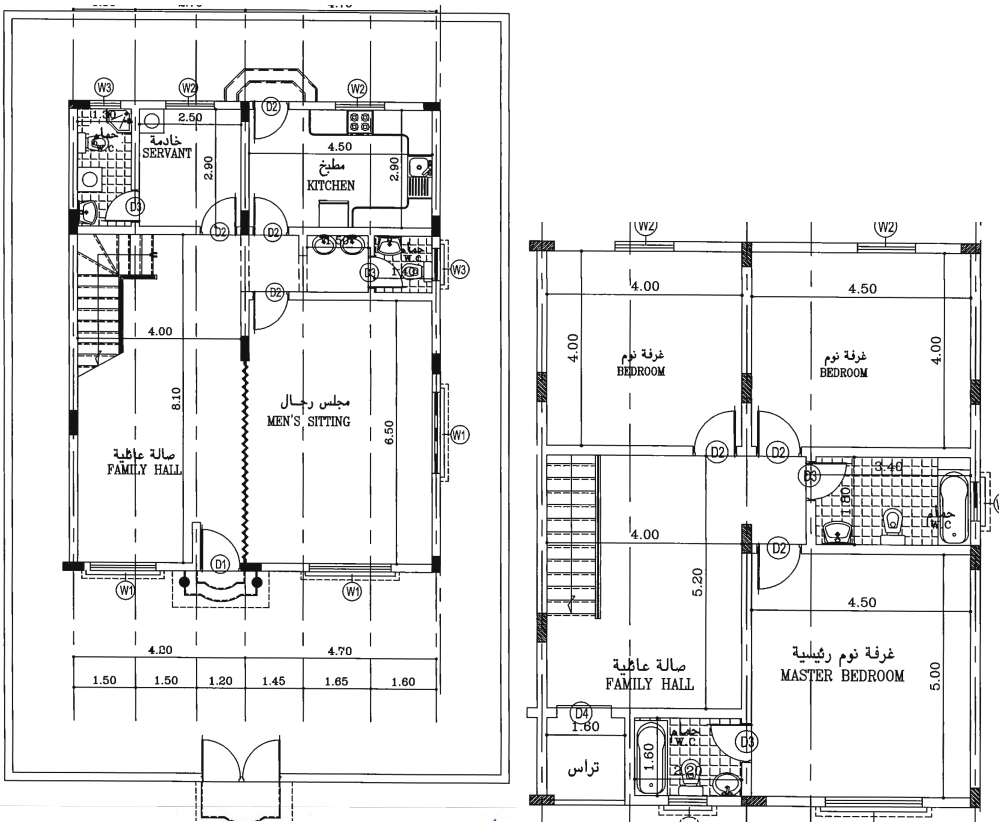


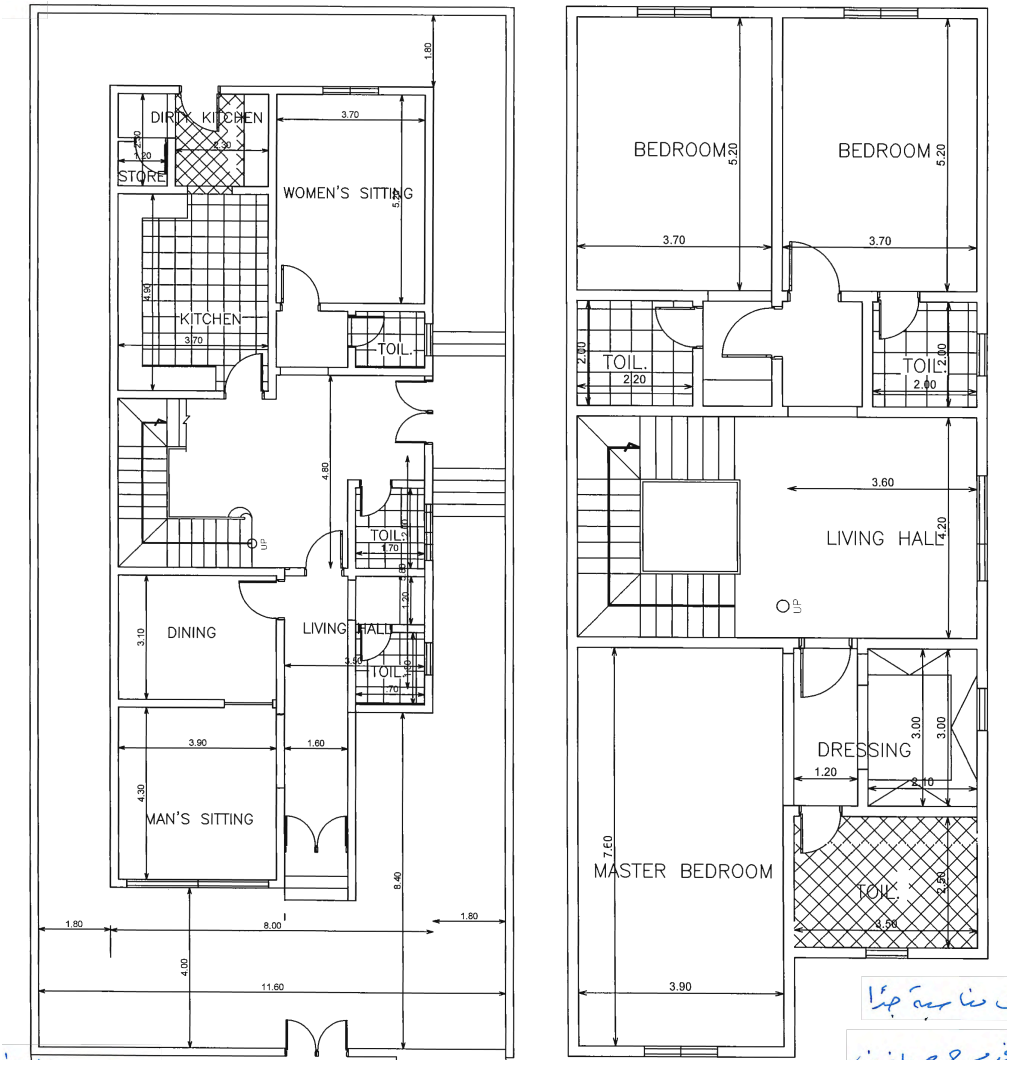
men room
intrance
women room
sitting
Kitchen
Livinning
master bed room
bed room
Kids room
13m

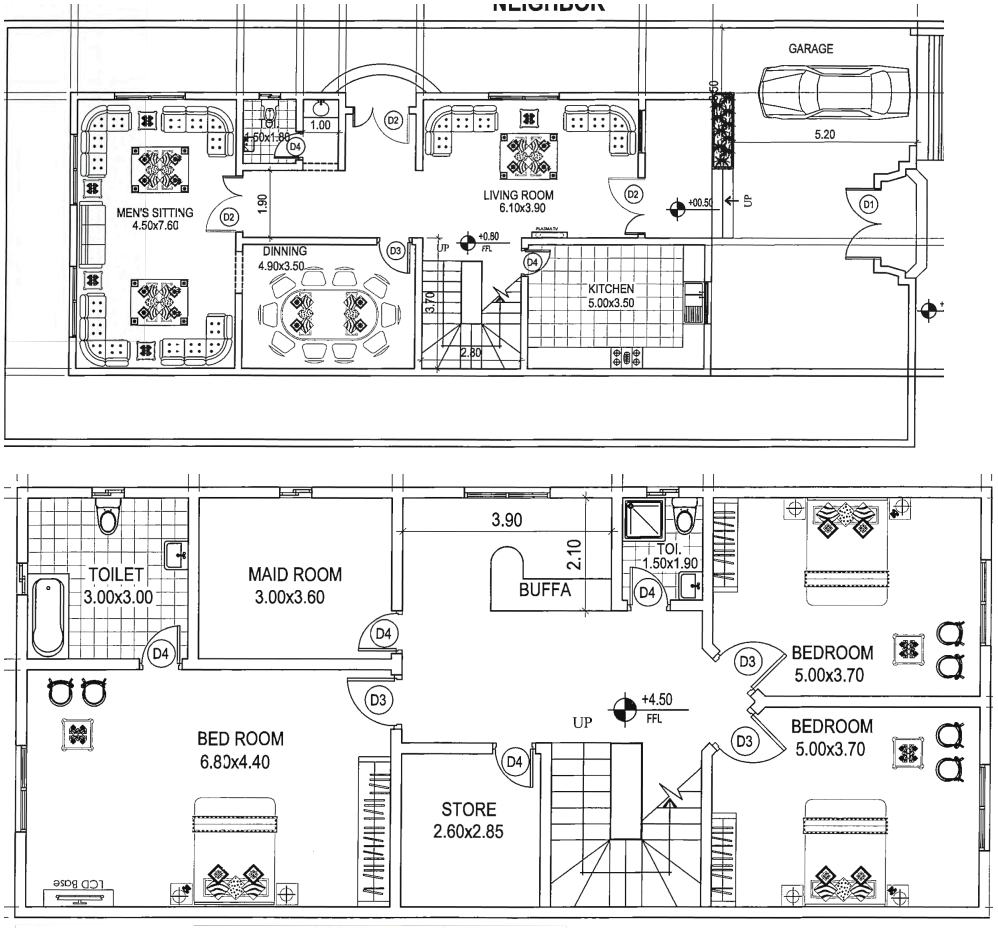
Focus group pilot (male 2)





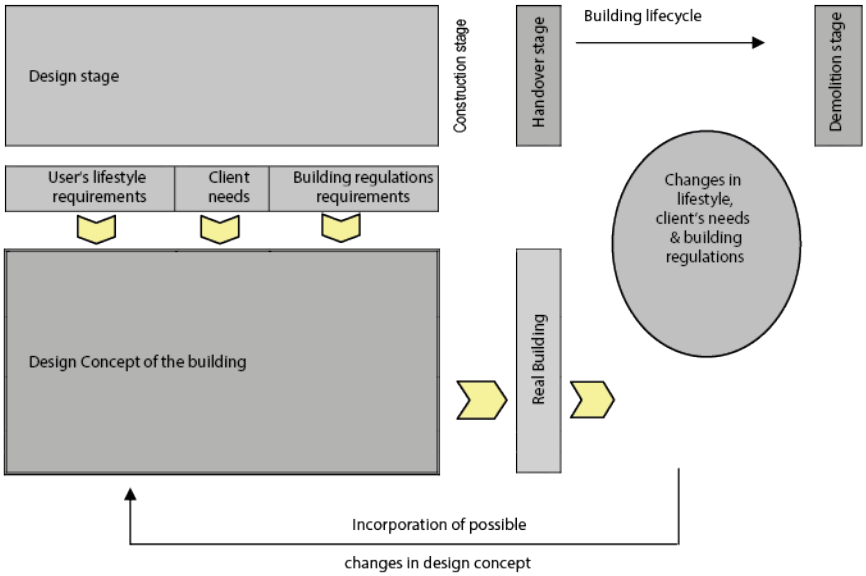

W3
W2
W2
W2
D2
2.50
خادمة
SERVANT
4.50
مطبخ
KITCHEN
2.90
2.90
D1
D2
D2
D2
D2
W3
4.00
8.10
مجلس رجال
MEN'S SITTING
6.50
W1
صالة عائلية
FAMILY HALL
D1
W1
W1
4.20
4.70
1.50
1.50
1.20
1.45
1.65
1.60
W2
W2
4.00
4.50
4.00
غرفة نوم
BEDROOM
غرفة نوم
BEDROOM
4.00
D2
D2
D3
3.40
4.00
D2
4.50
5.20
صالة عائلية
FAMILY HALL
غرفة نوم رئيسية
MASTER BEDROOM
5.00
D4
1.60
D3
1.60
تراس

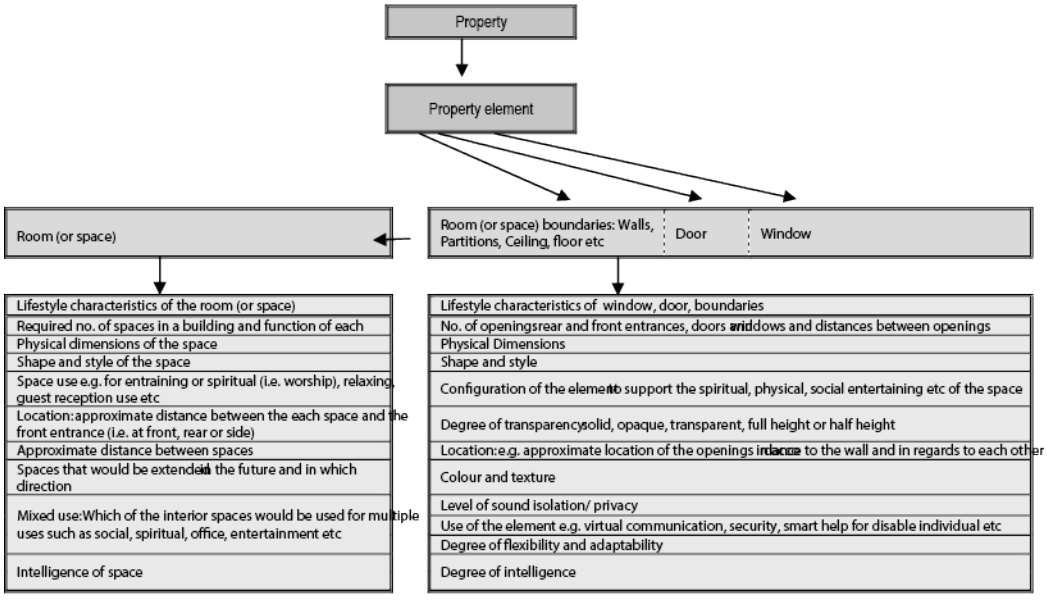

DIRTY KITCHEN
STORE
WOMEN'S SITTING
KITCHEN
TOIL.
DINING
LIVING HALL
TOIL.
MAN'S SITTING
UP
BEDROOM
BEDROOM
TOIL.
TOIL.
LIVING HALL
UP
DRESSING
MASTER BEDROOM
TOIL.


NEIGHBOR
GARAGE
5.20
MEN'S SITTING
4.50x7.60
TOI.
1.50x1.80
1.00
LIVING ROOM
6.10x3.90
1.90
DINNING
4.90x3.50
+0.60
FFL
UP
3.70
2.80
KITCHEN
5.00x3.50
+00.50
UP
D1
D2
D3
D4
TOILET
3.00x3.00
MAID ROOM
3.00x3.60
3.90
2.10
BUFFA
TOI.
1.50x1.90
BEDROOM
5.00x3.70
BEDROOM
5.00x3.70
+4.50
FFL
UP
BED ROOM
6.80x4.40
STORE
2.60x2.85
LCD base

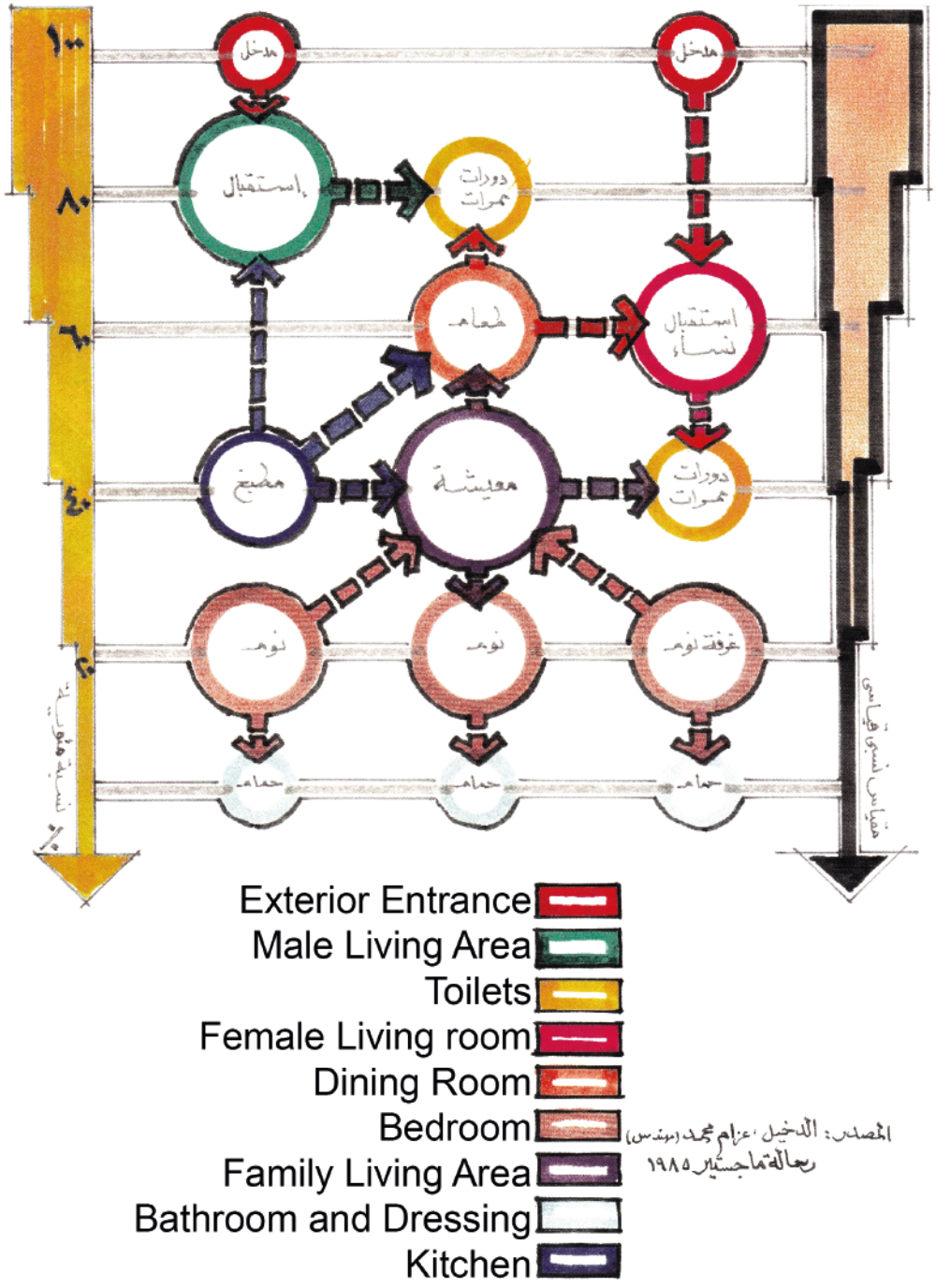
Appendix c. Published design tool concepts

Design tool developed by Sidawi



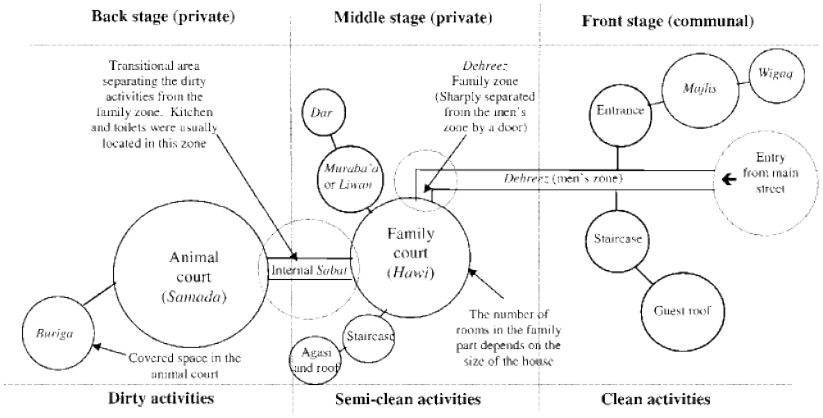


Saudi house functional relationship 1985 in Al Tayash book

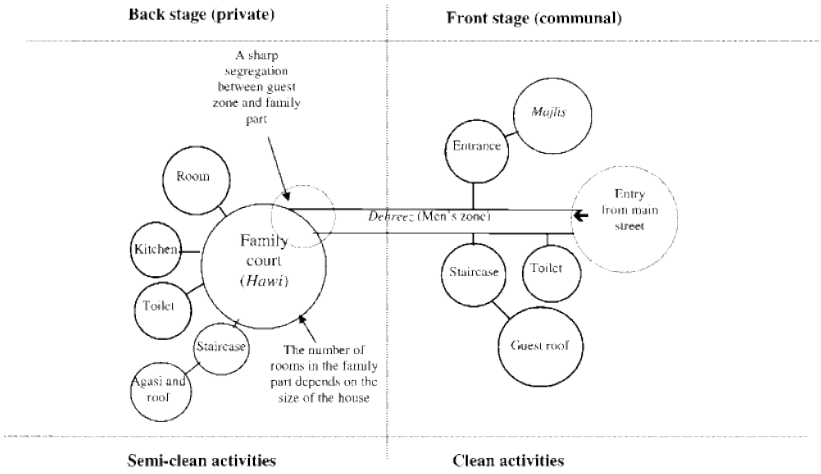


المصدر: الدخيل، عزام محمد (مهندس)
رسالة ماجستير ١٩٨٥

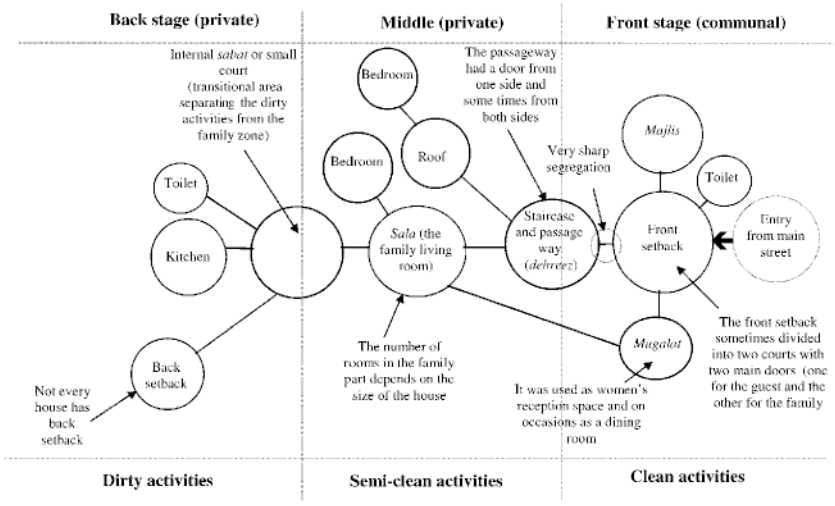
Tracing development in Saudi houses between 1920s and 1990s by Al Naim



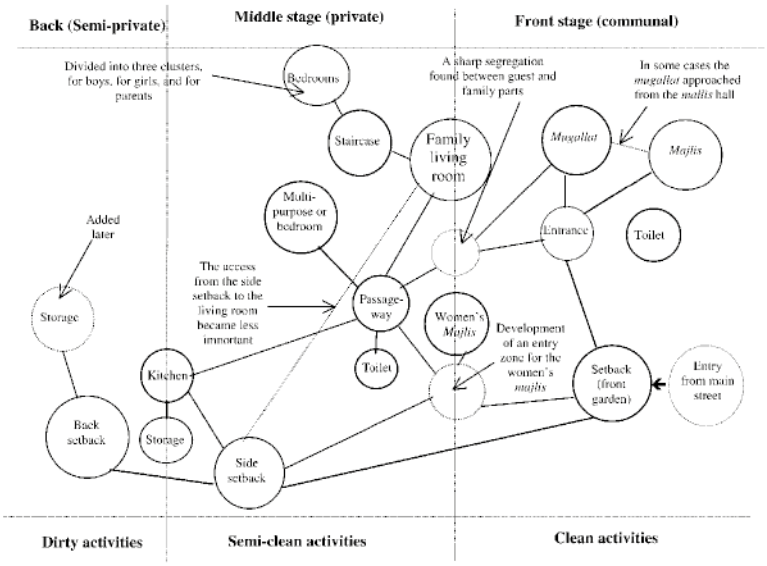
The organisation of internal domestic space in the hybrid house of



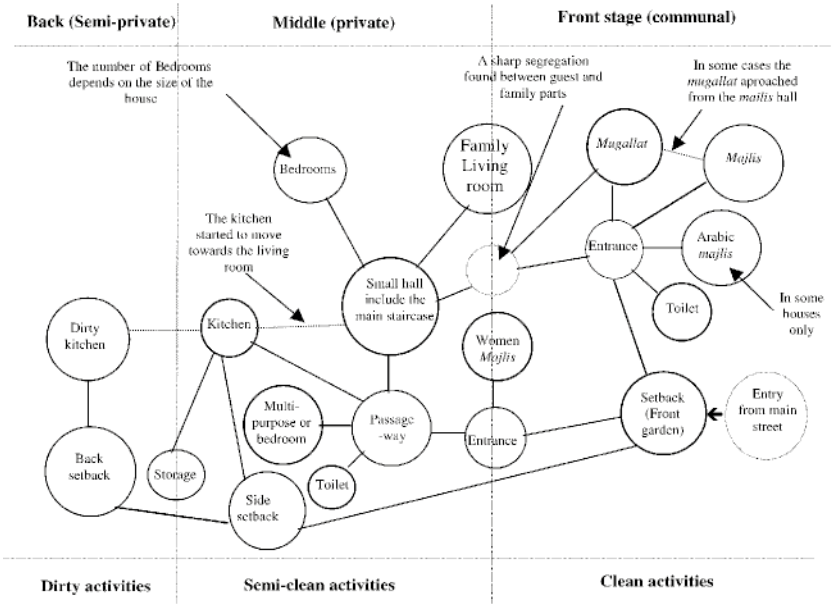
The organisation of internal domestic space
in the hybrid house of late 1950s.



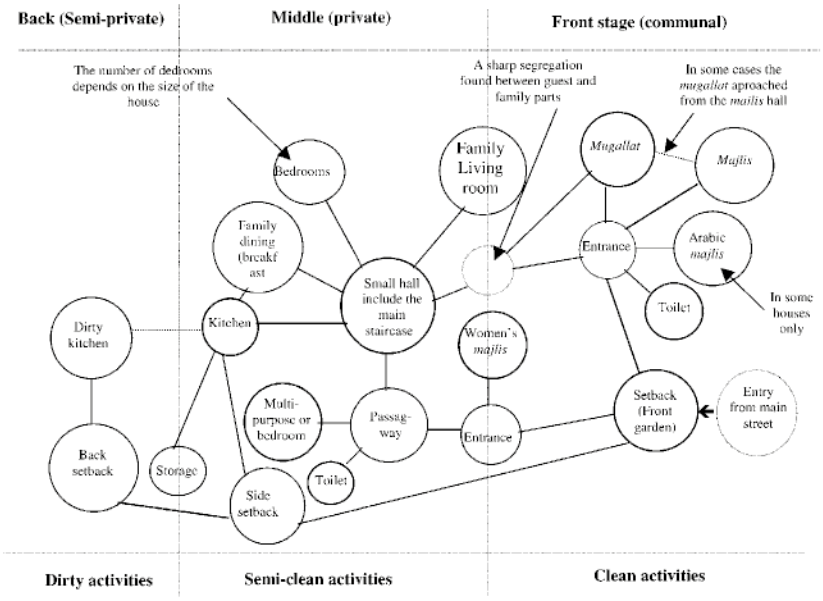
The organisation of the internal domestic space of the transitional house.



The organisation of internal domestic space of the contemporary house of the late 1980s. The living room and women's majlis became more symbolic and displaced towards the front stage.



The organisation of internal domestic space of the contemporary house of the early 1990s. The living room and women majlis became more symbolic and displaced towards the front stage.



The organisation of internal domestic space of the recent contemporary house (after 1995). The living room and women majlis became more symbolic and displaced towards the front stage.

Appendix d. Conference papers

ArchTheo ’15, Turkey, 2015

The influence of hospitality on the users’ spatial patterns inside Saudi houses with reference to the concept of privacy

House design is usually influenced by users’ social and environmental requirements. Throughout the years, man has tried to overcome constraints placed by those social and environmental requirements to provide users with a variety of solutions and possibilities that influence the resulting design decisions in accommodating their requirements. These requirements act like design filters that give depth and meaning to the created spaces of house interiors. This paper is part of a research conducted focusing on the influence of the concept of privacy on contemporary Saudi houses from the perspective of its female users. The focus is on the female users because of the influence this concept has on their daily patterns of use inside their houses. The data in this paper are part of the data collected in the original research. Literature related to the concept of privacy and its connection to the Arab lifestyle is reviewed briefly. Also, the outcome data from the semi-structured interviews with Saudi female house owners (occupying contemporary design and constructed houses) are discussed. The paper goes through the meaning of the concept of privacy in general, then through the influence of society and environmental requirements on this concept and on contemporary Saudi house interiors; emphasis is given to the link between hospitality and the concept of privacy. This paper concludes that the unique connection between the acts of hospitality and the concept of privacy has given contemporary Saudi houses their shape while providing users with creative solutions to adapt to the evolving house designs.

Key words: Privacy, Hospitality, Saudi Arabia, Traditional Houses, Contemporary Houses, Spatial Design

The visual representation of the concept of privacy in the eastern region of Saudi Arabia's houses design: a comparative study of the traditional and contemporary

Abstract

This paper is part of on-going research looking into the concern of privacy for contemporary Saudi house interior designs (in the Eastern region in specific) from the perspective of female users. The paper focuses on the visual representation of privacy needs within the interior spaces of contemporary Saudi houses. The researcher approached the representation of the conceptual term privacy by tracing its existence in traditional houses and its status in contemporary houses. In the on-going research, as part of a qualitative methodology under the ethnography approach, interviews were conducted with Saudi females who occupy contemporary houses in the Eastern region of Saudi Arabia. Interview participants aged between 21 and 35 years with different cultural backgrounds but resided in the Eastern region, Dammam city. These interviews were to give insight into the current understanding that these participants had about privacy and the way they represented it in their houses. The selected contemporary house data was obtained from the interviews conducted with house owners (Saudi females) as part of on-going research. Two types of analysis were applied to the selected houses: axial analysis as part of the space syntax analysis approach; and privacy levels identification. These analysis tools helped display the representations of privacy in the selected contemporary house through its designs; spatial and architectural design elements are presented that help manage the social need of privacy that contemporary users require in their houses. This investigation led to displaying an updated understanding of the ways in which privacy needs are represented in conceptual houses within the context of the interiors of contemporary Saudi houses. This paper aids the on-going research, in the process of providing information that would help generate a design tool that would assist designers (who are interested in designing development housing projects) in their design process of contemporary houses that meet the social needs of the users, in particular privacy needs.

Keywords Interior design, spatial design, privacy, Saudi Arabia, contemporary houses, interviews, physical representation

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Space Design and Privacy in a Saudi House

Abstract

Owners shape the interior spaces of their houses to support their daily needs. In Saudi Arabia owners' decisions are influenced by social needs and rules. These social rules, in traditional houses, require multiple spaces that share the same function yet each target specific users. The spaces are mainly gender oriented, and reflect different sides of the owners' needs. This paper focuses on one of these personal needs: privacy. The paper looks at the meaning of privacy and its importance inside contemporary Saudi houses. Privacy, as an issue, is international and affects people globally. It is asked here whether privacy is a culturally universal or culturally specified concern, and is concluded that it is an international concern yet with cultural specifications; something to be, respected by designers and reflected in their designs for living spaces. In this paper we have conducted an empirical study (interviews and observations) with Saudi females in order to understand the meaning of privacy in the context of Saudi contemporary houses. We aim to understand the meaning of privacy conceptually and ways to materialize the concept to support owners' social and personal needs inside their houses. The analysis explores different ways that owners reflect their need for privacy, through their verbal expressions and their actions in their houses. The research observed the value of privacy from the participants' perspective, resulting in the establishment of conceptual boundaries and suggesting methods to apply in Saudi Arabia and similar cultures where privacy meaning and values are similar.