



**NEAR EAST UNIVERSITY  
INSTITUTE OF GRADUATE STUDIES  
DEPARTMENT OF ARCHITECTURE**

**IMPACT OF INTERIOR FEATURES ON RESIDENTS  
CASE STUDY: NEWLY CONSTRUCTED FLATS IN ERBIL**

**M.Sc. THESIS**

**Lana QADIR**

**Nicosia**

**June, 2022**

**LANA-QADIR**

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**MASTER THESIS**

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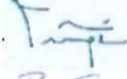

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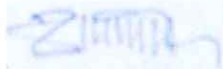
### Approval

We certify that we have read the thesis submitted by Lana Salam Qadir titled “**Impact of Interior Features on Human Psychology, Case Study: Newly Constructed Flats in Erbil**” and that in our combined opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Educational Sciences.

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### **Declaration**

I hereby declare that all information, documents, analysis and results in this thesis have been collected and presented according to the academic rules and ethical guidelines of Institute of Graduate Studies, Near East University. I also declare that as required by these rules and conduct, I have fully cited and referenced information and data that are not original to this study.

Lana Qadir

05/07/2022

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Most importantly my family deserves endless gratitude, my father for supporting my educational journey, my mother and my sisters. To my family, I give everything, including this. Last, but not least, my warm and heartfelt thanks go to my friends for their tremendous support and hope they had given to me. Without that hope, this thesis would not have been conceivable. Thank you all for your support, encouragement and strength you gave me. I love you all.

**Lana Qadir**

## **Abstract**

### **Impact of Interior Features on Residents Case Study: Newly Constructed Flats in Erbil**

**Qadir, Lana**

**MA, Department of Architecture**

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Our surrounding affects our moods and mental health. The interior space is a part of our physical surrounding, since we spent %86 of our time in average in our home. Although the impact ratio may differ from one person to another according to various factors, space we occupy has a major role in our psychological behavior. Unfortunately, there is a lack of studies regarding the impact of the design of the interior space elements, architectural features and the furnishing elements on human psychology. We are rarely conscious of how this relation works and how to use it to improve human psychology and wellbeing. Exploring the relationship between interior features and psychology of residents is the goal of this study; in this term mix methodology is used, including a questionnaire and five case studies of recently constructed apartments in Erbil. 105 participants participated in the questionnaire from different background and according to the findings, participants mostly agreed on the impact of interior features and elements on psychology of human being. The case studies examine the interior features of newly constructed apartments in Erbil. Theoretical evaluation, questionnaire and case studies display the impact of interior features on human wellbeing and psychology. Thus, there is the requirement that interior features should be taken in consideration during design stages of our home since it has direct relation with psychology of residents.

**Key Words:** interior features, space, human psychology, residential, questionnaire, Erbil

## Özet

### İç Mekan Özelliklerinin Ev Sakinlerine Etkisi: Erbil'de Yeni İnşa Edilen Daireler

Qadir, Lana

Yüksek Lisans, Mimarlık Bölümü

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Çevremiz ruh halimizi ve zihinsel sağlığımızı etkiler. Zamanımızın ortalama %86'sını evimizde geçirdiğimiz için iç mekan, fiziksel çevremizin bir parçasıdır. Etki oranı çeşitli faktörlere göre kişiden kişiye farklılık gösterse de, yaşadığımız alan psikolojik davranışlarımızda önemli bir role sahiptir. Ne yazık ki, iç mekan elemanlarının tasarımının, mimari özelliklerin ve tefriş elemanlarının insan psikolojisi üzerindeki etkisi ile ilgili çalışmalar yetersizdir. Bu ilişkinin nasıl çalıştığının ve insan psikolojisini ve refahını iyileştirmek için nasıl kullanılacağına nadiren bilincindeyiz. Bu araştırmanın amacı, iç mekan özellikleri ile konut sakinlerinin psikolojisi arasındaki ilişkiyi araştırmaktır. Bu çerçevede, bu çalışmada, Erbil'de yakın zamanda inşa edilmiş dairelere ilişkin bir anket ve beş örnek vaka incelemesi de dahil olmak üzere karma metodoloji kullanılmaktadır. Ankete 105 katılımcı katılmış ve bulgulara göre, katılımcılar çoğunlukla iç mekan özellikleri ve unsurlarının insan psikolojisi üzerindeki etkisi konusunda hemfikirdir. Vaka çalışmaları ise, Erbil'de yeni inşa edilen dairelerin iç mekan özelliklerini incelemektedir. Teorik değerlendirme, anket ve vaka çalışmaları, iç mekan özelliklerinin insan psikolojisi üzerindeki etkisini ortaya koymaktadır. Bu nedenle, konut sakinlerinin psikolojisi ile doğrudan ilişkisi olduğundan, evimizin tasarım aşamalarında iç mekan özelliklerinin dikkate alınması gerekliliği vardır.

**Anahtar Kelimeler:** iç mekân özellikleri, mekân, insan psikolojisi, konut, anket, Erbil

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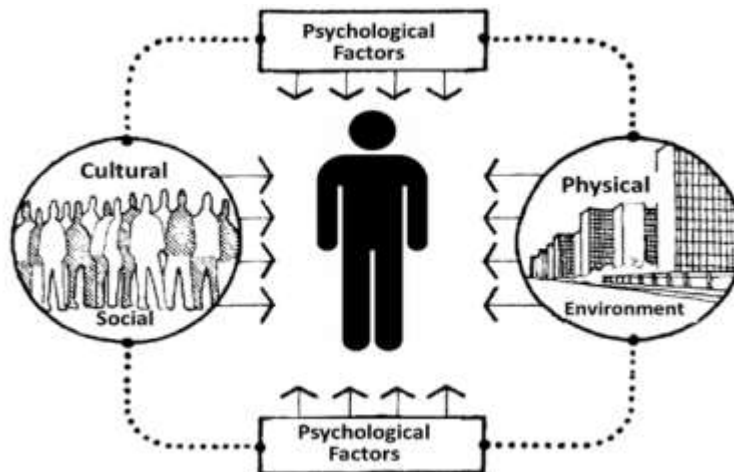
## CHAPTER I

### Introduction

Our physical environment, including the interior and exterior of buildings, can have a significant impact on our psychological states and well-being. Each person's reaction to these aspects differs from one another due to differences in their cultural background, age, educational level, gender, and social life, all of which influence shaping occupants' needs. The interaction between architecture and psychological conditions is directly linked to design proposal stages if we notice how interior design of hospitals affects the recovery of the patient, office design affects the efficiency of the employees, and school space design on the educational process we can notice and identify the importance of this relation. To understand how architectural and interior space design impact human's psychologically, it is necessary to first comprehend, at the very least, the psychological effects of various stimuli on the human behavior.

Figure 1

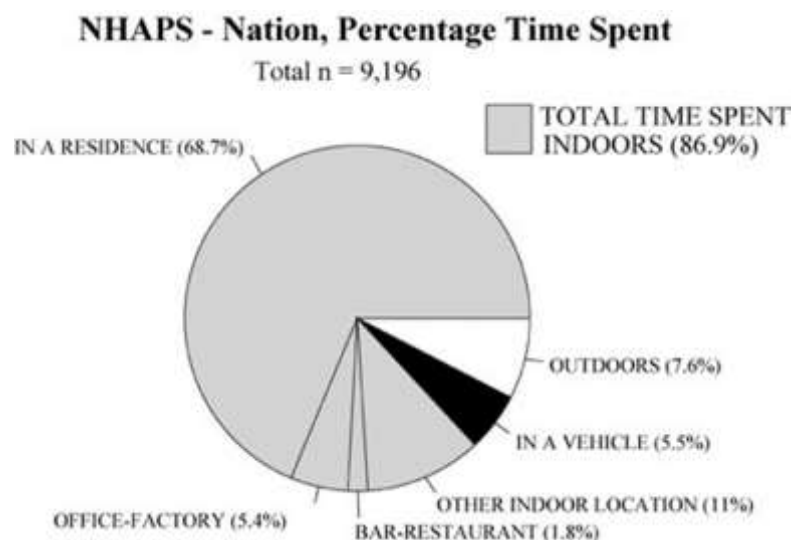
*Factors Impact Human Psychology, Source (Moore 1979).*



Humans spend approximately 86 percent of their time inside buildings (Klepeis, N. E., Nelson, W. C., Ott, W. R., Robinson, J. P., Tsang, A. M., Switzer, P., ... & Engelmann, W. H. (2001)), this may increase or decrease negative health impacts on human psychology, the importance of applying technology and design elements appropriate to improve human psychological and physical health to a better condition inside enclosed spaces (Harnois, G., & Gabriel, P. (2000)).

Figure 2

*Total Time Spent Indoors, Source/ <https://www.researchgate.net>*



Interior design can play a major role in maintaining mental health for humans positively by preparing the interior spaces in accordance with humans' requirements and needs, by designing the space especially for him to be a source of comfort, calm and serenity. Human beings seek to have the best place for his dwelling in harmony with his various needs, requirements and lifestyle within community, to achieve interaction and security between his surroundings and himself, as well as his appreciation and consideration for his mentality, to achieve wellbeing, and this is by residing in a location that identify him, realizes himself, and is compatible with his taste and social and economic standing.

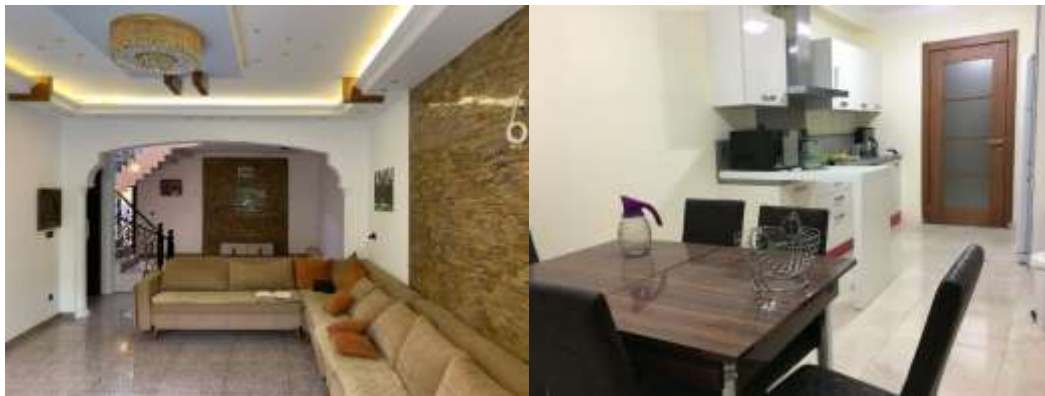
Interior design and architecture have been classified societally as aesthetic additions to the "built environment," which comprises man-made structures and settings in which human activities take place. This has not only harmed the field's legitimacy, but it has also prevented it from receiving the necessary funding and public attention that it deserves. Architecture evolved from protection (shelter) into an art form into which creativity, subjectivity, and beauty were introduced. Today, we are witnessing yet another evolution of architecture, this time from an art form to a subject of psychological study and purposeful implementation centered on psychological well-being.

In this regard, all the furnishing units within the home, whether they are furniture or furnishings, accessories, lighting units, or even finishes are important. The influence of the internal space on the psychological health of the human being

cannot be underestimated. In this process, designers play a major role in the intervention of all parameters involved concerning the psychological aspects to achieve the balance between psychological wellbeing and design. Applying place science is challenging. People are complicated. Because they are a jumble of rational and irrational thoughts and emotions, their reactions to places are also complicated (Vischer, J. C., & Fischer, G. N. (2005)). It is essential that space be designed in such a way that it strengthens all of these socio-psychological communications rather than disrupting them. (Grütter, 2014). To create spaces that enhance human lives, you need to focus on details and make a lot of decisions. A part of our responses to places are inborn (Kellert, 2005).

Figure 3

*Home Furniture Samples*



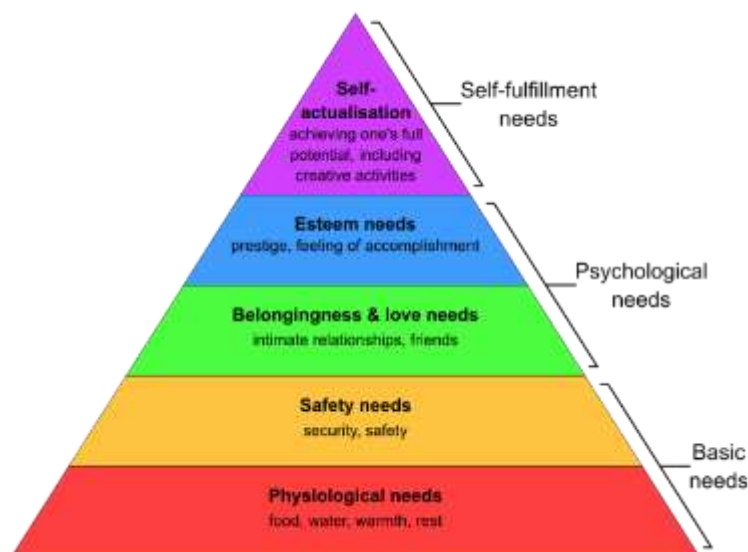
Therefore, studies of architectural features and interior elements in dwelling are required to determine the specifications and characteristics to be followed in order to create a dwelling commensurate with human activities. In addition psychological needs and health, and harmony with his lifestyle within his local community must also be considered and evaluated.

Why dwellings/home/residential spaces?

A home, or domicile as it is defined by Wikipedia: is a space used as a permanent or semi-permanent residence for an individual, group or family. Home or shelter is one of the basic human needs along with food and water according to Maslow's hierarchy.

Figure 4

Maslow's hierarchy of needs: From the bottom of the hierarchy upwards, the needs are: physiological, safety, love and belonging, esteem and self-actualization (McLeod, 2007).



Our time mostly passes at home; 65 per cent of the time we spent indoors (ashrae.org). Home provides security, control, belonging, identity, and privacy, among other things. It is where we sleep eat, and relax, and where our children have many of their most formative experiences. We frequently develop strong emotional attachments to our homes, investing time, money, and effort into making them comfortable, secure, and personalized. Not only that, but for the majority of us, whether we are homeowners or renters, housing is our largest monthly financial outlay. As a result, we have a particularly strong connection with residential buildings, something that distinguishes homes from other types of buildings. Many people, however, are unaware that their indoor home environment can have a significant impact on their health and well-being. Factors ranging from the quality of the internal air to the amount of space and light available, and even the amount of storage space available, can all have measurable effects on health and wellbeing.

Our reactions to the design of houses and other spaces are sometimes conscious, sometimes unconscious; most of us have distinct opinions about our taste that we can articulate, but many of our reactions to interiors occur below the surface. This matter has never been more important than during the period of coronavirus pandemic, when the world appears to be in a state of panic and our interior spaces are



all we have to keep us safe. In shortly, a home should not only provide an indoor environment that promotes physical well-being, but it should also promote mental well-being, giving its residents a general sense of happiness and empowerment. There is a lot of overlap in the design elements required for these two aspects.

### **Thesis Problem**

Since most of our lives are spent indoors, the space we occupy has a major role in our psychological behavior. Unfortunately, nowadays, the quantitative aspects of housing are given far more attention than the psychological and qualitative aspects. House residents are not provided with desired mental relaxation. Individuals will suffer many psychological consequences if architectural design is not aligned with environmental psychology. There is a lack of studies regarding the impact on the design of the interior space elements, architectural features and the furnishing elements of the dwelling. We are rarely conscious of how our interior design influences our human behavior or moods; however, our environment has a psychological impact on our subconscious. Our mood is greatly influenced by how you design your space, and not paying attention to human mental health and psychology when designing spaces leads to increasing psychological stress on human being and the need for designing spaces that evoke comfort and serenity, especially for the dwelling as well as the absence of basic design elements that is compatible with human health.

Figure 5

*Some Elements of Interior Space Design*



### **Research Questions**

- How is the link among architectural interior features and human psychology?
- What are the most significant factors of interior features that interact with the psychological status of residents and users?
- What are responses of residents in Erbil regarding the impact of interior features on human psychology?
- What are the characteristics of interior features of residential units in Erbil chosen as case study?

### **Aim of the Study**

The research aims to evaluate the link among the architectural interior features and human psychology. In addition, the study investigates the existing characteristics of interior features in Erbil and further seeks to understand how the interior features affect the psychology of human beings as residents.

Figure 6

*Some Interior Space Features*



The study both involves theoretical part and a field work. In the theoretical part the research depends on the descriptive analytical method investigating elements of interior feature as a factor, how does this factor impact psychology of human as it is examined in previous studies. In the practical part case studies evaluated from Erbil as a field work, exploring the elements of interior features of the apartments and how they affect human psychology.

## **CHAPTER II**

### **Literature Review**

#### **Psychology and Architecture**

In this chapter we focus on the relationship between architecture space and psychology. To name a few, the study of psychology and architecture encompasses many fields, including mathematics, philosophy, aesthetics, various branches of psychology-environmental, gestalt or social, physics, and, of course, architecture.

- When people enter a space, what happens to them?

The majority of our time is spent inside buildings as we mentioned previously. Our thoughts are shaped by their surroundings, and our perceptions are shaped by our surroundings. Interior design and architecture can have an impact on a person's health, behavior, mood, decisions, and interactions with others.

Psychology is directly related to art, culture and architecture, the appropriate use of architectural elements and components such as: line, space, color, angle, pattern, etc. has a capacity to make a divergent modification in the atmosphere. From the inception of architecture, we know that it is a man-made environment that is distinct from nature surroundings; place, but also a significant influencer on our social awareness and physiological condition. As a result, it's vital to consider our bodies and the connections between our bodies and environmental psychology. In the real world, our mind-set and attitude only take place in the context of an environment that contains both man-made and natural elements; they are only significant when viewed in the context of the surroundings. As a result, when we adjust the environment to make structures more pleasant and activity-friendly, the environment changes and enriches our behaviors and experiences. Throughout our daily lives, we are constantly moving in and out of various buildings, and the space we pass through has a strong influence on our moods. Some of our reactions to places are genetic (Kellert 2005). Certain kinds of experiences, in some ways, affect people in different parts of the world in the same way, and have done so for generations. Human needs are diverse and vary from person to person, so it is critical to understand the relationship between people and the physical environment when designing built environments that can best meet their requirements (Lang, 1987). Human behaviors, attitudes, and values are becoming increasingly important in creating enabling environments for people's diverse needs in today's society (Churchman, 2002; Lang 1987; Dent 1998).

This effect of the buildings on the psychology of human being has led to architects giving a high importance to the desires and needs of the occupants of the spaces that they are asked to design. It has always been said that while architects shape our buildings, it is the buildings themselves that will affect how we live, behave, and function within them in the long run, while buildings can be designed to be one-of-a-kind, they must never have a negative impact on their users, since, building design has the potential to cause stress and, as a result, to negatively impact human well-being (McCoy, J. M & Evans, G. W. (1998)).

In his book *Science and Human Behavior* Skinner explained how people are influenced by what they do and how they feel, according to the psychology of human behavior, and thus structures in an environment can influence how people think, react, and adapt to the environment (Skinner, 2014). In addition, he explained a case study of Eldon building in the University of Portsmouth influences, clarifying how Eldon building characteristics are used to explain the architecture of a building can impact human behavior, in other chapter of his book he used theories to explain the relationship between architecture and the human behavior.

Since early man, built form has performed a significant role in ensuring the survival and comfort of its inhabitants. Because of the constant movement of people, dwellings had to be temporary, but as time passed, the concept of "dwelling" became far more permanent. The concept of home arose as a result of the contemporary permanence of "dwelling." One of the designers' main concerns has always been the relationship between humans and their surroundings and home surroundings have already been identified by certain psychologists as providing unique insights. In modern housing, organizing and designing environments in accordance with human needs can improve life quality and increase people's satisfaction with their surroundings. The design of housing architecture can be the same as the design of human life (Babazadeh Oskouei, S., Toofan, S., & Jamali, S. (2019). Housing, as a place for human life, interacts with other aspects of life. Each residential area should be designed with various family structures and spatial and social needs in mind, and while each has its own spatial and social characteristics, provide a one-of-a-kind environment for the individual (Asefi & Imani, 2016).

The residential space should be able to provide the necessary conditions for each family member's individual growth, whether they are young or old. Both small and large, for example, every person at home should be able to find a suitable space

and the necessary privacy for carrying out their activities while also finding comfort and peace in accordance with their mental and emotional needs (Eghbali & Hessari, 2013). Housing should not only meet personal needs, but it should also meet qualitative and social needs (Pourdeihimi, 2011). Housing has a significant impact on health, social well-being, and economic efficiency (Jiboye, 2010). Humans are constantly interacting with and influencing their physical environment (Saffarinia, 2011). As a result, it is critical to focus on the environment in order to provide humans with health and well-being. Human recognition, characteristics of their living environment, and the relationship between these two factors are important in this regard (Emamgholi, nAyvazian, Zademohammadi, & Eslami, 2013).

Hunter (2005) described that the study that was carried out over the past forty years should be incorporated into classroom design to help pupils develop creative problem-solving skills: In addition to the classic lecture-style space, classroom facilities should include a mix of large group, small group, and individual spaces, as well as flexible classroom layouts that encourage participation and debate. Colors that are suited for the lesson's topic, highly specialized places to stimulate certain creative and cognitive talents, as well as an aesthetically beautiful and distinctive atmosphere to encourage innovation. Plants in the lecture hall and a green space in the school should be offered to help students relax and be more creative.

### **Basic Human Needs through Place Design**

Places have a fundamental impact on how we live our lives. For example, when our minds are alert, but our bodies are not, we learn best. A dimly lit room relaxes us; task lighting concentrates our minds on the lit material. A room that is generally darker with task lighting will be a better place to study than a room that is uniformly and brightly lit. When we see warm-colored objects, we are in the mood to eat. When the environment around us puts us in a good mood, we're more creative, cooperative, and helpful (Cote 1999). We can concentrate when there is nothing around us that has the potential to be interesting to us, but not when we are sitting in the middle of a large room surrounded by other people who may say something interesting at any time whether we can see them or not.

Why is it important how we process information from our surroundings? What we learn from the environment influences us on both an emotional and a more rational level, and inspires us to take action. The emotional impact of information we

receive through our senses is essential because much of our behavior is emotional and something we don't think about, at least not consciously. We can't override our reflexive responses because they happen so quickly that we don't even realize we'll have them. Rational responses are much easier to evaluate and change. The various sensory experiences you are having at any given time are completely intertwined and combine to form one common mood or impression. If a location provides psychologically contradictory sensory experiences, your feelings in that space will be determined by the relative balance of the conflicting elements, with sensations received through your dominant sense receiving more weight. Place design matters for reasons that reach far beyond the basic human motives outlined by Reiss (Reiss,2004).

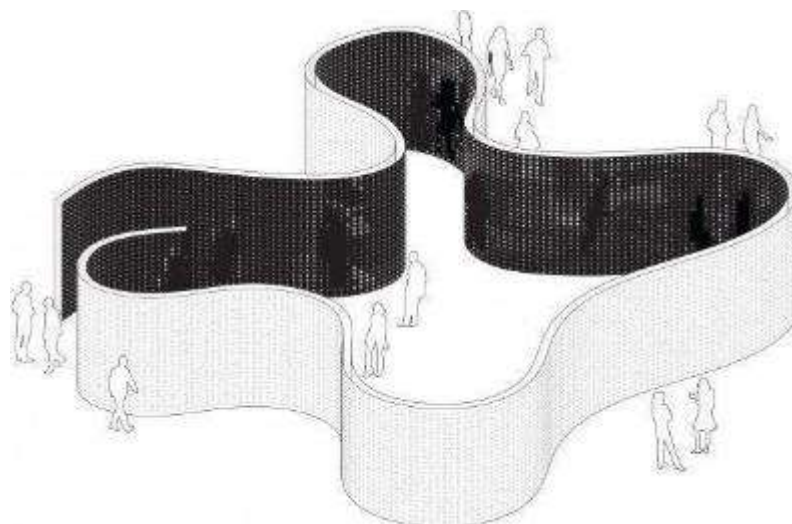
We are all constantly evaluating information from our physical surroundings as it filters down to us. We are powerless to stop ourselves. Furthermore, we believe that places communicate more truthfully than verbal statements, so we are highly motivated to figure out what is going on around us (Becker and Steele 1995). We are generally very good at reading what places "say" to us (Gosling, Ko, Mannarelli, and Morris 2002). As a society, we develop an unspoken dictionary that allows us to all be very consistent in our interpretations of places

### **Environmental Psychology**

Environmental psychology is a subject of psychology that studies how people involve and interact with their environment, including human contact with the constructed physical environment and the correlations between architectural design and human behavior, in other words, it seeks to explore how or why our environment influences humans, how we can then use the knowledge to our benefit, and also what we can do to enhance our approach to the world around us. Its origins go back years, but this is still a new field as a found to be an effective, as the definition implies.

Figure 7

*Relationship Between People and Environment, source: <https://www.pinterest.com>*



In a heart of environmental psychology, there is an important question to be answered which is how does our environment impact us?

Environmental psychology is concerned with the physical environment in which we live. According to environmental psychology, any human activity is positioned together across three components at same time: the people (culture, age, character, gender), the location (home, school, nature, work - place, picnic area), and the mental model of involvement (social contact, discovering, working, studying, playing), with change over time being an important factor as well. People may act negatively toward the persons or groups affected by the changes if they believe the location to which they are emotionally tied is in risk and the landscape may transform into a space to which they no longer have an emotional connection. This has been noticed in the example of mining companies acquiring big swaths of farming land and transforming it into something unrecognizable to the locals. The resulting 'solastalgia,' or grief for a space that has been severely altered, has culminated in a community movement to prevent the mine's progress.

Some important environmental psychology research studies:

Irwin Altman explained how we use our personal area, the lands that we claim and preserve, in addition to environmental and other factors, to keep our connections with others under control (e.g., privacy), based on this concept a project was created by Robert Sommer who phrased the idea of social design (Sommer, 1983) This method of architectural design requires the following: (1) collaborating with, rather than for, the

people who will use the building, (2)engaging these individuals who are involved in the development and management of the surrounding areas, and (3) The fundamental advantage of this method is that it prioritizes the requirements of building occupants or potential users by teaching them how to use the space wisely and creatively in order to attain a harmonic balance between the physical, social, and natural settings.

Architects frequently have varied perspectives on their work than laypeople (Muller-Clemm, Gifford, Hine, & Shaw, 2000), and the paying client (for example, a board of education) rarely communicates with individuals who will occupy or use the structure (e.g., teachers and students). In social design, the importance of involving users as active participants in the design stage is highlighted. Color and variation in capsule forms, as well as some individuality and seclusion, can all serve to decrease psychological stress. People in the capsule environment fill unstructured time with a range of activities, adding novelty and decreasing monotony into their life. Some focus on the capsule or its surroundings (e.g., a sunrise), while others concentrate on recreations of their faraway accommodation (for example, a birthday party) (Suedfeld & Steel, 2000).

According to Lily Bernheimer, an environmental psychologist who runs a design consultancy and wrote the book *The Shaping of Us: When children are asked to draw or design a home in Just how Everyday Environments Shape Our Lives, Habits, and Well-Being*, they frequently sketch homes with steeply pitched roofs, although if they live in flats. The pitched roof symbolizes protection and confinement, which we need to feel safe. Everyone's house should feel like a shelter from the outside world. In good design, this mindset should always be there. We may look for aesthetics through design, but there are a range of other factors that affect whether we find buildings and products appealing or unpleasant, as Alain de Botton describes in his book *The Architecture of Happiness*.

"Our designs fail because our joy is blended from fine and unexpected filaments." It's not enough for our chairs to support us comfortably; they also should give us the feeling that our backs are protected, as if we're still competing off ancestral predator attack fears.



### ***Psychological Space and Mind Processing of Environment***

Humans and the environment do not have a direct relationship. Between the outside world and humans, a filter is used known as psychological space. As a result, any experiment that starts with perception is influenced by psychological space, Information, social convictions and systems, prior exploration, etc. are the setting for current and upcoming developments as a result, our subjective findings have always affected our experiences. Because humans are not mechanical beings, when dealing with environmental data, not only selects but also processes data. The thoughts and senses are complementary since data processing functions are performed out in the mind. Sensory receptors only accept and convey environmental information to humans, serving as their link to the outside world. They are, however, incapable of analyzing, as well as selecting and processing data information.

A company for furniture finishing designed three rooms in which Guests donned wristbands that tracked their physiological responses as they passed through three rooms. They were told to be silent, switch off their phones, and completely connect with their surroundings by touching things, smelling things, hearing things, and moving around. Ivy Ross, Google's VP of Product Design, who directed the research, said that about half of the participants were shocked by the area in which they felt most at comfortable, which wasn't necessarily the one they were most visually drawn to. In recent years, we've over-optimized our surroundings for our cognitive mind, and we need to awake our sensations and pay more attention to what feels right rather than what we think. "Perhaps what we think we desire isn't really what calms us."

### **Empirical Data about the Link among Architecture and Human Psychology**

#### ***Work place/Offices***

The science that studies the psychological effects of design and environment can help us understand how a workplace can alter employee mood. A psychological response will be elicited by certain design components. Other features of workplace design, such as desk arrangement, natural light conditions, and ambient noise control, all affect employee satisfaction and can impact productivity and engagement.

Because so many people work in offices, and because they are relatively accessible places for field research that is easy to replicate in a laboratory study, offices have been a popular study subject for environmental psychologists

(Sundstrom, 1987; Veitch, 2012). Because employee expenditures account for around 80% of office expenses, while the building and its operation account for approximately 8%, companies may benefit from paying more attention to the impacts of working environments on employees. (See, for example, Brill et al., 1984).

Excessive weariness and psychological suffering can occur as a result of poorly planned workplaces (Evans, Becker, Zahn, Bilotta, & Keesee, 2012). Working under pleasant lighting circumstances, on the other hand, has been linked to increased well-being in the form of job satisfaction and fewer physical issues at the end of a day (Veitch, Newsham, Boyce, & Jones, 2008).

Figure 8

*Different Office Space Design, source: <https://ergonometrictrends.com/>*



### ***Exhibition, Museum and Galleries***

Stephen Bitgood has presented practical guidance to museum experts on how to raise the effect of exhibits on the visiting public (for example, by raising the readability of exhibition writings), how to arrange exhibits in a way that reduces visitor crowding and actually increases circulation, and how to evaluate whether change happens to exhibits influence visitor behavior patterns, among other studies on visitor behavior patterns in exhibition centers (Bitgood, 2011).

Figure 9

*Example of Exhibition Hall, Source/ <https://www.maxhetzler.com/>*



### ***Classrooms and Learning Spaces***

Researchers conducted research in the learning spaces of educational institutions. Sommer and Olsen (1980) used semicircular, cushion bench seats, changeable lights, flooring, and fabrics wall decorations to create a "soft classroom" in a higher education context. The addition of these characteristics resulted in increased in student participation of a significant magnitude. Interestingly, even after 17 years, the soft classroom progressed to 'results students' motivation even after damage on the furnishings (Wong, Sommer, & Cook, 1992). Teachers are affected by the physical environment of schools. Changing a traditional library layout into a more social and technically focused "learning commons" approach, for example, can have an impact on secondary school teachers' attitudes and behaviors (McCunn & Gifford, 2015).

Figure 10

*Classroom Design Examples, source: <https://medium.com/>*



### ***Medical Space and Health Care Facilities***

As per a multi-site research of five hospital units, the more positive design characteristics in a hospital room, much less stress patients experienced following

surgery. The external structure of a hospital room can provide additional control (e.g., adjustable temperature), social support (e.g., visiting chair), and distractions for the patient (e.g., TV; Andrade, Lima, 2017 & Devlin, Pereira). Alternative floor numbering techniques (floors below ground numbered "Sub 1" and "Sub 2" instead of just Floors 1 and 2) can make it easier for patients and visitors to navigate hospitals (Carpman, Grant, & Simmons, 1983).

In smaller healthcare facilities, the first impression given by a physician's waiting area is crucial. University students and supervisors rated the quality of care provided by a doctor as increased when the waiting room was pleasantly furnished, well-lit, warm in appearance, and contained paintings than when the reception area was cold and dark in presence, had outmoded furniture, and contained no paintings or weak reproductions (Arneill & Devlin, 2002).

Figure 11

*Examples of Hospital Reception, source: <https://www.payette.com>*



### ***Dwelling/ Residential Space***

People put a lot of effort, time, and expense into choosing, altering, and decorating their homes, and they may be grieved if they have to sell or destroy them. The environment at home was utilized to investigate how the physical arrangement of a place influences everyday attitude and cortisol rates, and it was discovered that spouses who described their houses as being more unpleasant also had flatter periodic cortisol slopes, a sign of chronic stress connected to negative health effects (Saxbe & Repetti, 2010). Outside-the-home stressors (for example, job stress) can influence domestic behaviors (Wang & Repetti, 2013; Wang, Repetti, & Campos, 2011), as well as how domestic habits impact social interactions (Klumb, Hoppmann, & Staats, 2006; Lee & Waite, 2005) and psychological processes (Klumb, Hoppmann, & Staats, 2006; Lee & Waite, 2005). (Saxbe, Repetti, & Graesch, 2011).

Better mental and physical health, more fulfilling social interactions, and better happiness with one's physical surroundings are all benefits (Tartaglia,2012).

The interview schedule was created to delve into the broad issues of housing and neighborhood transformation, and also the ramifications for illness, well-being, social, and community results, in research study undertaken by Gibson, M., Thomson, H., Kearns, A., & Peticrew, M. (2011). The qualitative interview outcomes, with a focus on how participants who shifted from flats to houses ascribed effects on mood, life quality, well-being, and physical or mental health to variations in their housing situation. It is proposed that these shifts happened as a result of mental factors that correlated physical terms of living circumstances to changes in emotional, mental and other outcomes. The changes in dwelling had different impact on participants' mood and standard of living was extremely explicit: - Well, I'm happier at, I feel a lot better in myself. But, overall, I believe it's a better lifestyle, and I've had a higher quality of life since I came in here compared to what I had all around neighborhood, and I like it; I wouldn't go back to a flat. And it's simply superior. (50–59 years old female) - The other dwellings, on the other hand, were flats. You own your own back and front entrance, as well as your own back garden... [husband speaks] It's a thousand times better. Megan O`ullivan in her essay 'The Psychology of What's Inside Your Home' stated that" interviewed with three experts to get a better understanding of Why do we engage on the never-ending task of constructing and designing a home? The psychology of our space is explained by psychotherapist Amy Morin, Ph.D. and professor Samuel Gosling, writer, and executive therapeutic coach Lisa Pepper-Satkin. According to Psychologist Sam Gosling, In our dwellings, we leave a mark of our mentality. "In our houses, we can categorize things," Gosling says. "The first are claims about one's identity. Photographs, music records, and the art we select are the items we believe best represent our values." According to the expert, one of our most important subconscious needs as humans is to be understood, as a result, we design our houses to represent our personalities. As mentioned by Morin. "If you have your diplomas and awards framed, it's possible that your intellect is what you value". If it's sports medals, you may have been built by your athletic tendencies." Morin and Gosling suggest that by looking about our dwellings with care, we might learn more about our own moral natures.

## CHAPTER III

### Interior Architecture Elements as Factors Impacting Human Psychology

Interior design is the professional and thorough activity of constructing an indoor space that acknowledges, protects, and answers to human need (s). It is the science, art, and industry of designing an innovative, scientific, sustainable, and practical interior solution that complements the architecture of a space while embracing method and planning, a mission for well-being, comfort, and health, and well-informed style and aesthetic selections. Interior decoration as a discipline, a professional practice, and an area of study has a relatively brief history, and it is commonly recognized that it is still expanding as a field of study, a professional practice, and an area of research. According to them (Britannica, 2020, accessed May 26). Despite the fact that our eyes take in distinct types of information, our minds integrate them into a single, more identifiable pattern. In context of interior design, this indicates that we must first consider the area as a whole, such as a kitchen, a sitting room, or a bathroom, before focusing on specific design aspects.

With reference of below statement some of these interior elements are explained in this chapter: As Elliot & Maier (2014) explained color is about more than just aesthetics; it can convey important information and influence people's affect, cognition, and behavior. Color is one of the most significant interior features that has dominant role in this field, thus so many researches has done previously related to color, and it is impact on psychology in which these studies support the direct relation between both factor and importance, however as any other elements it may vary from a person to another according to the background, culture, gender, ...etc. of individuals, but in general each color has its own and different effect on wellbeing of humans.

According to Kayhan, Şahin & Erkan (2021) There was a considerable relationship between architectural liking rates and variation in overall good mood scores in areas with artificial and natural lighting, accompanying by case study Conducted with 50 volunteers in a virtual reality environment using a church design. Whether artificial or natural lighting they both have direct impact on health and psychology of individuals. It has the potential to improve or degrade our sleep, cognition, and overall well-being. Light can reduce depression scores and even improve cognitive performance such as reaction time and activation.

There is no doubt each individual and family member needs its own space for his/her needed activities, relaxation and creativity to experience fulfillment and wellbeing (Sundstrom, E. (1975)) conducted a survey and the result from participant was that they expressed uncomfortable and a lack of self-disclosure due to the small room's crowdedness. According to several studies, confining people in cramped living quarters can have a negative impact on their health., on the other hand the prospect of living in a small space excites some people. These people may be drawn to the psychological benefits of being able to create a cozy environment and live a minimalist lifestyle. As a result, people have difference preference when it is related to size and shape of a space, however, both have an impact on human well-being.

Vogler & Jrgensen (2004) explained space openings as follows: doors symbolize the borders between internal and outdoor space: emotional, physiological, and social, and windows connect the human being to the outside and discover the outer world from the safety of their home. He also explores how closely these spatial components are connected to human psychology and the active support of the habitat's 'ecological' system. Previously we explained the importance of natural light and its effect on human being which can be transferred to the space through opening/window, it is also a medium that can amend air flow and ventilating, which is linked to improved quality of sleeping in the study's healthy young adults, both doors and windows can have different effect according to their status open or closed, the location and size of both according to the function of the space is also matters, the reason why we should carefully pay attention to the details related to the openings.

In sum, the most dominant interior features that can be suggested to be the basic elements for any architectural space design are described in more detail below. These are color, lighting, opening, space dimension and furniture arrangement.

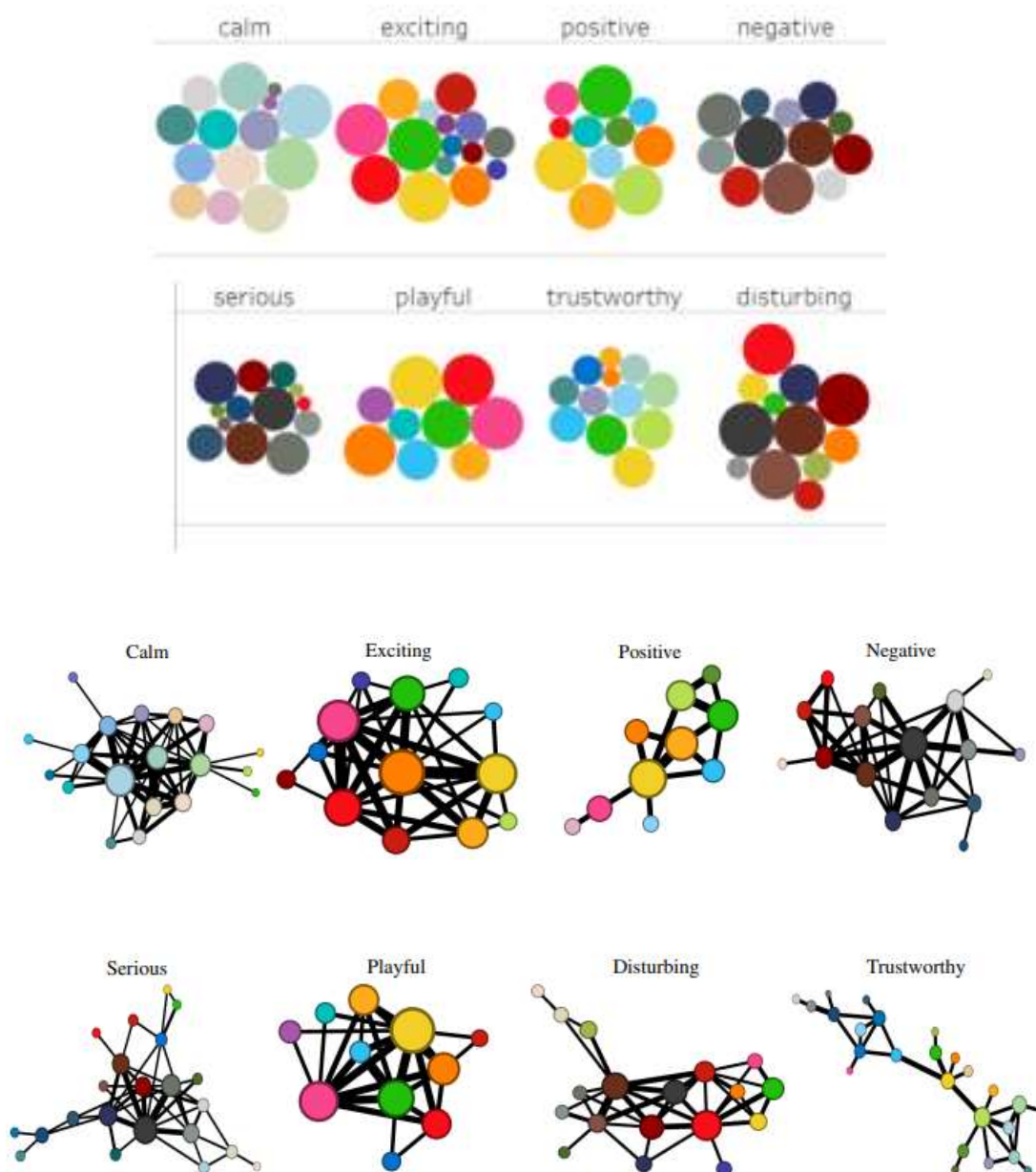
### **Color**

Interior design highly depends on color schemes. The color of the walls, furnishings, natural components, ornamental pieces, lights, and fixtures all have an effect on the psyche of the people who live there. You spent hours surrounded by the color scheme you chose. As a result, selecting color schemes are based on the character and aspirations of the residents is always a smart idea. It puts them at rest and relaxes them in the comfort of their own home. Our attitudes about a specific hue

might be affected by a range of reasons, including individual perspective, upbringing, differences in culture, or just how we're behaving at the time.

Figure 12

Colors psychology, from a study by Bartram, L., Patra, A., & Stone, M. (2017, May)



According to a study by Sroykham, W., Wongsathikun, J., & Wongsawat, Y. (2014, August), the emotional regulation in 6 perceiving color in their daily environment was disclosed by the BRUMS questionnaire, which showed people's psychology. Anger and perplexity were greatly elevated when red and yellow hues were present in the living environment. In the residential setting, however, white, blue, green, and black had no significant impact on mood. Green, more than almost



any other color in the living space, stimulated vitality (green > blue > white > black > yellow > red).

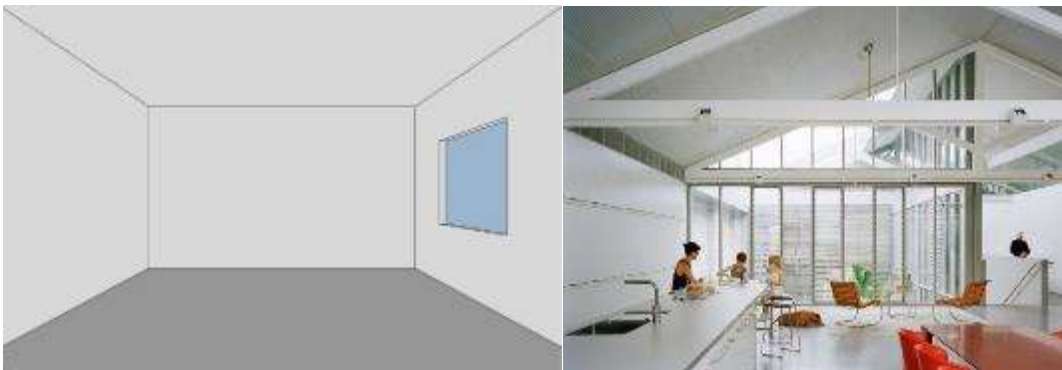
Several color psychology research have found that each individuals react different to each color. The color black, for example, can be unpleasant and demotivating to some people. Others, on the other hand, consider black to be a symbol of discipline and functionality. Some people find the color red to be menacing, while others find it to be motivating.

Below, are examples for changing a space by using only colors and contrasts in materials by Eduardo Souza.

- The ideal way to give a room a sense of spaciousness is to choose light shades that reflect natural light and make areas appear larger to the eye.

Figure 13

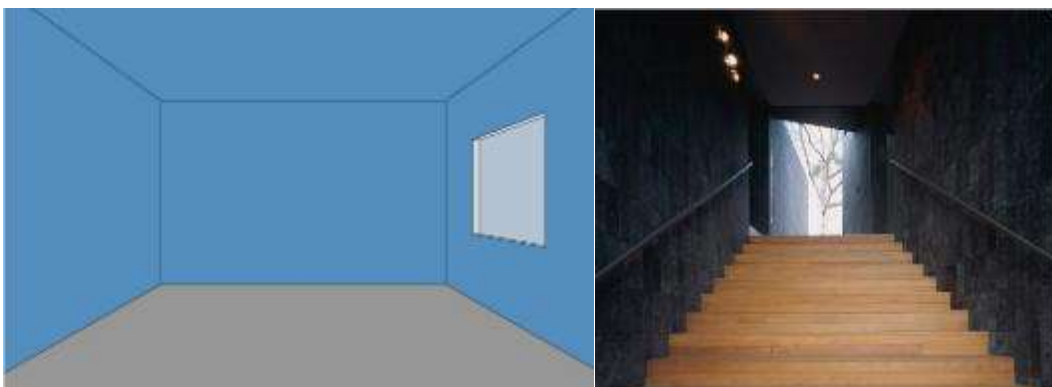
*Example of Enlarging Space, Source: <https://www.archdaily.com/>*



- Using brighter shades/colors on the wall surfaces can help to make the room appear smaller, tighter, and cozier. They will absorb the bulk of natural light, giving the impression of being enclosed, which can be beneficial for some activities.

Figure 14

*Example of Compacting Space, Source: <https://www.archdaily.com/>*



## Lighting

Most people appear to be unconcerned about how lighting can affect their emotions. Do you ever notice how you feel less enthusiastic and drowsy on a cloudy day but more motivated and energetic on a sunny day? That is your body's response to the psychological effects of the lighting to which it is subjected. The way we perceive and respond to light extends beyond natural light sources. People appear to be affected in numerous ways by changes in the interior light source (grades, spectral distribution, temporal patterns, etc.), the type of lighting we have in our homes and offices also has a significant impact on how our bodies react emotionally, which affects our mood, energy, and creativity. There has been a lot of research done on the health benefits of daylight and sunlight, but it has rarely been focused on the home. Natural light has been shown to improve quality of life measures, sleep quality and quantity, and sick reduce leave in offices Boubekri, M., Cheung, I., Reid, K., Kuo, N., Wang, C., & Zee, P. (2013, June) and Elzeyadi, I. (2011). It has been shown to improve long-stay patient recovery times as well as reduce anxiety and medication in healthcare settings Roberts, D. L. (2001).

A remarkable cross-cultural study involving 1000 people in England, Sweden, Argentina, and Saudi Arabia (Küller et al., 2006) clearly demonstrated the impact of light on our attitudes and mood. The data demonstrate that throughout the winter, both England (52 °N) and Sweden (56 °N) suffered severe symptoms of seasonal affective disorder, better known as SAD, as compared to Argentina (27 °S) and Saudi Arabia (26 °S). Extreme tiredness, insomnia, a lack of attention, inactivity, social disengagement, and a foul mood were among the symptoms. Seasonal disorder afflicted about 50 percent of the population in the two nordic regions.

Daylight also has effect on the aesthetic rating of an interior space design. Important aspects of windows are size, shape, spectral transmittance and solar shielding.

Research shows that the minimum acceptable window size was determined by the amount of visual information in the view.

- While some artificial lights may cause headaches, direct exposure to natural sunlight can improve your mental health.

- Headaches and migraines can be caused by harsh, unhealthy lighting.

- People who are exposed to bright lights may experience not only more intense positive emotions, but also more intense negative emotions (Xu, A. J., & Labroo, A. A. (2014)).

- Blue light source can sometimes reduce your desire to eat, though this effect is highly gender dependent. Cho, S., Han, A., Taylor, M. H., Huck, A. C., Mishler, A. M., Mattal, K. L. & Seo, H. S. (2015).

-Color of the light (cool hues like blue, or warm hues like orange)

-Lighting intensity (for detail-oriented activities like cooking, or soft for relaxing activities like reading bright light can be used).

According to a UNC Kenan-Flagler Business School article on office lighting:

- Blue light, for example, may assist with production efficiency during the day.

- Cool, blueish light or sunlight enhances alertness and productivity, making it an excellent choice for brainstorming spaces.

-White light has welcoming effect and works well in conference rooms.

-Warm, reddish to yellowish light creates a relaxing atmosphere, making it ideal for break rooms.

Everything in a room is impacted by the light source in that space. A white wall illuminated by a 3200K light source can appear green when illuminated by a 4000K light source. Under a 2500K light source, the same wall may appear yellow. This is why designers advise placing lighting elements and selecting bulbs before painting and furnishing a room. "The color paint you choose at a hardware store under fluorescent bulbs may look very different when you get it under the light bulbs you have at home."

Anything with a color temperature of 3000K or lower is considered 'warm,' while anything with a color temperature of 4000K or above is considered 'cool.' 3500K, sometimes known as 'neutral,' is a neutral color that can appear chilly or warm depending on the furnishings and other lighting in the room.

Figure 15

Color Temperature Scale, Source/<https://www.prolighting.com/>

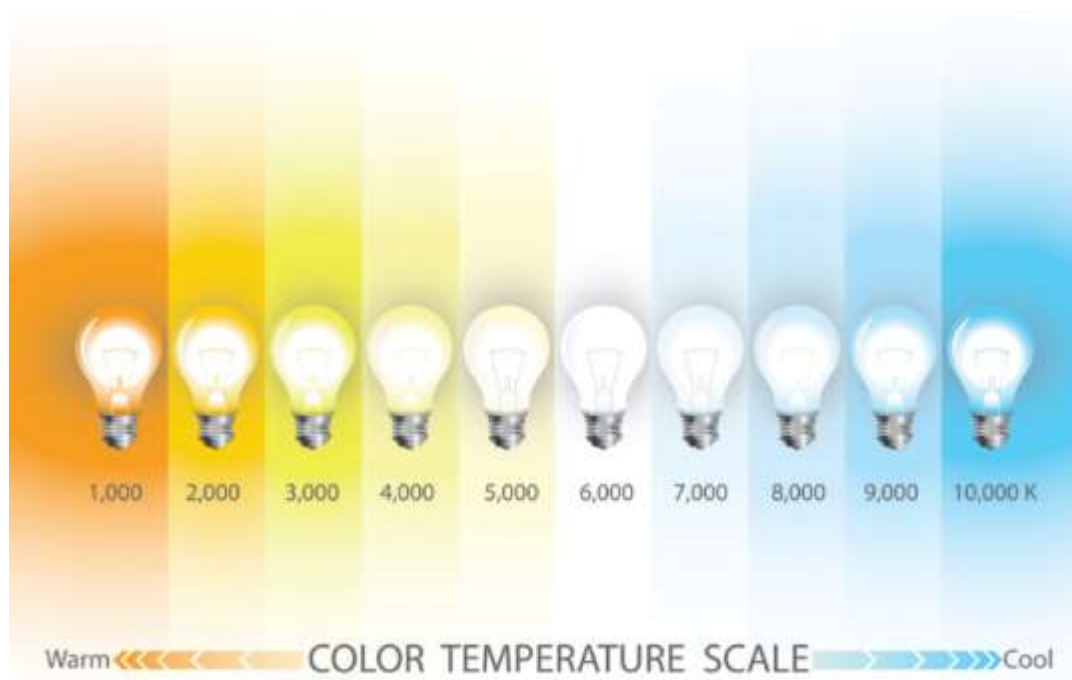


Figure 16

Lighting Levels Extracts from CIBSE Code for Lighting Part 2 (2002) Educational Residential - Flats /Bedsits, Source// <https://www.chegg.com>

| <b>Residential - Flats /Bedsits</b> |                   |                       |  |
|-------------------------------------|-------------------|-----------------------|--|
| Area                                | Illuminance (lux) | Limiting Glare rating | Minimum colour rendering (R <sub>a</sub> ) |
| Lounge                              | 100 - 300         | 19                    | 80   |
| Kitchens                            | 150 - 300         | -                     | 80   |
| Bathrooms                           | 150               | -                     | 80   |
| Toilets                             | 100               | -                     | 80   |

**Space Dimension**

It is commonly assumed that the relationship between living space size and well-being is positive Foye, C. (2017). Living area, as per the World Health Organization (WHO), must give appropriate privacy to meet the demands of inhabitants, be accessible and useful for extended users, and be spacious enough to comfortably accommodate individuals of diverse ages (WHO,2020). As a result, non-

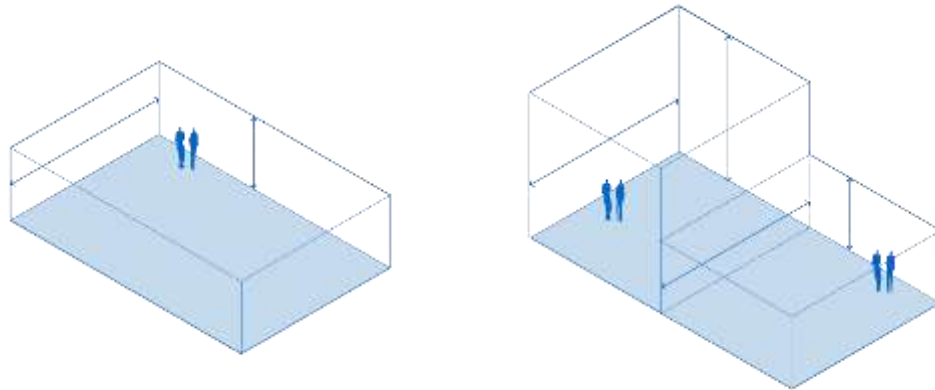
compliance of the living area with the user's physical traits and needs might hinder full use of the spaces and, in some situations, can be a serious safety hazard. Inadequate living space has a variety of health impacts: some are related to congestion, while others are related to access and availability. As a result, it is critical to implement applicability and suitable design solutions for living areas, paying special attention to room size, to ensure accessibility, wellbeing, and internal flexibility in order to adapt to any adjustments in distribution structure, both in the short- and long-term Signorelli, C., Capolongo, S., Buffoli, M., Capasso, L., Faggioli, A., Moscato, U., ... & D'Alessandro, D. (2016). Italian Society of Hygiene (SIItI). A previous study's findings were scrutinized, according to reports, in terms of overall comfort with amenities and functionality, a rectangular-shaped room was picked as one of the most suitable for living area (Lee, S.; Wohn, K.y, 2016), In terms of overall content with amenity, tenants preferred a space that was 7.33 m wide, 4.55 m deep, and 2.6 m high.

According to the book manual of home making:

Rooms with simple rectangular shapes are the natural result of building conditions. Any extension or projection should be a cohesive structural feature and used only to meet a need in the room's function. In general, an oblong is a more appealing shape for a room than a square. If possible, a pleasing relationship between the three dimensions - length, breadth, and height - should be maintained. A long room is difficult to adapt to general uses and lacks the effect of intimacy. A room that is too high wastes unused space, is difficult to heat, and has an unappealing appearance. When all the dimensions of a room are equal or nearly equal, the shape is obvious at first glance; nothing is left to the imagination, and the result is uninteresting.

Figure 17

*Proportion of a Room and Human Scale, Source// <https://spaces.roche.com/>*

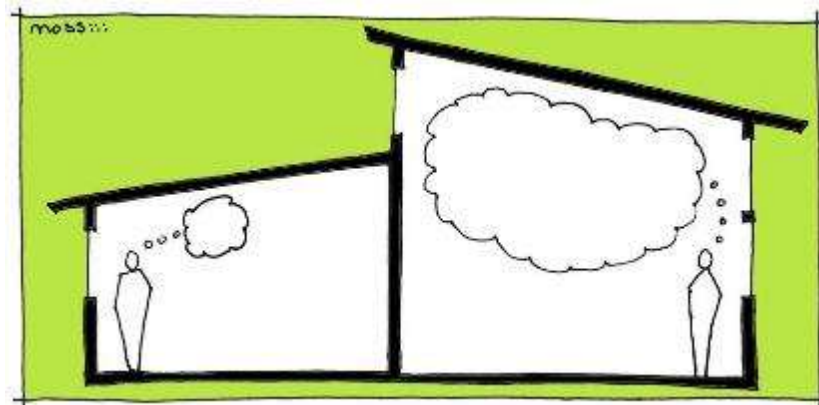


### ***Height of the Ceiling***

Ceiling height has a big psychological impact on us, and we have very different experiences in places with lower ceilings than in places with higher ceilings (Augustin, S., Frankel, N., & Coleman, C. (2009)). In some cases, lowering the ceiling height can make the area feel more pleasant and welcoming. If the ceiling is painted a darker shade than the walls or if the material texture is evident, this characteristic will give the appearance that the ceiling is lower. In some instances, the inverse is true. In certain flats, lower ceilings produce a claustrophobic feeling. The illusion of a higher ceiling is created by painting the walls surfaces a darker shade and leaving the ceiling white. (2020, Eduardo Souza)

Figure 18

*Relationship Between Ceiling Height and Idea, Source: <http://moss-design.com/>*



According to recent research conducted at the Minnesota University, the height of the ceiling influences priming principles that stimulate particular forms of brain activity to improve problem-solving skills and abilities, the term "priming" refers to the activation of an idea in a person's mind, according to researcher Joan Meyers-Levy, who spoke to LiveScience. "When humans are in a space with a high ceiling, the concept of freedom is activated. In a low-ceilinged room, they activate more confined, constrained concepts" Meyers-Levy, J., & Zhu, R. (2007).

### **Openings**

Passing through an open door and into another space, according to psychologists, generates a "mental blockage" in the brain, which implies that walking through open doors resets memories and allows a new event to arise. The doorway effect is a term used to describe this phenomenon. Gabriel Radvansky and his team at the University of Notre Dame identified it in a series of studies, participants' "memory performance was worse when they walked through an open door than when they walked the same distance within the same space, i.e. when they did not walk through a door."

Figure 19

*Open Door: Entering a Different Room Sometimes Makes Us Forget Things (Photo Credit: Pixabay)*



The primary function of windows is to provide a visual link between the interior and the exterior. This makes windows absolutely necessary for human well-being.

According to a 2014 study, people who had more windows in their office got better sleep and exercised more than those who didn't (Cheung, I. N., Reid, Boubekri, M., K.J., Wang, C. H., & Zee, P. C. (2014). In this essay “Designing the Therapeutic Space: Using Layout, Color, and Other Elements to Get Patients in the Right Frame of Mind” Professor Nicola Davies mentioned that: Whenever possible, keep windows open to let sunlight in. This helps ensure the room feels and looks open, bright, and warm. Tognoli (1973) found that a university room with windows appeared more pleasant than one without. The general finding is that windows are preferred in most settings (Veitch, 2001), A window is clearly a desirable feature in a living room; however, they are not universally desired in all room types. For a home bathroom, American undergraduate students prefer either no window or a small one (clear or translucent), but one large or two medium-sized clear windows in a living room or family room (Butler & Biner, 1989).

Figure 20

*Views of Interior Windows*



For one night of the trial, 17 individuals slept with an open window or internal door. On another night, the room's windows and door were left closed. The furniture arrangement and bedroom layout were both preserved. To assess quality of sleep, participants wore a wristband that assessed skin temperature, thermal



conduction, bed temperature, and skin moisture levels. They also wore a device that monitored their movements during the night, including indicators of restlessness. Closed spaces showed lower background noise levels, but much higher carbon dioxide levels, demonstrating poor ventilation. Although humidity levels were equivalent across settings, open circumstances were somewhat cooler than closed, and more ventilation led to better awakenings, wellbeing, and sleep efficiency due to lower carbon dioxide levels. Mishra, A. K., A. M., Loomans, Van Ruitenbeek, M. G. L. C., & Kort, H. S. M. (2018).

### **Furniture arrangement**

Furniture is described as moveable things items that support different human activities such as sitting (such as chairs, stools, and sofas), eating (such as dining tables), and sleeping (such as beds) (e.g., beds). Furniture can also be used to store items like shelves or to option allows at a suitable work level (as horizontal surfaces above the floor, such as tables and desks). Furniture design and placement can affect people's moods; as Gentili, E. (2017) mentioned, Furniture can either enhance or detract from people's needs and sentiments; for example, storage furniture might be difficult to shift, making it unpleasant for users. The location of your furniture determines how you move about your home. It is critical to arrange furniture in an aesthetic and functional manner. If your home is overcrowded, you may experience suffocation and anxiety more frequently than you realize. Both decorative and practical aspects must be considered while designing and arranging furniture. The functional requirements assess how well the design serves human activities like as talk, rest, and movement in the area. The visual standards are concerned with how layout is perceived as a design concept (Li, Z., Agrawala, M., Merrell, P., Schkufza, E., & Koltun, V. (2011)). As a result, furniture arrangement can be thought of as a subset of architecture. Furniture can achieve sustainability through structural innovation, space efficiency, and material conservation.

In the article by Lee, S., Alzoubi, H. H., & Kim, S. (2017), by conducting a questionnaire related to the effect of interior design it obtains that: TV location was the most effective factor in arranging space, and the discoveries explains that the arrangement of sofas are useful for adding comfort to a room. The sofa style, on the other hand, does not appear to be an expense component in space perceptions of comfort.

People prefer to sit with their backs to something very solid, such as a wall or a strong room divider. According to research, seats like this are always the first ones chosen by customers in coffee shops (Waxman 2006).

Figure 21

*Interior Space of a Restaurant, Source/ <https://www.ergolinefurniture.com>*



Diners will feel comfortable in these booths because nothing can sneak up behind them and turn them into lunch. The most prized spaces in restaurants are booths or chairs against walls that shield patrons' backs. While, few people will be comfortable sitting if the backs of people in these chairs are against a wall

Figure 22

*Interior space of a Restaurant, Source/ <https://www.tripadvisor.com/>*



In addition, people talk to each other most easily when they can see each other's eyes; we are gregarious creatures who find it difficult to pass up an opportunity to socialize. It is difficult for people to communicate with others with whom they cannot make eye contact.

Particular “rules of engagement” apply when people gather around a table. Cross-corner seating that allows people to talk or not talk and make or not make eye contact is highly desirable. Sitting across the corner from someone else is ideal for a casual conversation or a situation where people must work independently. It is also a good orientation for a potentially stressful discussion in which people may want to break eye contact from time to time (Augustin et al., 2009). Seats can be arranged to encourage people not to talk by keeping them all facing the same direction. In certain situations, conversation among people in a space is counterproductive.

Figure 23

*Interior Space of a Theatre, Source: <https://www.seatorium.com/>*



A joint session of the US Congress, September 9, 2009, this space can easily engage each other in conversation. This sort of interaction between legislators is desirable.

Figure 24

*Interior Space of the US Congress*

Another aspect about the design choice in furniture arrangement is symmetry and asymmetry. We appreciate balanced or symmetric patterns because they reduce the quantity of data that our minds must process. We can process the individual elements faster by detecting a repeating pattern. We frequently consider symmetrical spaces as being more pleasant because they are easier to understand.

Figure 25

*Clustered Furniture Arrangement Creates a Confined Feeling of Space, Source:*

*<https://www.ehstyle.com/>*



Figure 26

*Centralized Furniture Arrangement Creates a Feeling of Spaciousness, Source: <https://www.luxxu.net/>*



In addition the bedroom could benefit from a pair of matching bedside tables or reading lamps. Three evenly placed bar stools could give the kitchen island some symmetry. Giving the brain a symmetrical aspect to grip onto, it can be as basic as placing a sofa on either side of the coffee table, can enhance your chances to make your guests gasp in joy. Participants were faster to link symmetrical visuals with positive statements than negative ones (Makin, Pecchinenda, & Bertamini, 2013).

Figure 27

*A Bed Room with Different Symmetric Interior Elements, Source// Getty Images*



Asymmetry keeps us intrigued, and asymmetrical balance adds depth and visual complexity to your space. It's a brilliant element to employ when you truly want to communicate a homey, cozy vibe. It frequently appears more genuine and

relaxed than more traditionally organized settings, so it's a good feature to use when you want to express a homey, cozy vibe.

Figure 28

*Example of Asymmetric Interior Element in Living Space, Source// Getty Images*



## CHAPTER IV

### Methodology

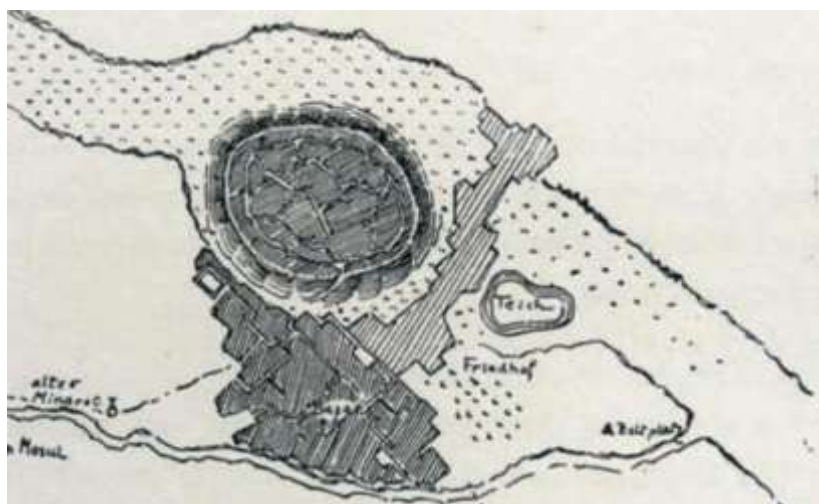
This chapter describes the chosen methodology used to explore, examine and explain the impact of the furniture arrangement on residents, measuring wellbeing of residents with furniture, by using a mixed research method tool.

#### **Erbil City as the Research Context**

Erbil, also spelled Arbil or Irbil, Assyrian Arba-ilu, Greek Arbela, Kurdish Hawler or Hewler, city in northern Iraq, capital of Erbil mufaah (governorate). The city is also the capital of Iraq's Kurdistan Regional Government (KRG) and one of the largest in the country. It is one of the world's oldest cities, dating back to at least 2300 BCE (Novice, Karel (2008)). Erbil has long been a vital trade hub, with roads leading south to Arab Iraq and north to Turkey, Iran, and Syria. According to Sumerian writings, the name of the town was assisted clear from Sumerian territory in King Showlyky's writing, which belongs to the third Ur trace around 2000 B.C, at that time it was "Urbiliom" (Hawler government). There are numerous historical sites in Erbil that demonstrate the existence of previous civilizations; Shanader Cave is one such example, reflecting life as it existed 100,000 years ago.

Figure 29

*Sketch map of Erbil city, c. 1907-8 (from: Sarre and Herzfeld, 1920)*



Erbil has been a regional capital since 1974 and the federal capital of Iraqi Kurdistan since 1992. It now bears the essence of a rich past and a bright present. During 2014, Erbil was designated as the Arab World's tourism capital. Erbil has a Mediterranean hot-summer climate, with long, extremely hot summers and mild winters. Summers are extremely dry, with little to no precipitation between June and September. Winters are typically wet and humid, with January being the wettest month of the year. Some photos of Erbil in 2021:

Figure 30

*Erbil Citadel in 2021, Source/ <http://www.saradistribution.com>*



Erbil's Citadel is a UNESCO World Heritage site because it is an incredible example of a multilayered archaeological mound that now overlooks a modern city that has raised around it over the centuries.

Figure 31

*Erbil City in 2021 the Local Bazar and Jalel Khayat mosque, Source/ <https://www.againstthecompass.com/>*





Figure 32

*Empire World, Residential Compound in Erbil*



Figure 33

*Residential Building in Erbil, Source/www.lalav.com*



Figure 34

*Residential Building in Erbil Wavy Avenue, Source/ <https://baghyshaqlawa.net>*



**Research Design**



















As a part of research design field work involves both a questionnaire and case studies.

**The Case Studies**

In this section I am explaining five cases from newly constructed apartment in Erbil as a part of methodology, the evaluation criteria involve interior features that explained theoretically in previous chapters as color, lightning, openings, space dimension and furniture arrangement. Since mentioned in previous chapter, these factors are the most dominant interior features that can be suggested to be the basic elements for any architectural space design. See Table 1 explaining the evaluation criteria.

**Table 1**

*The case studies evaluated in the study*

| Cases            |   |   |  |   |
|------------------|---|---|--|---|
| Empire World     |  |  |  |  |
| Life Tower       |  |  |  |  |
| Park View        |  |  |  |  |
| Lebanese Village |  |  |  |  |
| Star Tower       |  |  |  |  |

## The Questionnaire

The questionnaire was conducted using Microsoft Office form, with the duration lasting for 3 weeks in February, 2022. The questionnaire consists of three sections; Section A is about the socio-demographic data of the participants; Section B is related to relationship between interior design and psychology by measuring the effect of different interior features on human psychology. Regarding Section C, it is related to user preferences of the interior features by participants. Before publishing the questionnaire, Ethic Committee of Near East University gave permission to publish the questionnaire, the electronic online form published on different social media platforms, targeting different participants randomly.

## Findings of Section 1: Case Studies

### *Case One: One-Bedroom apartment located in Empire World Diamond Building*

Empire World Building is one of the most luxurious newly constructed compounds in the city and this should be affected in the interior space of the apartment as well. The apartment consists of one-bedroom, mixed kitchen and living room, and one Bathroom.

Figure 35



*Empire Daimond Apartments-Erbil, Source/ <https://www.airbnb.com>*





Table 2

*Evaluation of apartment in Empire World Diamond Building*

| Apartment One Bedroom Flat in Empire Daimond-Erbil |  |  |
|--|--|--|
| Criteria   | Evaluation   | Photo  |
| Color  | <p>Living area: The yellow color of the coach has added energy, cheerful and joy to the space, the rest of the colors are the colors mostly used in Iraqi and Kurdish houses.</p> <p>Bedroom: Using dark shades of blue and black is a good choice for bed room, absorbing the light and reflect less light, and darker rooms are less active and therefore more restful. The wall behind the bed with furniture's are symmetry which provide more comfort for humans.</p> <p>Kitchen: Using light shade for the cabinets and rest of the kitchen are the best choice in the case of this small kitchen, to widen the space and keep the space from congestion specially when the source of natural light is not near the room. The mix of light color shades also provide positive feelings and represent cleanliness, freshness.</p> | <p>Living Space</p>  <p>Dining Space</p> |

|          |  |   |
|----------|--|---|
|          |  |                  |
| Lighting | <p>Living area: The artificial light hanging in the middle of the roof is not harmonized with the style of the space, which can add an uncomfortable feeling to the space.</p> <p>Bed room: The artificial light is directly on the top of the bed that may cause discomfort to a person laying on the bed, the artificial lights in the bedroom needs to be distributed along the room and to be less direct to the users.</p> <p>Bedroom: the size of the window can provide sufficient natural lighting, but the size and shape of artificial light is not suitable for bedroom space</p> | <p>Bedroom</p>  |
|          |  |   |

|                        |  |   |
|------------------------|--|---|
| <p>Space dimension</p> | <p>Living Area: The apartment is suitable for two to three persons, otherwise the space will be small and impact resident mood negatively, the shape of the room is rectangle most favorite shape for the room by residents, the height of ceiling is also suitable according to standards.</p> <p>Bedrooms: The dimensions and proportion of the bedrooms are not properly divided, the reason why the future are not arranged in a suitable way in this space.</p> <p>Kitchen: Although the area of the kitchen is small but it is proper with the size of the flat.</p> | <p>Kitchen</p>   |
| <p>Opening</p>         | <p>Living area: The size of the window is suitable and can provide both aesthetic views to look from in which you can see a part of the city and 100M street, also it can provide natural light during the day that affect both psychology and health of residents.</p> <p>Bedroom: The closet area is open which may cause doorway and uncomfortable feeling during sleeping, the window can let sunlight in. This helps ensure the space looks and feels bright, open, and warm also provide natural light during the day which affect mental wellbeing positively.</p>  | <p>Bedroom</p>  |

|                       |   |  |
|-----------------------|---|--|
|                       |   |  |
| Furniture arrangement | <p>Bedroom: The size of the bed room is small, adding two chairs to the room and the dark colors resulted in decreasing the size of the room and adding less comfort to the space.</p> <p>Kitchen: the furnitures is well arranged in the small space of kitchen.</p> |  |

### ***Case Two: Two-bedroom apartment in Life Tower***

Life tower is a mixed-use projects (Residential and Commercial) which offers a variety types including residence, offices, shops, Cafes and Restaurants. The project area is easily accessible from the most of Vital places and is close to Erbil International Airport.



Figure 36

*Life Tower Complex*







Table 3

*Evaluation of apartment in Life Tower complex*

| Apartment Two-bedroom in Life Tower-Erbil |  |  |
|---|--|--|
| Criteria                                  | Evaluation   | Photo  |
| Color                                     | <p>Living area and Kitchen: Regarding the kitchen a mix of different colors has been used, in such small spaces it is preferred to use less design element, less is more to define a pleasant and comfortable space.</p> <p>Bedrooms: The colors used in the bedrooms are typical colors used in interior space of dwellings in the Erbil, not harmonized and with no idea and concept.</p>  | <p>Bedroom</p>    |
| Lighting                                  | <p>Living area and Kitchen: Having two window in this area provides sufficient natural light to the space, but the shape and size of artificial light is not a good choice in this space.</p> <p>Bedrooms: the curtains used in the bedrooms are permissible for sunlight which disturb the sleeping person specially we are living in a country with most sunny days in a year. These factors can impact the wellbeing and cause uncomfortable feelings of the apartment residents.</p> | <p>Bedroom</p>  |



|                        |  |   |
|------------------------|--|---|
| <p>Space dimension</p> | <p>Living area and Kitchen: Both kitchen and living area open to each other in one space in a rectangular shape room (most favorite room shapes according to previous studies), the dimension of the space, height of the ceiling is suitable and according to standards, that can affect positively on residents' wellbeing.</p> <p>The space in general has no design concept and personality, interior elements and features such as patterns, texture, material and colors are not harmonized, and it may not be chosen by residents' choice, these factors cannot have positive impact on residents' wellbeing.</p> <p>Bedrooms: Both bedrooms are rectangular space with a tight/ small width, the furniture's are not arranged in a particular way to decrease this effect, there is no identity in the room different colors, style, materials and textures are used</p> | <p>Living area and dinning area</p>  <p>Living area</p>  |
| <p>Opening</p>         | <p>Living area and Kitchen: There are two different sizes of windows in the room providing beautiful view and natural lights that can improve health and</p>   | <p>Living area and dinning area</p>   |

|                              |   |  |
|------------------------------|---|--|
|                              | <p>wellbeing of residents. Having the 2<sup>nd</sup> window in this room next to cooking area is a good choice for providing ventilation, beautiful view.</p> <p>Bedroom: The bedroom has sufficient window size and door in the right direction and position</p>   |                                 |
| <p>Furniture arrangement</p> | <p>Living area and Kitchen: The rug in the middle of the room needs to be aligned in a different position, in order to create one unit with the sofa.</p> <p>Below design by Emily Henderson can be used to give a pleasant and aesthetic view to the place. The chair identified in dark blue circle is uncomfortable chair for dining, and it gives a feeling of insecurity to the one who use it. The view of uncovered washing machine and uncovered pipe of the filter are giving unpleasant view in the kitchen that may decrease wellbeing of the space.</p> | <p>Kitchen</p>  <p>Kitchen</p> |



***Case Three: Three-bedroom apartment in Park view:***

Park view is one of the most luxurious projects in the city, in the compound different size of apartments are available.


Figure 37



*Park View Compound-Erbil city*







Table 4

*Evaluation of apartment in Park view complex*

| Apartment Three-bedroom in Park view complex-Erbil |  |  |
|--|--|--|
| Criteria   | Evaluation   | Photo  |
| Color  | <p>Living and dinning area: In this apartment both the dining and living room are combined, which is the most preferred style in Erbil. The style of the room is Modern-Classic design, different patterns used that are not harmonized together thigh might cause discomfort in some cases. Larger patterns may look bulky at first, but in the long run, they will make the space look calm, on the other hand, small patterns can give a feeling of nervousness.</p> <p>The White color is dominance in the room, which is the most favorable color by residents and it`s suitable for most interior space in a house. The rest of the colors (Pink, Dark blue, off-white, brown, black) are used without a concept or idea to complete the whole design. Both design and color of the table are not matching with the rest of the room.</p> <p>2nd bedroom: Different patterns and colors used which are not harmonized together, and there is no personality for the room.</p> <p>3rd bedroom: For this small bedroom different colors and patterns are used with no relation to each other, in children's bedrooms, it is preferred to use the light colors that calm the child.</p> <p>Kitchen: using the light color for furniture is a good choice which helps in increasing the width of the room.</p> | <p><i>Living-dining room</i></p>  <p>Family room</p> |

|          |  |   |
|----------|--|---|
|          | <p>Family room: different patterns, style and colors are used in this room with no relation to each other which may leads to uncomfortable feeling for residents.</p>  |                      |
| Lighting | <p>Living and dinning area: There are different sources of lighting in the room, each can be used according to difference in time and function, this can be added as a positive point for the interior.</p> <p>Master bedroom: The artificial lighting is directly on the top of the bed, which can not be used perform all activities in a bedroom</p> <p>2nd bedroom: Only one source of artificial light used in the room which is direct source, it's better to have more than one source of lighting especially for a bedroom with two beds/ two persons in a room, for example installing lights or lamps next to each better is a better choice and more comfortable to perform different activities in the room.</p> <p>Corridor: Although the corridor is long with no window and no sunlight can enter the space, the artificial light used is suitable for the space.</p> | <p>3rd bedroom</p>  |

|                 |   |   |
|-----------------|---|---|
|                 |   |                  |
| Space dimension | <p>Living and dinning area: The proportion of the room is quite enough for both spaces and the height of ceiling is according to the standards, the walls of the room are all empty without accessories and paintings which increase the height of the ceiling, it may refer to the taste of the residents who interest in simplicity in the design, or it may refer to the lack of sense of belonging and protection in the resident of the apartment.</p> <p>Master bedroom: The dimension of the master bedroom is small, and the furniture used in the room is bulk and big according to the proportion of the room which may lead residents to experience milder physiological effects like stress, feeling overwhelmed, and difficulty concentrating, in this case its most preferred to use light color furniture and small size furniture.</p> <p>Kitchen: The rectangular dimension of the room and its size are suitable dimensions for a kitchen</p> | <p>Kitchen</p>  |



|         |   |   |
|---------|---|---|
|         |   |    |
| Opening | <p>Living and dinning area: The existence of the window is providing both natural light and a beautiful view to the room.</p> <p>2nd bedroom: The window in the corner is not in a suitable place directly in front of the bed, the window is not covered with a curtain that can resist permission of the sun which is needed in some cases.</p> <p>Family room: The propostion and size in the family room is suitable enough to provide both natural light and view to the space.</p> <p>Corridor: Although there are many doorways on the corridor but using various interior element in a suitable way provides a comfortable feelings to this area.</p> | <p>Living Area</p>  <p>The Corridor</p> |



Family room





|                              |  |   |
|------------------------------|--|---|
| <p>Furniture arrangement</p> | <p>Living and dinning area: The alignment of the rug and their sizes are suitable. The height of the curtains and its design are according to standards.</p> <p>The tv table and item above it are not suitable for this area in term of color and function.</p> <p>Kitchen: This room needs to be added with a warm color, a rug or any other elements that increase a sense of belonging to the space.</p> <p>2nd bedroom: The asymmetric division of the furniture in this room may cause discomfort.</p> <p>3rd bedroom: The interior space of this room is not designed according to standards of a children's room, also the alignment of the furniture and their position needs to be aligned in a better condition.</p> <p>Kitchen: This room needs to be added with a warm color, a rug or any other elements that increase a sense of belonging to the space.</p> <p>Family room: This room is used as a place of gathering family, watching TV on a daily basis. The existence of double TV each in different directions may cause confusion, not comfortable and aesthetically not suitable. The alignment and position of the sofa not suitable and comfortable</p> <p>Corridor: the length of the rug and white color of the walls are good choices and combination of these elements creates a comfortable space as a result.</p> | <p>Living-dinning Area</p>  <p>2<sup>nd</sup> Bedroom</p>  |
|------------------------------|--|---|



3rd bedroom



***Case Four: One Bedroom apartment in Lebanese village:***

Lebanese village is residential-commercial mixed used compound in Erbil, 10 mins drive from Erbil international airport.



Figure 38



*Lebanese Village-Erbil*





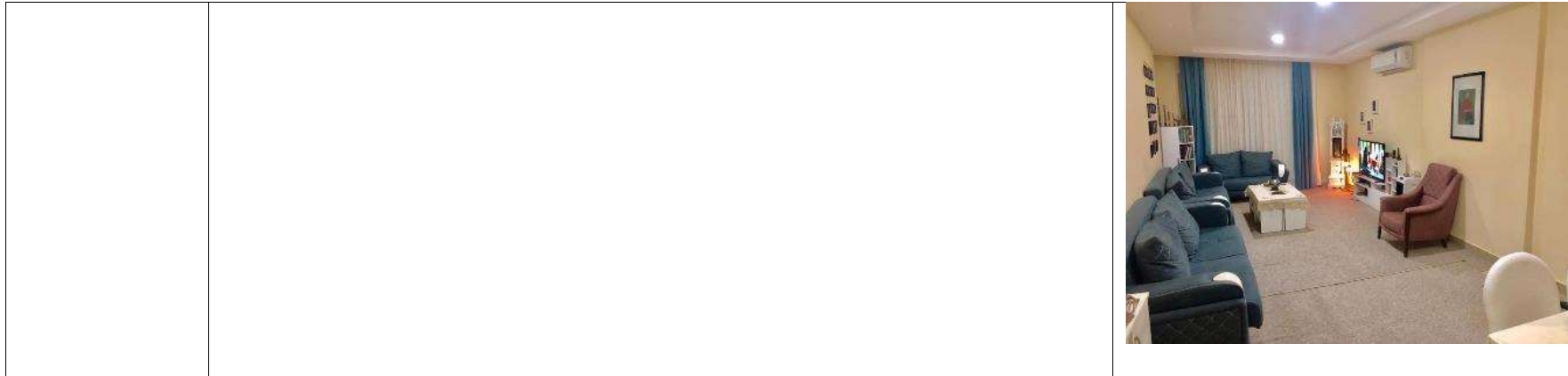
Table 5

*Evaluation of apartment in Lebanese village*

| Apartment one bedroom in lebanese village-Erbil |   |   |
|---|---|---|
| Criteria  | Evaluation  | Photo   |
| Color   | <p>Living and dinning area: In this space different colors and styles of furniture are used which are not harmonized together.</p> <p>Bedroom: Using white, off-white, light yellow colors for furniture's, carpets, walls and ceiling is a good choice it can make the space looks bigger, the red visible curtain is not suitable for bedroom.</p> <p>Kitchen: The colors used for furniture and other interior elements in the kitchen are suitable.</p>   | <p>Bedroom</p>   |
| Lighting  | <p>Living and dinning area: Using different source of lights with different temperature, type and distribution is a good choice in which the different type of lighting can be used according to the difference in a daytime and activities.</p> <p>Bedroom: The color of the curtain and the visibility of its texture is not suitable, in this case natural lights can pass through the curtains is not comfortable for residents sleeping in the room.</p> | <p>Bedroom</p>  |

|                        |   |  |
|------------------------|---|--|
|                        | <p>Corridor: The corridor does not have access to any natural lighting, but the artificial lighting in this area provided is suitable to lighten the area and prevent it from darkness.</p>   |                   |
| <p>Space dimension</p> | <p>Living and dining area: The dimensions and size of the living-dining area is suitable and comfortable, height and design of the ceiling also is suitable.</p> <p>Corridor: The dimension of the corridor is suitable not long with proper width, with a good choice in colors and source of lighting has created a suitable and comfortable corridor in this flat.</p> | <p>Corridor</p>  |
|                        |   |  |

|                              |   |   |
|------------------------------|---|---|
| <p>Opening</p>               | <p>Living and dinning area: Both window and the door are suitable in term of position, size and direction.</p> <p>Bedroom: The bedroom is provided with a suitable size of window and in the right direction.</p> <p>Kitchen: Having the door of the balcony next to the cook is a good choice for ventilation of the kitchen. It also can give a nice view to the room.</p>  | <p>Kitchen</p>               |
| <p>Furniture arrangement</p> | <p>Living and dinning area: the position and alignment of the furniture's needs to be fixed in more proper way according to the dimension of the space to provide more comfortable sense to the space, the size and different pieces of the carpet is better to be in more proper size according to the area of the room.</p> <p>Bedroom: The alignment of the bed and the rest of furnitures are positioned in a right and proper direction.</p> <p>Kitchen: The furnitures and interior elements in this area are not arranged in a suitable way that caused the uncomfortable feelings in this area.</p> | <p>Living-Dinning area</p>  |



***Case Five: Studio room in Star Tower***

Star tower is a new complex located in Erbil, in the most strategic location in the city. Its mixed used complex contains commercial facilities, restaurants, and cafes.

Figure 39



*Star Tower, Erbil*



Table 6

*Evaluation of studio in Star Tower*

| Studio apartment in Star Tower-Erbil |   |       |
|--------------------------------------|---|-------|
| Criteria                             | Evaluation  | Photo |
| Color                                | Using light colors for furniture, walls and ceiling is a good choice to make the small space look bigger. |       |



|                 |   |  |
|-----------------|---|--|
| Lighting        | different type of lighting is also positive point of this apartment, both proper natural and artificial lighting are provided in this studio.   |   |
| Space dimension | This apartment is a single room studio, small in dimensions, but the designer used the space in the proper way so that the resident can perform all activities, and all the functions are available that are needed in a house (A bed, cloth cabinet, kitchen cabinet, dining area, sitting-living space) | <p><i>A Part of Interior Space of Studio Room in Star Tower</i></p>  |
| Opening         | The partition installed between kitchen- dining area and bed space have aesthetic design and function as well, in this case to provide more privacy to the space folded door or totally invisible partition can be used which can be open and closed according to the needs.                              | <p><i>The View from Studio Apartment in Life Tower-Erbil</i></p>   |

|                       |  |  |
|-----------------------|--|--|
|                       | <p>The studio is also has a window which provides a beautiful view and natural lighting to the area.</p>   |                               |
| Furniture arrangement | <p>The bed and wall behind the bed with the rest of interior elements are harmonized and provided a concept to the space. The dining table with two chairs are also suitable for this space they are small-size scales, the sofas are preferred if the handles were smaller and lighter to provide more space to the room, and visually it makes the space looks bigger.</p> | <p>Kitchen-Dinning area</p>  |

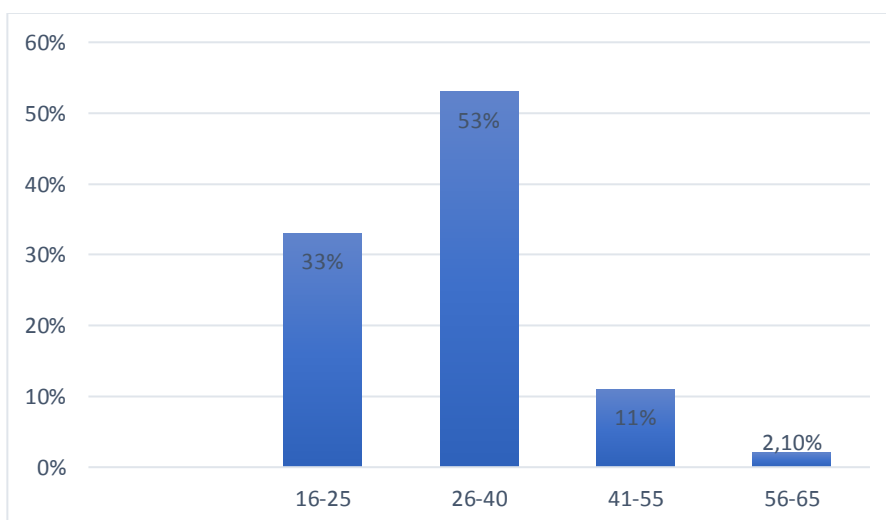
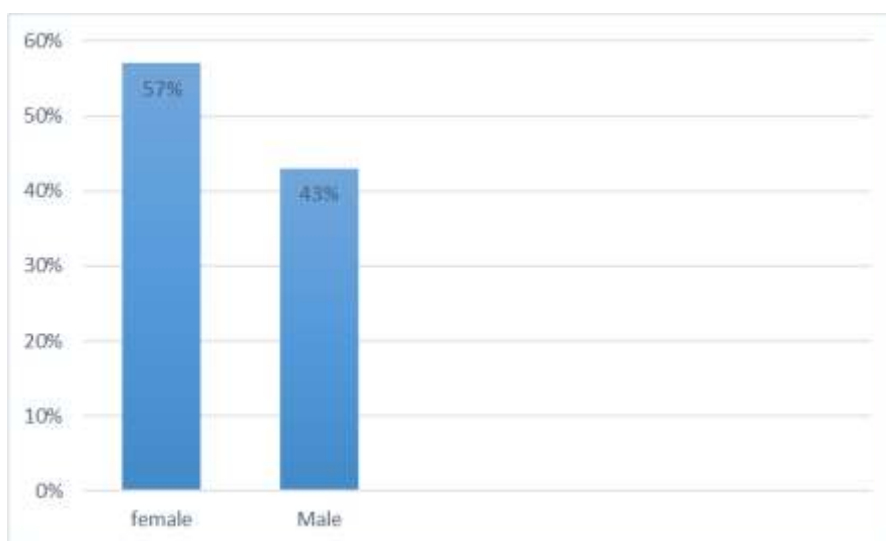
## *Findings of Questionnaire*

### **Section A**

This section includes socio-demographic data of participants, in which 60 female and 45 males participated. For question number two, %53 of participants is between age (26-40), %33 is between (16-25), %11 is between age (41-25), %2 is between age (56-65), and there is no participant from age (66-75). See Figure 39.

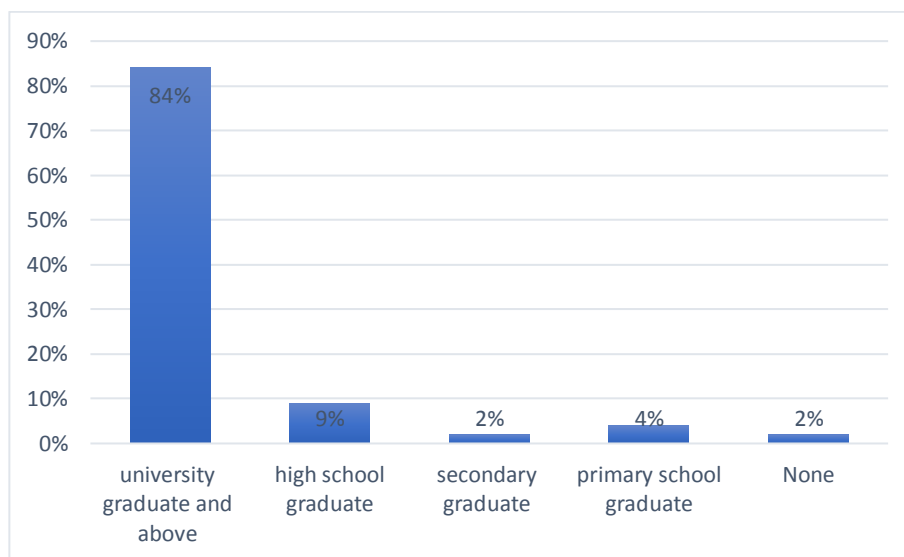
Figure 40

*Section A: Socio-demographic data of participants (gender and age)*



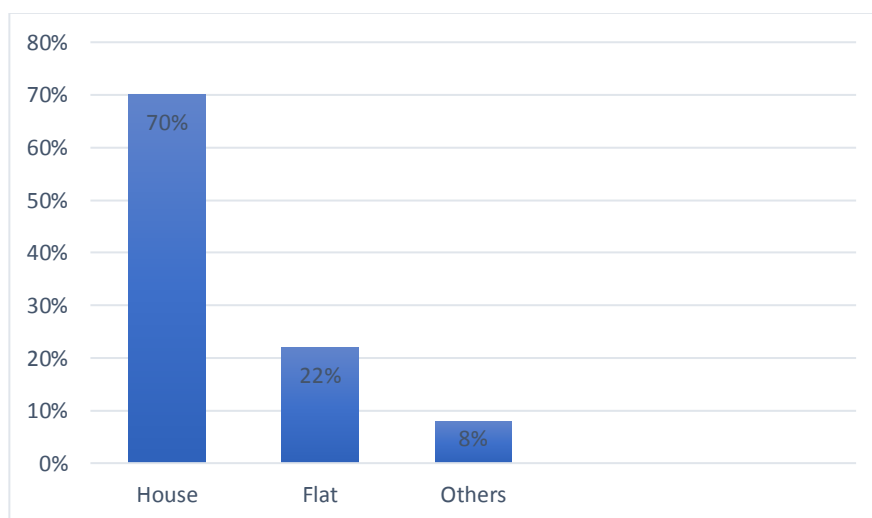
Regarding question three, the highest percentage of participants is with education level of university graduate and above which is %84, %9 have high school graduate, %4 primary school graduate, and %2 both secondary graduate and others. See Figure 40.

Figure 41

*Section A: Socio-demographic data of participants (education)*

In question number four, %70 of participants live in a house, % 22 in flats, others are %8. See Figure 41.

Figure 42

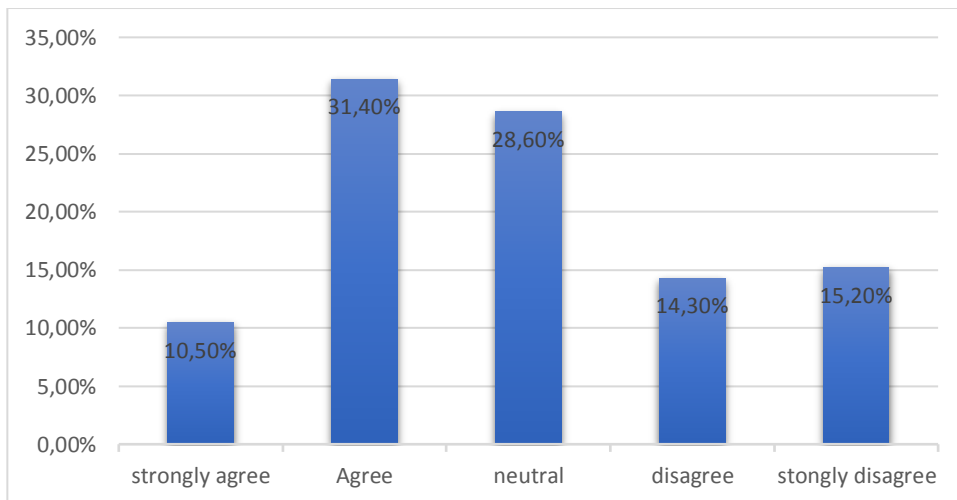
*Section A: Socio-demographic data of participants (living space)***Section B**

The questions in this section are related to relationship between psychology and elements of interior design. %31.4 agreed and % 10.5 of the respondents strongly agreed to the question five '*Any change in home`s interior affect mood positively or negatively*', and %28.6 were neutral, % 14.3 disagreed and %15.2 strongly disagreed.

By comparing the ratios, the results show that the majority are affected by interior features in their homes. See Figure 42.

Figure 43

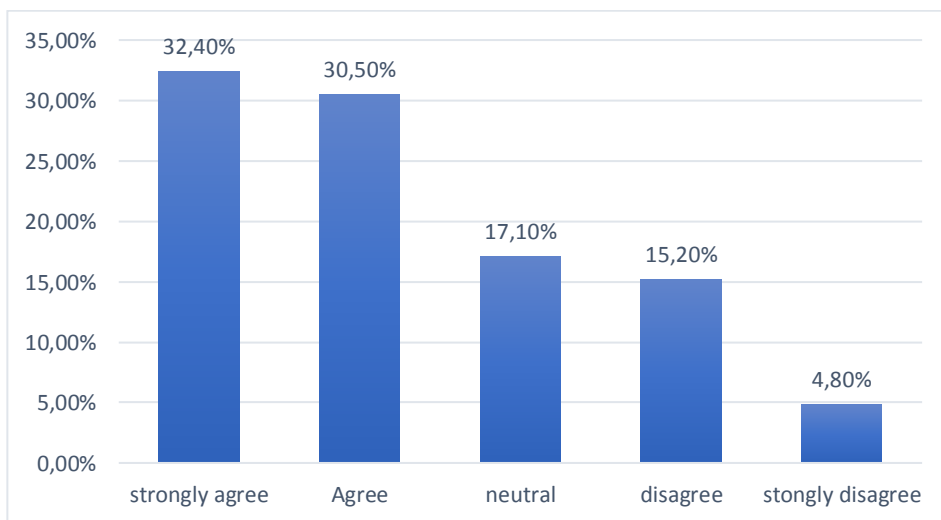
*Section B: Any change in home`s interior affect mood positively or negatively*



With a result of %32.4 for strongly agree and %30.5 for ‘agree’ in question number 6 ‘Any change in the color of my home`s interior wall affects my mood?’, it shows that the colors of walls can affect the mood and psychology of the residents with a high difference compared to the results of %15.2 for ‘disagree’ and %4.8 for ‘strongly disagree’.

Figure 44

*Section B: Any change in the color of my home`s interior wall affects my mood?*

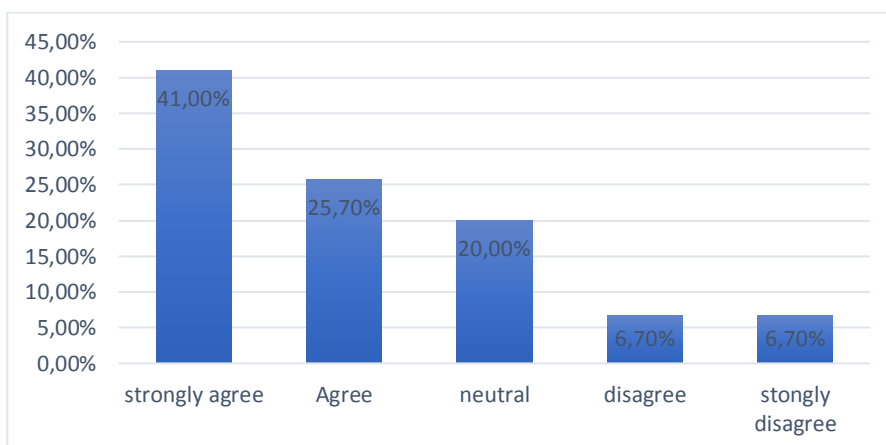


With a ratio of %41 for strongly agree to question number 7 ‘The existence of the window openings in my home can make any change in my psychology?’ with a

high difference compared to responses of disagree and strongly disagree with ratio %6.7, which proves how the existence of windows opening affect psychology and mood of residents. See Figure 44.

Figure 45

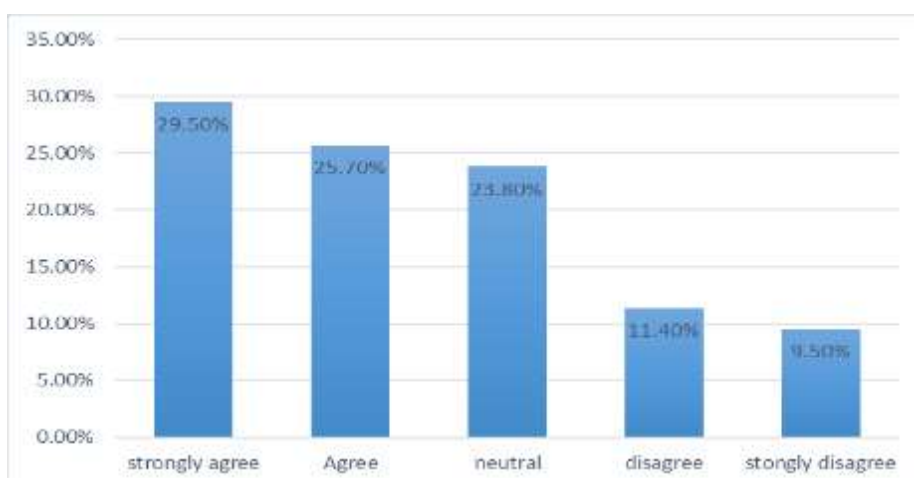
*Section B: The existence of the window openings in my home can make any change in my psychology?*



In the question number 8 related to the dimension of the interior space most responses strongly agree with ratio %29.5 and %25.7 for agree, in comparison to ratio of disagree %11.4 and strongly disagree %9.5, shows the effect of dimension of the room on residents' psychology.

Figure 46

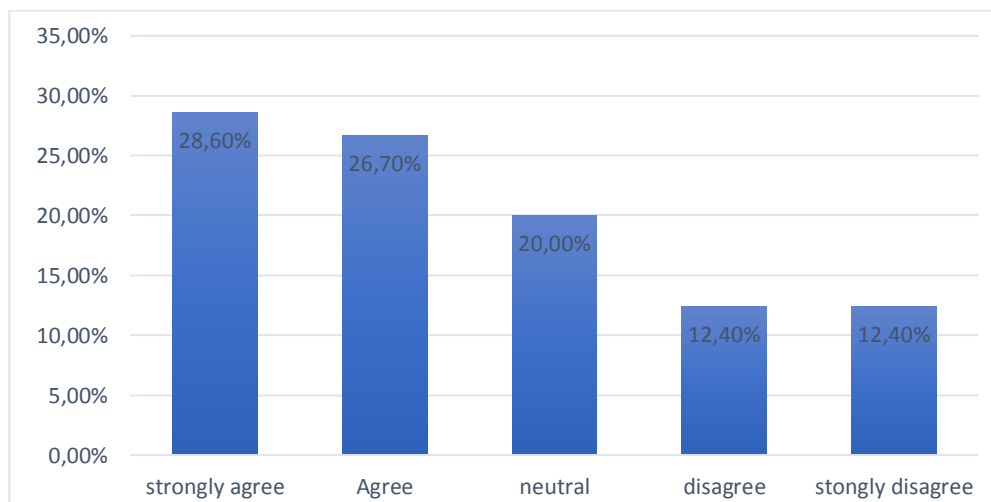
*Section B: The dimension of my home's interior space has an impact on my psychology?*



Regarding question number 9 and the effect of ceiling height on the psychology of residents, the highest ratio of responses strongly agrees with ratio %28.6 and in 2nd degree with a ratio %26.7 for agree, indicating that the height of ceiling effects residents' mood.

Figure 47

*Section B: The height of the ceiling in my home effects my mood?*

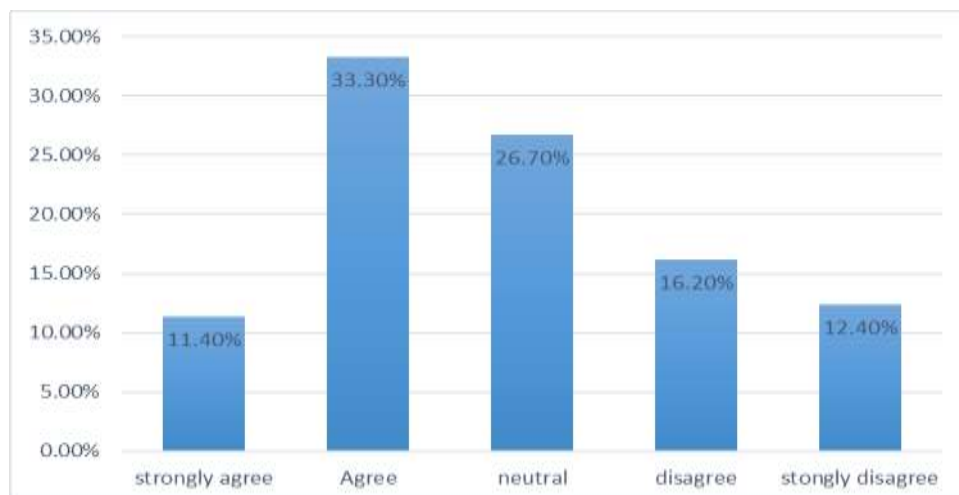


### Section C

The questions in this section are related to preferences of interior features by participants the results are as follows. The highest responses for question 10, agree with ratio %33.3, with a high difference in comparison with ratio of disagree %16.2 and strongly disagree %12.4, which means that participant are happy with the interior design of their home.

Figure 48

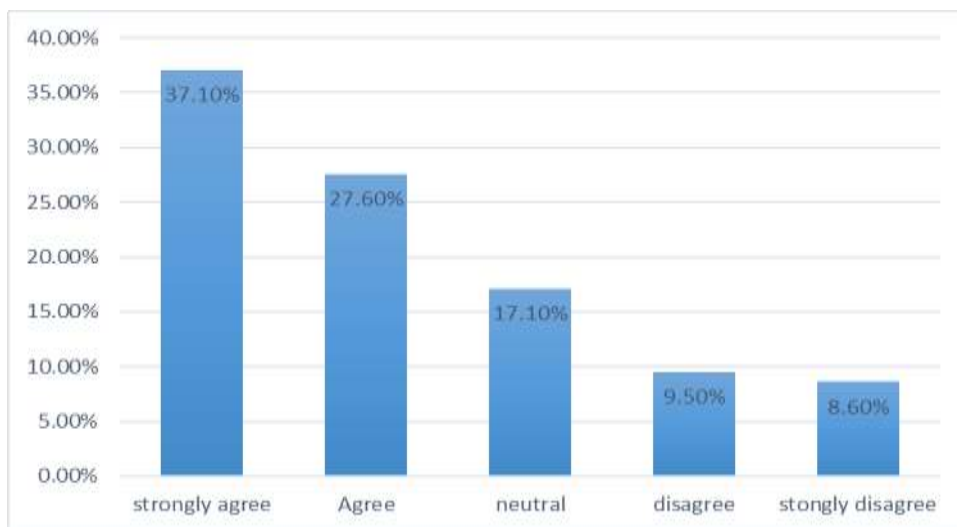
*Section C: I am happy with the interior design features of my home?*



In the question related to resident's preference in term of (color, furniture), the majority of the responses are between strongly agree in first level with ratio %37.1 and agree in second level with ratio %27.6, with a high difference in comparison with responses of disagree %9.5 and strongly disagree %8.6, in dictates that most residents prefer to change the interior feature of their home.

Figure 49

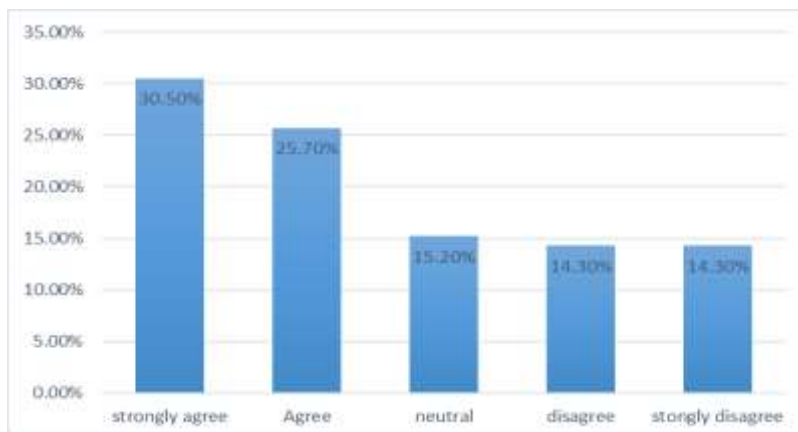
*Section C: I would prefer to change some features (color, furniture) of the interior design of my home?*



Regarding windows opening in their homes, residents' answer is mostly strongly agree %30.5 and agree %25.7, which indicates how the view of the window is preferred by residents and its importance as a feature in interior design.

Figure 50

*Section C: I am pleased with the views of the window openings of my home in general?*

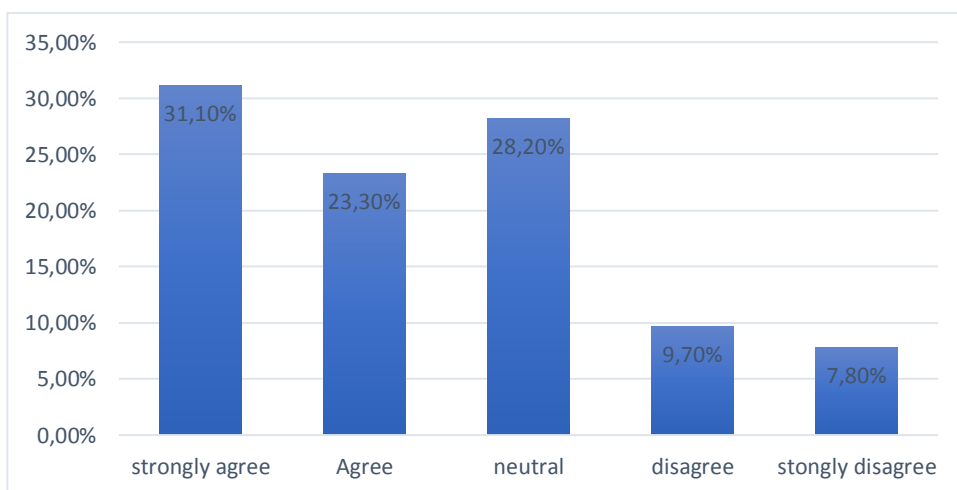




In question related to style of interior space, this question may not be clear to all participants the differences between modern style and the other interior architectural style, However the highest ratio of responses is strongly agreed %31.1, neutral in second level %28.2 then agree with ratio %23.3, the results shows that majority of the residents prefer the modern style than other architectural interior style for their home.

Figure 51

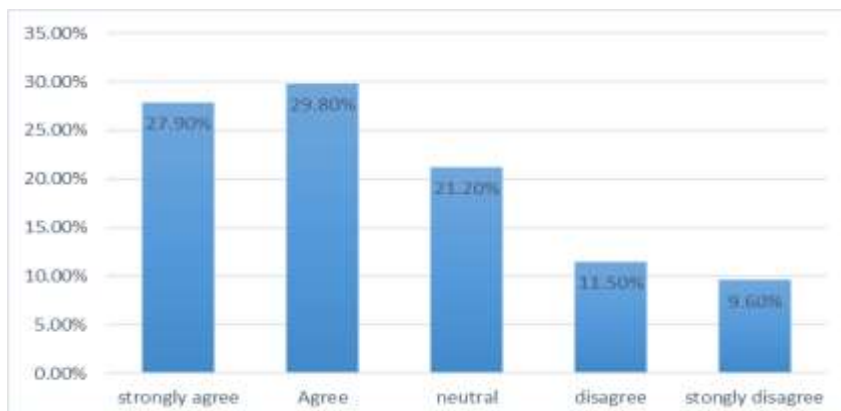
*Section C: I mostly prefer a modern style for the interior design of my home.*



In question 14 regarding changing furniture the highest responses is agree %29.8, in second level is strongly agree %27.9. Thus, in question 10 in which majority of respondents were happy about the current interior features in their homes, adding to that this question shows that the residents prefer to have some changes in their interior features, regardless their satisfaction regarding their current interior spaces.

Figure 52

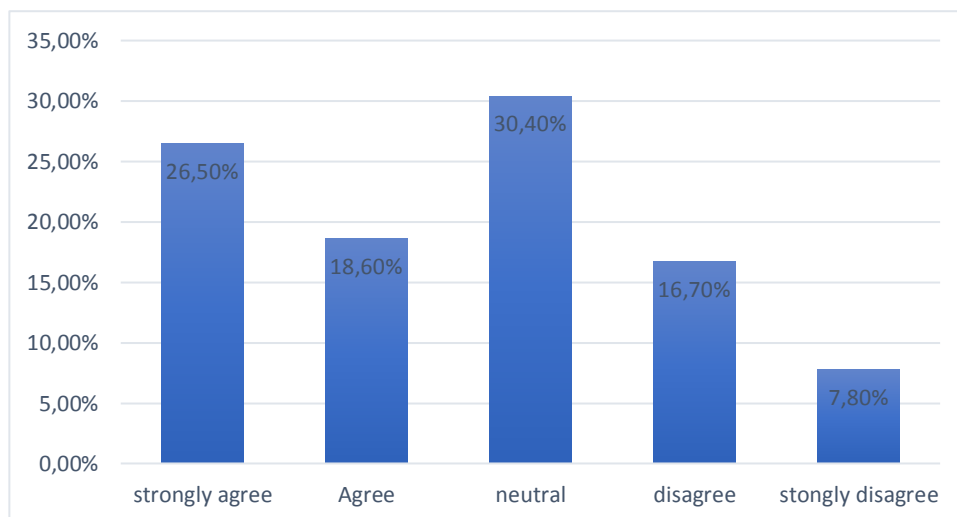
*Section C: I can change the furniture of my home if possible.*



In question 15, the highest responses are neutral %30.4, strongly agree %26.5, and agree %18.6.

Figure 53

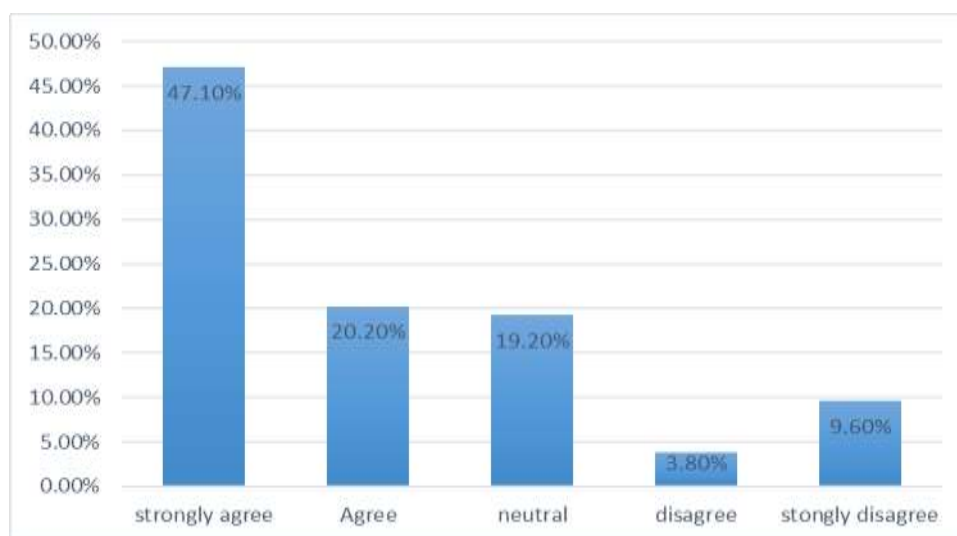
*Section C: I would prefer to change some features of the interior layout of my home (to close the kitchen if it is open plan...etc.).*



For the item, *I prefer to use natural light than artificial light?*, with the highest ratio of %47.1 participants responses are strongly agree to using natural light than artificial lights in their homes, with a high comparison between responses of disagree %3.8, strongly disagree %9.6.

Figure 54

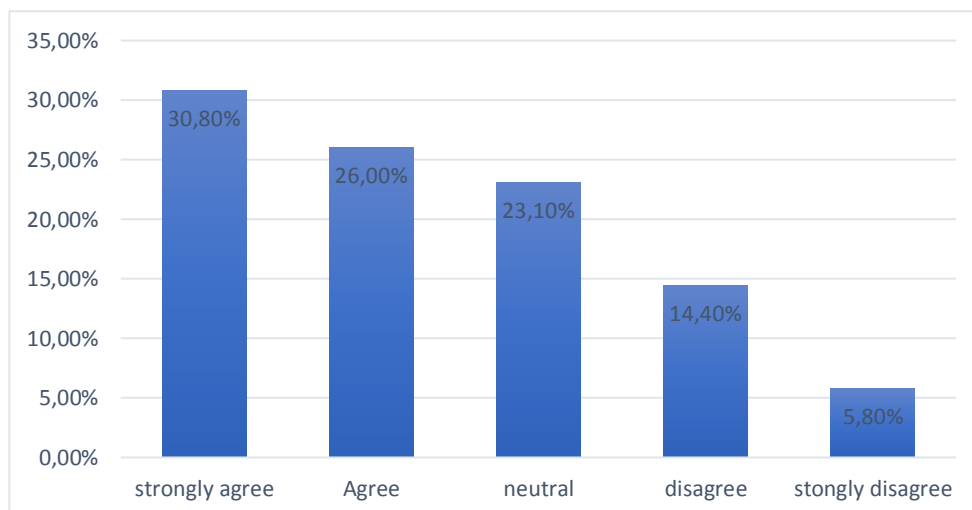
*Section C: I prefer to use natural light than artificial light?*



For the question, *I prefer white/off-white colors in my interior?*, the majority of responses is strongly agree %30.8, and agree %26. The results of neutral %23.1, disagree%14.4 and strongly disagree %5.8.

Figure 55

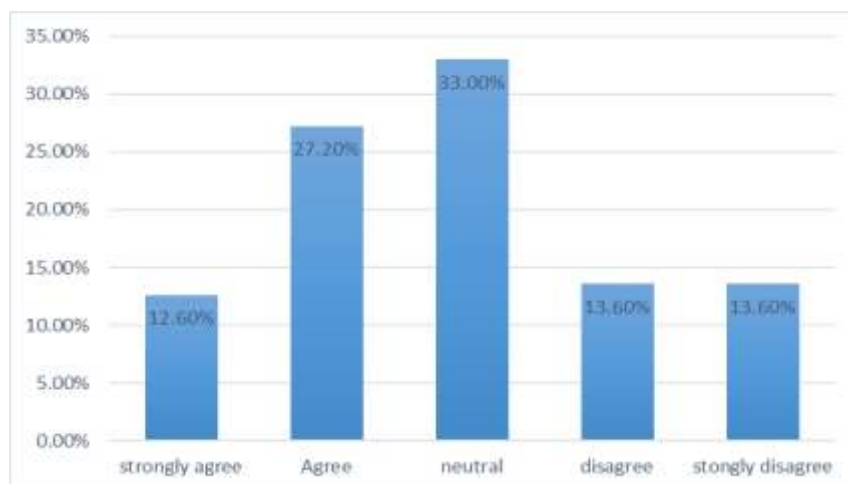
*Section C: I prefer white/off-white colors in my interior?*



For this question, *I am satisfied with the existing interior design features of my home in general,?* majority of participant chose neutral with ratio %33 and in second level is agree %27.2, 3rd level both disagree and strongly disagree with ratio %13.6, then least responses are strongly agree with ratio %12.6, in order to clarify the results of this question please see the chart below, in which the increasing inclination of the curve is at top in neutral and then agree.

Figure 56

*Section C: I am satisfied with the existing interior design features of my home in general?*



### ***Evaluation of the Questionnaire and Case Study Findings***

Regarding the responses from the questionnaire, in the question number 5 participants mostly agreed with a ratio %31.4 that the changes in the interior design of their home affect can them positively and negatively. In the question number 6 participants responses were %32.4 for strongly agree and %30.5 for agree to the question if changes in the color of the interior designs affects their mood. Also in the responses of question number 7 '*The existence of the window openings in my home can make any change in my psychology?*', the highest ratio is strongly agree with %41. In question number 11 '*I would prefer to change some features (color, furniture) of the interior design of my home?*', most responses were strongly agree %30.5 and agree %25.7. Regarding comparison between natural and artificial lighting the participants mostly agreed with a ratio %41.10 on their preference to natural lighting in question number 16. By analyzing the responses from questionnaire, we realize how the interior design of dwelling can affect residents. By analyzing the case study, we can realize that most interior spaces are not designed by professionals, this may lead to common mistakes and not paying attention to the details that impact human well-being and psychology. For example, in most of the apartments the furniture are brought and placed directly from furniture stores without referring back to the standards of each feature or designing according to the person's wishes and expert's professional effort.

Regarding the analysis of the case studies, we realize that residents are choosing the interior elements of their dwellings according to what is available in the markets. This is the reason why we can see similarities for the interior space of the dwellings in Erbil city. This also indicates that residents are not considering their personal taste and preferences while designing their interior spaces. Most of residents are unaware of the impact of their interior spaces and the fact that this relationship can be used to improve their personal development, providing well-being and better mental health.

In addition, the designers, interior architects and architects of the dwellings should pay more attention to the requirements of the residents and the details that improve the mental health of residents. Mostly in the analyzed apartments we can see that the designer has neglected some details and the facilities that should be available in any house. Also, government and local authorities should play an important role in sharing awareness regarding this issue.

## CHAPTER V

### Conclusion and Recommendation

#### Conclusion

Chapter 1 is related to the thesis background including objectives with thesis problem, research questions, and aim of the study. Chapter 2 is literature review exploring the relationship between psychology and architecture, how interior design can affect residents' mood, how to use this relation for development and progress of human being. In this chapter several subjects (Psychology and Architecture, Basic Human Needs through Place Design, Environmental Psychology, Psychological Space and Mind Processing of Environment and Empirical Data about the Link among Architecture and Human Psychology) are explained. Chapter 3 is exploring five interior features (color, lighting, opening, space dimension and furniture arrangement), explaining theoretically the impact of these features on residents based on previous studies and researches. Chapter 4 is related to the methodology structure, research design including both questionnaire and analysis of five case studies of newly constructed flats in Erbil; the criteria of evaluation is also explained with the questionnaire results.

According to theoretical review, it can be argued that the interior features can affect residents' well-being and psychology. This impact is different from person to person for different reasons, and each individual has his/her specific factors when it's related to psychology and wellbeing. For example, same interior features may act differently on individuals. Some people have knowledge about this fact, but still there is a huge number of people that are not aware about the fact how their psychology and mental health could be influenced by their interior space. Each interior element such as lighting, color, and openings has its own standard to comfort, these standards may not be applicable for all individuals equally. The feedback from questionnaire's findings displays how interior features we mentioned previously in the theoretical part (color, opening, ceiling height, dimension of the room) impact human wellbeing, mood and psychology.

**Recommendations**

Because of the direct relation between the psychology of human and interior features, it is recommended to each individual to select their interior space features carefully, thus, this may impact them positively leading to the individual progress and development, or it may affect them negatively. Knowledge of this direct relation between psychology and interior design can be used in development in humans' abilities, improving their well-being and health. Designers and residents should consider the psychological aspects of each interior features/ elements in the designing process of the house. During the designing process of their homes, residents should seek advice from professionals in interior fields, following the standards of interior elements and considering their personal choices and responses toward interior elements. Since the subject has direct relation to human well-being and health, more researches and studies are required to provide awareness during designing their home.

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## Appendices

### Appendix A: Questionnaire

#### A. SOCIO-DEMOGRAPHIC DATA

##### 1. Gender

- Female
- Male

##### 2. Age

- 16-25
- 26-40
- 41-55
- 56-65
- 66-75

##### 3. Education

- None
- Primary school graduate
- Secondary school graduate
- High school graduate
- University graduate and above

##### 4. Do you live in a...../?

- House
- Flat/Apartment
- Others

#### B. relationship between interior design and psychology

Listed below are statements about the relationship between humans' psychology and Interior design. Please indicate the degree to which you agree with each item. Choose the number of your response for each statement using the following scale. The scale is from 1 to 5.

5= STRONGLY AGREE, 4= AGREE, 3= UNSURE, 2= DISAGREE, OR 1= STRONGLY DISAGREE

PLEASE TICK ONE BOX ONLY

1. Any change in my home's interior affect my mood positively or negatively?

1  2  3  4  5

2. Any change in the color of my home's interior walls affect my mood?

1  2  3  4  5

3. The existence of the window openings in my home can make any change in my psychology?

1  2  3  4  5

4. The dimension of my home's interior space have an impact on my psychology?

1  2  3  4  5

5. The height of the ceiling in my home affect my mood?

1  2  3  4  5

### C. Preferences about interior design

Listed below are statements about the relationship between humans' psychology and furniture arrangement in residential spaces. Please indicate the degree to which you agree with each item. Choose the number of your response for each statement using the following scale. The scale is from 1 to 5.

5= STRONGLY AGREE, 4= AGREE, 3= UNSURE, 2= DISAGREE, OR 1= STRONGLY DISAGREE

PLEASE TICK ONE BOX ONLY

1. I am happy with the interior design features of my home in general?

1  2  3  4  5

2. I would prefer to change some features (color, furniture) of the interior design of my home.

1  2  3  4  5

3. I am pleased with the views of the window openings of my home in general.

1  2  3  4  5

4. I mostly prefer a modern style for the interior design of my home.

1  2  3  4  5



5. I can change the furniture of my home if possible.

1  2  3  4  5

6. I would prefer to change some features of the interior layout of my home (to close the kitchen if it is open plan etc)

1  2  3  4  5

7. I prefer to use natural light than artificial light?

1  2  3  4  5

8. I prefer white/off-white colors in my interior?

1  2  3  4  5

9. I am satisfied with the existing interior design features of my home in general?

1  2  3  4  5

**Appendix B**  
**Ethics Committee Report**



BİLİMSEL ARAŞTIRMALAR ETİK KURULU

03.02.2022

Dear Lana Salam Qadir

Your application titled "Impact of Interior Space Features on Human Psychology Case Study: Erbil city, Iraq" with the application number NEU/AS/2022/149 has been evaluated by the Scientific Research Ethics Committee and granted approval. You can start your research on the condition that you will abide by the information provided in your application form.

Assoc. Prof. Dr. Direnç Kanol

Rapporteur of the Scientific Research Ethics Committee

**Note:** If you need to provide an official letter to an institution with the signature of the Head of NEU Scientific Research Ethics Committee, please apply to the secretariat of the ethics committee by showing this document.

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## Appendix C

### Ethics Committee Report

#### Lana Thesis June

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