Architecture Psychology

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Abstract: Although the WHO (World Health Organization) and psychologists warned architects, some colleagues insist on designing apartment houses with the traditional space organization. Thermal comfort and human psychology, are not taken into consideration at all. It is far from sustainable architecture to produce more than necessary and low-cost flats on the land used. During the Pandemic Process we live in today, people of all ages are not obeying the “stay at home, stay healthy” warnings and other prohibitions imposed by the medical community, this is due to the fact that people do not feel a sense of belonging to the house they live in. The duty of modern architects, is to design more livable environments. In this article, two examples, one positive and the other negative, are discussed as field work for a better understanding of psychological architecture. The first example is the Pruitt-Igoe site in the city of St. Louis in USA. The second comparative example is the Samanbahce houses in Nicosia, the capital of Cyprus, made of adobe brick, a traditional building material for families with insufficient financial means.

Key words: Housing, sense of belonging, health, psychology, social life.

1. Introduction

While repairs of the bomb-ravaged House of Commons during the Second World War were being carried on, the then Prime Minister of the UK, Winston Churchill, underlined that “we shape our buildings and afterwards our buildings shape us” [1]. Today, the study results supporting this emphasis are put forward by neuroscientists, who make research on the nervous system, and psychologists and psychiatrists, who are psychology scientists basically aiming to understand and explain people’s behavior and focus on the mental processes of people for these, examining their cognitive and emotional structures. Recent neurological studies reveals that particular cells in the human brain hippocampus responsible from the location, is activated by any sensory stimulus such as the visual, auditory (hearing), olfactory (smell), and somatosensory (touch) systems and it plays critical role in the formation of new memories and environmental mapping [2]. This means that it is an important factor in creating spatial maps and shaping human behaviours accordingly. The study concludes that human sensing, ordering the objects and interpretation of the enviromental variabilities are sensed in accordance of the recent mapping [2]. The studies have underlined that the requirement that the objects are in spatial connections with each other is related to the positive development of the individual’s sense of direction and this is one of the primary factors for the individual to feel the sense of belonging. Places in which people have difficulty in finding their direction is closely associated with occurrence of negative emotions in human psychology, in terms of sense of being lost in particular [3]. Besides, it is stated that starting from details in the architecture façades, interior designs, too, leave a trace in human psychology [4].

Danger signals received in the living environment increase the intensity of individuals’ stressful lives and it manifests itself with psychologies that deteriorate on an individual basis, such as the decrease of energy of life, the block of creativity, the exhaustion of hopes, and the weakening of personalities [5].

According to John Ruskin, English writer, art critic, and social thinker of the 19th century, all architectures have their own mood and understanding [5]. Architecture, already, is a notion that unearths the
creativity in the spirit of a person and the products of this creativity in the emotional sense [6]. Some characteristics like protecting people from weather conditions such as heat or cold, rain, wind, or events such as theft or being peep by others, or receiving sunlight, which is considered very important for human biology, inside the house, and having spaces to meet their needs such as eating, working, or other certain personal needs are regarded as the fundamental functions of a house [5]. Since people continue their working life outside the houses they live in and they even spend much more time mostly, these principles of functionality are also applied to workplaces. Accessibility to nature and especially to the sun in spatial designs is of great importance due to the biological structure of human beings. Scientific studies have shown that there is a significant association between the frequency of depression cases and inadequate exposure to sunlight [7].

2. Literature Review

After the Industrial Revolution of the early 19th Century, to eliminate urban housing deficits, dwellings were constructed in the light of fast production and cheap material, and a tendency to meet thermal comfort with technology instead of natural air conditioning emerged. All architectural movements in favor of original creation that oppose the 19th century’s eclectic architecture, which is the reuse of elements taken from different philosophical or art systems in a new system [8], emerged by rejecting to benefit from history [9].

Thus, the designs were made by ignoring the life culture and thermal comfort caused by the climatic characteristics. This was called “Contemporary Architecture” or “Modern Architecture”. However, “Modern Architecture” means that the architect, before designing a project, analyzes the user’s living culture stemming from climatic characteristics, then collects meteorological data of the environment where the building is located, attaches importance to orientation, and organizes the functional space layout, and then obtains the project to be implemented [10]. Thermal comfort can be operationally defined as the reasonable climate conditions for the occupants of buildings. Thermal comfort, in other words, means that there is no dissatisfaction with the thermal environment due to warm or cold weather [11].

Hence, as it is stated by Özer with the example of Turkey, when we consider today’s property market, predominant apartments in the style of 1 bedroom + living room and 2 bedrooms + living room (1+1 and 2+1) are far from designs to meet people’s needs for disintegration and differentiation in their relationships with others and creating private spaces. These apartment type dwellings are structures designed for the sake of getting unearned income and offered to the consumer society rather than human needs oriented architectural designs. In terms of private space perception for individuals living in such dwellings today, a seat or a corner of yours in the dwelling is regarded as your private space. The private space notion in the spatial design that reflects in human psychology and relationships as negativity manifests itself in the office designs of individuals in their business lives. The crowded communities taking place in an open and wide space and trying to manufacture thereby do not reflect positively in terms of establishing and maintaining an in-depth relationship under these conditions [12].

Kürtçuoğlu, too, states that it is of great importance for people to feel belonging in order to be happy in their environment. Compared to an environment with a gray color tone, which is the symbol of concepts such as monotony, formality, seriousness, and tediousness, the green color tone, which is the symbol of concepts such as peace, tranquility, abundance, renewal, leaves more positive impressions on human psychology. The feeling of security risk, uneasiness, fear, and unhappiness in the living environment leads to alienation from there and being estranged from the sense of belonging. This alienation, on the other hand,
negatively affects the interactions of people living in the same environment with each other [13].

In short, dwellings and even workplaces constructed ignoring human psychology disturb social “communal” lives. We can define social “communal” life as “an order created by people based on both nature and the relationships they establish among themselves” [14]. When people’s order is disturbed, psychological problems begin, and in this case, the person starts not to see himself/herself as a part of the city anymore, and thus, he/she alienates from the city he/she lives.

The most painful example of dwellings constructed without considering human psychology is the Pruitt-Igoe buildings. The Pruitt-Igoe buildings were destroyed 16 years after the completion of their construction. Thus, the failure of the Pruitt-Igoe complex has become a symbolic icon in public housing policy debates. This building complex was one of the first demolitions of modernist architecture, and the demolition of this complex was evaluated by the postmodern architectural historian Charles Jencks as “the day Modern architecture died”.

The main reason for these buildings’ construction was the fact that the city of St. Louis was overcrowded and the housing conditions in some areas were very poor. While this was the case, it was not desired to invest in the city’s infrastructure and services. Hence, the middle-class were leaving the city and their former residences became occupied by low-income families. Among these families, blacks were preferring the north and whites the south slums of the old city. City planners in St. Louis proposed two- and three-story residential blocks and a public park. But authorities favored clearing the slums and replacing them with high-rise public housing, because they thought that this project would help city through tax revenues. To put this project into effect, they reasoned that the new projects would provide a net and positive respond to the city with increased revenues, new parks, playgrounds, and shopping spaces.

In this complex constructed, the apartments were deliberately small, and there were “skip-stop” elevators stopped only at certain floors, forcing residents to use stairs in an attempt to lessen congestion. The floors where elevators stopped were equipped with larger communal corridors, laundry rooms, communal rooms, and garbage chutes. The stairwells and corridors, thus, attracted muggers. In addition, ventilation was poor, and centralized air conditioning nonexistent. Meanwhile, racial segregation also continued.

The Pruitt-Igoe complex initially cost $36 million, that is, 60% of the national average for public housing. Conservatives attributed cost overruns to influence of labor unions.

The Pruitt-Igoe buildings were initially seen as a breakthrough in urban renewal. Despite its poor quality of building, material suppliers cited Pruitt-Igoe in their advertisements.

By the end of the 1960s, all authors agree that Pruitt-Igoe was nearly abandoned and had deteriorated into a decaying, dangerous, crime-infested neighborhood; its architect lamented: “I never thought people were that destructive”.

However, residents cite a lack of maintenance almost from the very beginning, including the regular breakdown of elevators, as being a primary cause of the deterioration of the project. Local authorities, on the other hand, cited a lack of funding to pay for the workforce necessary for proper upkeep of the buildings. Explanations for the failure of Pruitt-Igoe are quite complex. It is often presented as an architectural failure [15-18] (Figs. 1 and 2).

If the purpose is not unearned income but service, by considering human psychology and without sacrificing thermal comfort, public housing can be built where the residents can live without leaving the social life by feeling a sense of belonging, even if the net residential sizes are small. We can cite the Samanbahce Quarter in Lefkosa city, the capital of the Turkish Republic of Northern Cyprus.
With the rapid increase in the population of the city in the early 1900s, the Pious Foundations in Cyprus implements a public housing project for those with insufficient financial means and it is decided to get a small amount of rent from those living in these houses. In this respect, it is the first known example of urban planning. Between the years 1918-1925, 60 houses were built in the first stage and four more were added in 1949, while six more in 1955. Two of these dwellings have one room (Fig. 3) [21].

In these dwellings, one can enter the vestibule with double-wing, board-batten doors. A batten door is a simple door constructed of boards in a row, parallel, throughout the whole of its length held together by perpendicular and diagonal support battens. There is a keystone on the top of the yellow-stoned door frames framing board-batten doors. Keystone is also used as a stone or keystone placed on the peaks of arches, domes, and vaults, which transfers the weight to the adjacent stones [22]. The number of each house was written on the keystones.

The entrance hall is also used as a sitting space. This type of entrance hall is also called a sundurma (porch) in the local language. The entrance hall has a single-winged batten door that opens out onto the courtyard. Thanks to the mutual opening of the doors, air circulation occurs in the entrance hall and natural air conditioning is achieved.
There are two rooms opening out onto the entrance hall. The doors of these rooms are also double-wing batten doors. The room on the left side of the entrance hall has a window opening out onto the road and the courtyard. The dimension of the window opening out onto the road is 1.16×2.00 m, except for the window, the mirrors have folding, narrow, horizontal board shutter [22]. This kind of shutter is also known as the American shutters. Shutters are made of two parts, thus, particularly the lower part of window shutters opening up onto the road is fixed, while the upper part is opened. Thus, passers-by cannot see the inside of the room, and because the upper part is openable, air circulation is ensured by being opposite the window opening out to the courtyard.

The room on the right side opening out onto the entrance hall has only a window opening out onto the road.

In housings with a large number of families, both rooms are used as bedrooms, while in housings with few families, on the other hand, one of the rooms is used as a guest room.

There is a kitchen and WC (water closet) that can be accessed from the courtyard. The WC has a small window opening out onto the courtyard. One can access the bathroom via the kitchen, on the other hand. The reason for this is to collect water-related indoor spaces in the same place, besides, if a person who comes out of a hot bath during the wintertime tries to go directly to the living room or bedroom, facial paralysis may occur due to the temperature difference.

The kitchen becomes to be used as a recreation room as well. We also see this feature in old Cyprus urban houses and rural residences.

The flooring material of the entrance hall and rooms is Cyprus village marbles. In the local language, this flooring material is also known as Kiracı Village marble.

The gross area of these housings is 85 m² and their net area is 64.90 m², including 42.90 m² indoor area and 22.00 m² courtyard, open space (Fig. 4).

Although four dwellings surrounding the square where the hexagonal-planned water tank is located, which meets the water needs of the complex have the same understanding in terms of function, the rooms are pentagonal-planned and the windows facing the road are not in the same direction as the entrance door. The courtyard, on the other hand, was built in a triangle shape (Fig. 5)

Again, there is a slight difference in shape in the courtyards of the two dwellings in the north-east corner of the complex.
The external walls and inner walls of all dwellings were built using adobe bricks of 0.60 m and 0.45 m, respectively.

Roofs are covered using rafters, close-packed reinforcement thatched roof, village marble (Kiracıköy (Athienou) marble), loam (soil), and Spanish clay roof tiles.

Some users, despite all their objections, state that modern insulation materials are used instead of loam (soil) on roofs during the restoration works carried out with the financial support of UNDP (United Nations Development Programme) between 2003-2004 and that this event negatively affects natural air conditioning, in other words, thermal comfort.

The four housing plans added in 1949 are the same as the houses built in the first phase. The difference is in doors, windows and floors. Doors are glazed doors instead of board-batten doors. The floors were also paved with mosaic tiles instead of village marble.

Four of the six dwellings built in 1955 are still the same in plan. The doors are glazed doors, like the second stage built in 1949, and are smaller in size.

In addition, there are no jambs around the main entrance door. Window sizes are smaller and the blinds are not divided into two, and they are not American blinds. While the window shutters opening to the outside in the first and second stages are on the outer surface of the wall, they are here on the inner surface. In addition, the room’s window opening to the courtyard was not made. Again, instead of the double wing door opening from the entrance hall to the courtyard, a single wing door and window are made. The fact that the room was not built with a window opening to the courtyard affected the natural climate, because air circulation is blocked. The floors were laid with mosaic tiles, just like the houses built in the second stage (Fig. 6).

In two single-room dwellings, on the other hand, one can enter the room used as a living room and a bedroom, with a single-wing door. Door frame with red-colored solid bricks decorates around the door. This room has a shuttered window opening out onto the other road in the right side.
The WC is accessed through courtyard. The WC has a glass round-arched window in 0.60 m diameter that opens out onto the entrance door. Solid bricks were tiled around the window, as around the entrance door (Fig. 7).

As in this site, when the traditional houses inside the city walls of Lefkosa (Nicosia) are examined, courtyards are the backyard, which is the transition area from living spaces to service spaces, rather than the inner courtyard that spreads to other countries of the world in Central Asia and the Roman period [23].

Streets without vehicle traffic are open spaces where neighborhood relationships are visual.

Courtyards also symbolize the green color. and are also part of the natural climate. This is due fact that in the evaporative cooling process water absorbs relatively large amount of heat [24].

### 3. Conclusion

Despite all the environmental problems in the world, the logic of fast production and cheap materials after the Industrial Revolution in the early 19th century is dominant in designing urban residences even today. Moreover, it has also been called “Modern Architecture”. Is Modern Architecture or unique design to produce projects by ignoring human needs, using empirical formulares, and ignoring the natural and physical environment?

Some architects have tried to sell their projects due to performance concerns rather than transferring all this to the user correctly. As a result, the housing projects constructed are far from meeting the needs of disintegration, differentiation and private space in people’s relations with each other. This situation prevents people from feeling a sense of belonging to the place they live in and leads people to be mentally depressed.

In housing design, in order to create more inhabitable environments, as psychologists point out, one should act in accordance with cognitive sciences, especially psychology, instead of using empirical formulas only, without ignoring the fact that interpersonal relationships are shaped according to the environments they live in.

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### References


