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DETECTING TYPES OF PHOBIA IN CONTEMPORARY ARCHITECTURE

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DETECTING TYPES OF PHOBIA IN CONTEMPORARY ARCHITECTURE

Abstract

Phobia in its broadest sense is an irrational fear or feeling, created in a person toward an object or a certain situation that might happen around him or in his imagination and it can be related to natural elements such as animals, insects, oceans, fire and heights. Furthermore, it can be related to build environment and manmade spaces or more simply, to architecture. Unfortunately, architects shifted from the standardisation and regularity to creating innovative and irregular spaces that are reflected by the exterior and interior design of the building without having any concern of the negative consequences such as phobias and anxiety disorder among people. Therefore, this paper aims to detect the contemporary design elements and representations that generated types of phobias to the users of projects. To achieve the main aim, this paper will begin by literature review, based on desk research, defining the meaning of phobia, recognising its types and reasons. Then, the paper will highlight the historical background of phobia in architecture, browsing previous readings about the phobia in the contemporary architecture. After that, the research will analyse three case studies that are Roland Messner Museum in South Tyrol of Italy, The Musée des Confluences in Lyon, Lou Ruvo Centre for Brain Health in Las Vegas. Through the analysis, the research will detect the elements and representations that generated different types of phobias, it can be recognised if the spaces of these three projects targeted to generate phobia on purpose or it was a spontaneous feeling by some users. Another finding can be figured out, a judgment of criticism can determine if these designs were successful through using these thrilling elements or not. In conclusion, a set of contemporary design elements that stimulate phobia for users is defined.

Keywords

Phobia, Contemporary Architecture, Psychology, Architectural Space

1. INTRODUCTION

Phobia is considered a psychological effect that comes from nature, different activities, creatures and even the built environment that surrounds us. It is an external stimulus that has a direct projection on an individual's brain and can affect the way one can cope with every day's phenomena. In addition, this anxiety disorder can have serious consequences where people become inadaptable and intractable. When speaking about Architecture, the different design interventions triggers people's emotions and can arouse the inner fear to a certain space, element, and design. However, the emotions that are generated from buildings are not common between users, but can provoke people that have sensitivities to certain experiences. People have different psychological feelings toward architectural buildings and spaces where the feeling is formed by a phenomenon called stimulation. Stimulation is generated in the brain in which it reflects an objective matter in an individual and are felt when the person attributes to the sensations found in the space (Wagle, 2021). One of Architecture's most controversial trends is the contemporary Architecture. This type of Architecture is considered a composite of different architectural movements whereas it lacks any restriction or constraint. Architects of this trend tend to break away from any standard designs and fetch innovative thoughts and intertwine them in their designs. The elements of Contemporary architecture are adopted from the modern architecture movement such as the use of unconventional materials, open interiors, tall volumes, and huge voids (Garkavenko, 2020).

These elements can have a serious impact on people's psyche that induce a series of memories, perception, scenarios and emotions and cause fear towards the place when experiencing or looking at it. Since phobias can be related to natural elements such as oceans, patterns and insects, and architects moreover get inspired by these natural elements in their design especially in contemporary architecture reflected by patterns in the elevations, or by the interior space configuration related to scale and proportions. These emotions are experienced differently from one to another according to its own introspection. For instance, building such as Elbphilharmonie in Hamburg, by Herzog & de Meuron displays different elements that can provoke fear and anxiety such as the sharp lines in its outline, referred to Aichmophobia, the use of mirror in elevation that provokes the Catoptrophobia and the dotted cells on the roof that refer Trypophobia as shown in fig.1 (Brocca, 2017).

Accordingly, this paper aims to identify how the characteristics of contemporary architecture, when occasionally the architect gets inspired by natural elements and the context of the building, can provoke the phobias and affect the user's psychology and its experience in the building by different means such as the outline, patterns, scale, heights, or spaces.

This paper proposes that contemporary architecture that tackles the natural elements can arouse the anxiety and different types of phobias in the personal introspection of certain people during witnessing the architectural spaces and elements.

This paper is a qualitative type of work. It will depend on scientific methodology beginning with a literature review, presenting definitions, theories, principles, approaches, and case studies such as the international Lou Ruvo Center for Brain Health by the architect Frank Gehry and Kunsthaus Graz by Peter Cook. This information will be supported by previous readings, extracting from updated references. The study will analyse this data in a scientific framework where each one of these data is suitable for the collection of certain type of information. This paper will use readings of references, and articles related to the topic, scanning official websites of architects.

2. LITERATURE REVIEW

Fig.1: Elbphilharmonie, Hamburg. Contemporary building by the architect Herzog & de Meuron. Source: Photograph by Herzog & de Meuron, retrieved from culturacolectiva.com

In this part of the paper, many previous readings about phobias in contemporary architecture and similar examples displaying this title are presented, and at the end a set of parameters are conducted in a form of table.

2.1 Defining 'Phobia' and 'Contemporary Architecture'

Defining phobia can be by biological and psychological terms simply it is the feeling of fear, since phobia is a situation created by the human itself toward a certain object or a certain situation. Having a phobia can differ from a person to another due to personal experiences and human psychology. Phobia creates anxiety and fear mixed with an uncomfortable feeling for the people that has certain kind phobias. Phobias can be related to nature, objects, spaces, situations, patterns and more things that the human mind can create a certain feeling of fear and anxiety about, since it's an imaginary feeling and scenarios that the person with phobia invents which causes a negative effect on the human mental and physical health (Black, 2020).

The discovery of phobia goes back in 400BC when being shy was the first discovery of a bad feeling or a bad character in a person when people used to feel shy and fear the people because they thought that everyone is looking at them or watching the until 1950 when Joseph Wople was the first psychiatrist that went deep in researching and defining and differing phobias by specific techniques (Cuncic, 2020).

Contemporary architecture fills a huge space and takes a crucial attention in today's world, revealing building styles that are opposite from the preceding ones, breaking the standardization of the past and introducing innovative shapes, materials and building techniques.

In the first 21st century, many architects kicked off this game and lightened up the style such as Zaha Hadid, Frank Gehry and many others. It is noticeable the use of irregular shapes and large-scale structures challenging the gravity and the accustomed buildings (Sebastian L, 1998).

Contemporary architecture has risen after the modern era of the 1st half of the 20th century. Hence, buildings constructed after the late 20th century could be a paradigm of contemporary architecture, in which, architects do not limit themselves to traditional and basic shapes. In fact, designers took advantages of new materials and technology to execute their innovative and irregular designs in a more accurate and precise way such as curved structures and rounded forms of Zaha Hadid.

2.2 Types of Phobias and Characteristics of Contemporary Architecture

2.2.1 Classification and types of phobias

Phobias can differ from a person to another but it also can be common and familiar in the most of the cases noting that the most common types of phobias are mainly:

- a. Specific phobia: this type of phobia is related to a specific kind of fear that a person can have and which is normally the most popular, it consists of the reaction of fear and anxiety about a specific object or insect like the fear of spiders, fear of dogs, fear of planes etc...)
- b. Social phobia: this type of phobia is related to the social environment and to the people in general, which is the fear of people, social events, talking in front of the public etc... most of the introverted person can have this type of phobia
- c. Agoraphobia: this type of phobias is related to the space itself as public space that has crowded people in, long distance, enclosed spaces and especially places without exit, this space can affect the person with agoraphobia by being more stressful and anxious in public

In fact, a limitless list of phobias is available and each one can be interpreted and analysed according to the user itself: its experience, its perception and feelings. Listing below in table 1 some of these specific phobias.

Types of Phobias	Description
Eisoptrophobia: Fear of Mirrors.	Sufferers of this phobia experience anxiety and stress due to a past negative experience.
Achluophobia: Fear of Darkness	This phobia is one of the most common, as people more specially children tend to have fear from dark spaces.
Claustrophobia: Fear of Enclosure	Being in a closed small space can arouses anxiety such as elevators that can cause panic attack. People having this phobia prefer to use other circulation elements such as stairs.
Acrophobia: Fear of Heights	When being on top of a cliff, of on top of a skyscraper, and even on a height of 3 meters, people may face anxiety and stress thinking about the risk of falling.
Aichmophobia: Fear of Pointed Objects	Pointed objects tend to provoke the fear of being injured by touching or stepping by mistake on these objects. This fear is not necessarily cause by a past experience, it can be taught on tv or by family members.
Scopophobia: Fear of Being Watched	Some people In social gathering tends to avoid interaction with other and prefer to sit in a less crowded place or only with someone they know for the fear of being watched and stared at

2.2.2 Characteristics of contemporary architecture

Multiple elements are evidences and characteristics of contemporary style such as irregular volumes, green roofs, and smart technology, breaking the symmetry in the plan and in the elevation. The building facades as well as its layout are the first noticeable and attractable elements. Therefore, the aesthetic and the appearance of the building are important in the design stage and can reflect the surrounding context, or a certain concept such as Sydney Opera House in Australia, shedding the light on the contrast and uniformity through the emphasize of the form, proportions, scale and many other factors. Some of the characteristics of contemporary styles are the use of floor to ceiling glass panels to maximize the daylight in the interior spaces. Many typologies lay under the contemporary architecture such as museums, libraries even residential buildings. The royal Ontario museum located in Toronto, Canada designed by the architect Daniel Libeskind in 2007 is one of the contemporary museums (Hohenadel, 2020).

2.3 Origin of Phobia in Architecture

The origin of the word ‘Phobia’ derived from Greeks: ‘Phobos’, the word indicated fear and revulsion. ‘Phobia’ was first speculated by the Neurologist Sigmund Freud who perceived through many years of experience in this field how things that trigger fear in some patients can be normal to others. From this perspective, many researchers started to examine how phobia does emerge from psychological disorder and have a serious impact on the individual. In addition, Phobia is an intuitive reflex that a person encounters: the anxiety that accompanies the phobic feeling makes the individual inadaptable to a certain space and limits his freedom. The term was adopted in architecture in the favour of designs that can be related to natural elements (Spider’s web, heights, holes, sharp edges, reflective surface, etc.). In general, when individuals encompass situations that causes them anxiety and fear they feel rushed to stay out

Fig.2: shows the types of Phobias and how they are related to a pace. Source: Scientific Research Journal, retrieved from www.scirj.org

of it. The same concept can be applied on manmade structures around us that we visit and inhabit (Kristin, 2010). When people with phobias are subjected to these kinds of structures, they will feel uncomfortable and find a way to bolt out from the space. The studies on how the built environment affects the human behaviour date back to the end of the 1950s, when many German Psychologists migrated United States they experimented and studies the impact of the built environment on human beings. Since then, many researchers speculated the effect of using such design approaches in architecture on the human psychology and one's perception of the place (Enric, 2007).

The sense of anxiety that the Phobia provides, is not born or from the natural instinct, however, it builds up from previous experiences that the individual has passed through. The interconnection between a person and a certain element or signal that causes him confusion and disturbance can create images in one's conscious mind that make these elements as an indicator that triggers fear (Ejeng, 2015).

2.3.1 Architectural representations generating phobias

Architectural elements are considered as the factors that provoke phobias, acting as generators for fear and anxiety leading to arousing this in the user's psychology during experiencing the space, visually and physically (Miera, 2016). Some of these architectural elements are presented below in table 2.

Table 2: Architectural elements generating phobias

Architectural elements	The way they generate phobias
Patterns	Patterns that can provoke fear and anxiety within the personal perception such as dotted and clustered patterns provoking the "Trypophobia"
Materials	Some Materials used in the building elevation can have an impact on human psychology such as the mirrors for people having the "Eisoptrophobia".
Heights	High buildings can have negative impacts on a person, when looking up for it known as "Scopophobia", or when being on top of it known as "Acrophobia"
Openings	Opening's layout and size can affect the user psychology, provoking phobias under the Agoraphobia types and some specific ones related for example to the amount the daylighting.
Shape	The SHAPE of the building as well as the its skyline can affect the user, even when staring at it from afar such as the building that have sharp edges provoking "Aichmophobia"

2.4 Previous Readings

A set of books were chosen to better understand the concept of phobias in contemporary architecture

2.4.1 The Architecture of Happiness (2006).

This book simulates the psychological aspect and reflection of architectural spaces on human psychology. The author tries to create a bridge between the psychology and architecture by showing that small designs as big designs can affect the human behaviour and perception since the human being psychology is sensitive toward its environment, and it can be affected easily by everything around it. For the author a space is an emotion and a memory means its more than walls colours patterns etc... it can affect our moods and change our mental health sometimes. Briefly, this book shows the strong relation between mental health, psychology and architecture and its importance to create together a happy environment (De Botton, 2006)

2.4.2 Headspace: The Psychology of City Living (2017)

The Psychology of City Living, a book written by Paul Keedwell in 2017 addresses problems related to urban growth, the relation between habitats and the cities they live in, and the urban landscape impacts individuals. The author relied on statistics, urban studies and literature of psychology to comprehend how buildings affect the way of living on the macro and micro scale. Through the happiness of architecture, the author tackled the methods of confining the use of elements that may evoke fear in individuals through architectural design. The author manifested on the importance of understanding human psychology and interprets its causes. Through the book, strategies to restrict phobia-generators were proposed, such as creating a demarcation between the building envelope and interior spaces on high storey levels, sensitive choice of materials and patterns, and implementation of green spaces within the built environment to provoke calmness. The author targeted architectural designers on the responsibility of designing buildings and landscapes free of phobia stimulators through comprehending human psychology and phobia interpretation (Keedwell, 2017).

2.4.3 Handbook of Environmental Psychology (2013)

The Handbook of Environmental Psychology states the importance of the environmental psychology in the human life. The writer of this book is Robert B. Bechtel, the book was written in 2013 and highlights on how the environmental psychology can affect people's behaviour on many levels, such as happiness, confusion, adaptation and even fear that builds up a phobic reaction to certain features that the surrounding environment encompasses. The conception of a person to a place changes regarding the psychological background of the individual and how he conceives it. The book also mentions different topics of environmental psychology, some of them are architectural psychology, environmental sociology and social ecology (Bechtel, 2013)

2.4.4 Conclusion of previous readings

The previous books reflect how the built environment is related to the human psychology and mental health. Architecture in general, should be designed based on how people conceive the spaces, and articulate through them. People experience spaces, either on macro or micro levels, based on their personal introspection that may affects their behaviour and generate phobic reactions.

2.5 Parameters of Analysis

According to the precedent previous readings and international projects, a set of parameters were concluded and presented in table 3.

Table 3: Parameter of analysis of case studies

Parameters Of Analysis	Patterns	Materials	Heights	Openings	Shape
Types of phobias that can be generated	Trypophobia	Trypophobia	Acrophobia & Scopophobia	Agoraphobia	Aichmophobia
The way Contemporary Architecture generates phobia	Patterns can provoke fear and anxiety within the personal perception such as dotted and clustered patterns provoking the "Trypophobia"	Materials used in the building elevation can have an impact on human psychology such as the mirrors for people having the "Eisoptrophobia".	High buildings can have negative impacts on a person, when looking up for it known as "Scopophobia", or when being on top of it known as "Acrophobia"	Opening's layout and size can affect the user psychology, provoking phobias under the Agoraphobia types and some specific ones related for example to the amount the daylighting.	The shape of the building as well as the its skyline can affect the user, even when staring at it from afar such as the building that have sharp edges provoking "Aichmophobia"

3. RESEARCH METHODOLOGY REFLECTING THE PARAMETERS

This paper is based on four research methods; the inductive method, the analytical method, the comparative analytical method and questionnaire. Where the first method have been used to collect information regarding the three case studies based on different sources. The second method have been used to analyse the collected information, present diagrams, necessary drawings and sketches along with the analysis of the authors to provide an inclusive analysis. While the third method was the comparative investigation between the three case studies. The fourth method is used to gather information by asking psychological and architectural related questions to 18 individuals who suffer from phobic reaction in places where contemporary architectural features are employed. In this context, the analysis was based on the extracted parameters to analyse the case studies using a qualitative method. This paper intercepts the ability of contemporary architecture in provoking different types of phobias. Therefore, the case studies have been selected according to the following criteria:

- a. Contemporary buildings
- b. Completed projects
- c. Designed in recent years
- d. Users are considered highly involved in the building
- e. Provoking different types of phobias
- f. All the parameters are available

Fig.3: Messner Mountain Museum.
Source: Courtesy of Zaha Hadid Architects, retrieved from www.amazingarchitecture.com

3.1 Analysing Case Study I: Messner Mountain Museum, South Tyrol, Italy (2014)

Architects: Zaha Hadid Architects
Location: South Tyrol, Italy
Project Architect: Cornelius Schlotthauer
Client: Skirama Kronplatz, Plan de Corones
Date: 2012-2014
Area: 1000.0 sqm

The Messner Mountain Museum is designed by Zaha Hadid Architects, located on Messner Mountain Museum in South Tyrol, Italy. The project is built on a high cliff overlooking on a spectacular views of the Dolomites, MMM Corones.

Fig.4: Interior shots of MMM. Source: Photo by Werner Huthmacher, retrieved from ArchDaily website

3.1.1 Analysing Parameter 1: Patterns

The pattern used in the interior design of the museum are mainly lines and sharp angles that helps in the flow of movement and articulation in the spaces of the museum (Alison, 2015). However, the pattern that weaves through the interior walls and ceiling of the museum arouses the feeling of trybophobia in some users, in which they feel anxiety and confusion.

3.1.2 Analysing Parameter 2: Materials:

The Museum shows a homogeneous use of materials, which is mainly of, reinforced fibre concrete panels. In addition to the precast concrete panels, the museum have large glass façade that are located on the canopy side that acts as mirrors to the facing valleys and mountains and reflects their beauty. The contemporary mirrored glass used in the museum can have negative impact on the Eisotrophobic people (Verena and Suzzane, 2015).

Fig.5: The façade of Messner Mountain Museum. Source: Photo by Hufton+Crow, retrieved from ArchDaily website

3.1.3 Analysing parameter 3: Heights

The museum is built 2275 meters above sea in the Messner's mountain and embedded directly on the edge of the cliff. This extreme height gives a sense of fear to the acrophobic people and makes them uncomfortable and distressed. When height is this feature is found in architecture, the place become confusing for some people (Sander, 2015).

Fig.6: Section of Messner Mountain Museum. Source: By one of the authors

Fig.7: Canopy of Messner Mountain Museum. Source: By one of the authors

3.1.4 Analysing parameter 4: Openings

The museum has many large openings and are found in the canopies that faces the mountain and valleys beneath. However, the use of these large openings influence many people, since they give a feeling of openness and void. In addition to the ones mentioned above, the large openings will penetrates more natural light in which may confuse some individuals. This feeling can provokes an uncomfortable feeling for people that suffer with Agoraphobia. (Alison, 2015)

3.1.5 Analysing parameter 5: Shape

The shape of the building is a representation of neofuturistic architecture, and this type is famous in Zaha Hadid's designs. The form of the building is powerful and bold that is characterised by sharp edges and fragmented volumes to insure the dynamic and movement of the mountaineers and skiers, in addition to weave through the topography of Messner's mountain. However, the shape triggers a phobic reaction among the people that feels uncomfortable to sharp edges and it is known as "Aichmophobia" that means the fear of sharp edges.

Fig.8: Interior shot of Messner Mountain Museum. Source: Werner Huthmacher photograph. Retrieved from archello.com

In addition, we can notice the interior design that is based on sharp angles and lines that defines the path and articulation of the users as well as the furniture's design (Verena and Suzzane, 2015).

Fig.9: Ground floor plan of Messner Mountain Museum.
Source: Zaha Hadid Architects

Fig.10: Basement 1 plan of Messner Mountain Museum.
Source: Zaha Hadid Architects

Fig.11: Basement 2 plan of Messner Mountain Museum.
Source: Zaha Hadid Architects

The above figures are retrieved from www.archdaily.com

3.1.6. Conclusion of case study I

The Messner Mountain Museum by Zaha Hadid Architects deals with contemporary architecture features in its design configuration of the volumes. The sharp edges, wide mirrored glass façade that overlooks on the Kronplatz Mountains and its location on the edge of the cliff, arouses anxiety disorders generated in some people.

Table 4: Parameters of analysis of case study I

Parameters	Patterns	Materials	Heights	Openings	Shape
Types of Phobias	Trypophobia	Eisoptrophobia	Acrophobia & Scopophobia	Agoraphobia	Aichmophobia
Contemporary Architecture Representation of Phobias	Clustering of sharp lines and angles.	Use of mirrored glass façade in the canopies.	The museum is built on the edge of a high cliff.	Large Openings are found in south-west of the museum.	The museum have sharp edges design

3.2 Analyzing Case Study II – Musée de Confluences, Lyon, France 2014.

ID card of the project
Project Title: Musée de Confluences
Location: Lyon, France
Architects: Coop Himmelb(l)au
Typology: Museum
Area: 46476 m²
Year: 2014

The musée du confluence is a museum located on the intersection of two rivers; Rhone and Saone, adding a new dimension on the urban development of the city, serving as a public building and acting as a cloud above the water (Hatton, 2011)

Fig.12: showing bird view shot of Musée de Confluences. Source: Taken by Duccio Malagamba www.archdaily.com

3.2.1 Analysing parameter 1: Patterns

As firstly perceived, different patterns dominate the elevation of the building; the curtain wall at different layouts and orientations overlapping each other. The resulting angular crystalline form of the building acts as the main approach of the urban public space welcoming visitors to start their museum experience. Itself, having a huge crystalline form, is one of the prominent factors that provoke the phobia from crystal called Crystallophobia. Even though crystals are considered a healing element to eliminate fear, but still some sufferers try to not touch these forms and even not the look at them (Ranjit, 2020).

Fig.13: showing bird view shot of Musée de Confluences. Source: Taken by: Lea

3.2.2 Analysing parameter 2: Materials

As perceived in the interior of the museum, huge amount of steel is used in the immense skylight, the curtain wall and even the circulation path made of steel and hugging a huge steel structure climbing the ceiling and challenging the gravity. In fact, some people suffer from metallophobia; the phobia of steel especially the sharp one. This huge amount of steel covering this interior space provoke this fear in the user. Moreover, the massive use of glass panels arouses the Nelophobia, the fear of glass. People bearing with this phobia feel insecure in places covered by glass for the fact that it is fragile and can be broken and shattered over their head (Orsini, 2020).

Fig.14 and Fig.15 interior shots showing the used materials. Source: photographs by Duccio Malagamba, analysed by one of the authors retrieved from www.archdaily.com

3.2.3 Analysing parameter 3: Heights

The cloud that includes some exhibition spaces, resembles a spaceship floats above the public space on 45 meters. In point of fact, the fear of heights is divided into two types in this condition. The fear of looking up for high buildings “Acrophobia”, and the fear of looking down when being on top of it “Anablephobia” (Tiwari, 2021).

Fig.16: showing bird view shot of Musée de Confluences. Source: by Lea Delpont

3.2.4 Analysing parameter 4: Openings

The use of glass does not only attend to provoke the phobia of this material, but it plays a role in controlling the amount of daylighting penetrating this space. Captivating with the translucent inside-out spaces. This huge openings, covered in glass, bath the space with gigantic amount of daylighting provoking “Heliophobia”. Diseased people suffers from intense fear of sun and lightened spaces and this can be caused by the fear of skin cancer or any other psychological cause (Whelan, 2019).

Fig.17: interior shot showing the amount of daylighting penetrating the space
Source: by Lea Delpont

3.2.5 Analysing parameter 5: Shape

This first impression of a building is made from its appearance, its outer shape and skyline. This building of strong character clearly displays sharp edges on its elevation. These sharp edges trigger the aichmophobic people that feel uncomfortable near or looking at sharp objects and corners. Thus increasing the anxiety and stress (Yudina, 2014).

Fig.18 and Fig.19: 3D and plan of the building.
Source: analysed by one of the authors retrieved from www.google.com

Fig.20: sketch elevation of the building
Source: one of the authors

3.2.6 Conclusion of case study II

As a conclusion, this building that functions primarily for public and serving the community, is also a stimulator and provoker for phobias for certain people through the exterior and interior elements, which are all interconnected and arouse different types of phobias, that vary based on the unique human perception.

Table 5: Parameters of analysis of case study II

Parameters	Patterns	Materials	Heights	Openings	Shape
Types of Phobias	Crystallophobia	Metallophobia & Nelophobia	Acrophobia & Anablephobia	Agoraphobia	Aichmophobia
Contemporary Architecture Representation of Phobias	Overlapping of patterns forming a crystal	Steel and glass provoking two phobias	Cantilevered block and high ceiling interior	Large openings increasing the amount of daylighting	The museum have sharp edges design

3.3 Analysing Case Study I – Lou Ruvo Center for Brain Health, Las Vegas, 2010

Lou Ruvo center is not a typical health care center located in Las Vegas America is a center for research and for Alzheimer patient especially with metal and memory disorder this project concept is to create an unforgettable memory for those people in order to work on their mental powers and help them to get through their healing process.

Project Name: Lou Ruvo Center for Brain Health

Architects: Frank Gehry

Location: Las Vegas

Area: 5.574m²

End users: Alzheimer patient, Researchers, Doctors

Trend: deconstruction architecture

Cost: \$100 million

Project Year: 2010

Fig.21: Lou Ruvo Center for Brain Health. Source: Photography by Matthew Carbone, retrieved from <https://www.arch2o.com/>

3.3.1 Analysing parameter 1: Patterns

In this project patterns are reflected in the outer façade that has a wavy texture similar to fish skin which is the most familiar skin that Frank Gehry uses in his projects in addition to the stainless steel cladding the opening rhythm that create this elevation pattern adding to this the elevation randomness that together form a vision to the observer and user and can be defined as a pattern that creates a sense of fear to the people with trybophobia (Etherington, 2010).

Fig.22: Close view of the Elevation. Source: Photography by Matthew Carbone, retrieved from <https://www.dezeen.com>

3.3.2 Analysing parameter 2: Materials

Lou Ruvo clinic is divided into 3 main elements although the most identical element is the waxy and exaggerated elevation that has a specific material which is stainless steel cladding in addition to concrete that is from the second department (Giovannini, 2011). The steel cladding with its mirror, distorted reflection, and glowing aspect affect users and observer with Eisoptrophoia problems.

Fig.23: Close view of the structure materials. Source: Photograph by Matthew Carbone, retrieved from www.dezeen.com

3.3.3 Analysing parameter 3: Heights

Height is a main element of any project that can be reflected on users from external height or indoor heights and looking up in this project the external façade height and its internal looking up height in the middle open space of the project create a falling sky image and a revolving falling elevation in the interior this vision stimulates to the Scropophobic people and makes them feel the fear of the internal heights fearing from the roof to fall down and looking up (Litt, 2019).

Fig.24: looking up view in Lou Ruvo center. Source: Photograph by Matthew Carbone, retrieved from www.dezeen.com

3.3.4 Analysing parameter 4: Openings

The main dominant element that forms the vision of this project is in its opening and folding openings that is how clearly in the external elevation and reflects in the ceiling and indoor walls with the lights that enter the space. The sense that an opening gives as multiple small openings all over the interior and exterior can be reflected in a bad intention to the user in this case since people with Agoraphobia which makes them feel more anxious in this case and stimulates the feeling of fear and depression (Giovannini, 2011).

3.3.5 Analysing parameter 5: Shape

The project shapes are divided into two types and styles random and regular although the irregular and random form was more dominant with its weirdness as shown in the ground floor plan (Dispenza, 2011). However, the wavy elevation with random geometry can triggers people with Trypophobia, which mean the fear form weird and irregular shapes.

Fig.25: External elevation of Lou Ruvo center.
Source: By one of the

Fig.26: Interior looking up of Lou Ruvo center. Source: By one of the authors

Fig.27: GF plan of Lou Ruvo center.
Source: Retrieved from buildipedia.com

3.3.6 Conclusion of case study III

As a conclusion this building which function is dedicated mainly for the people with mental health problem and especially Alzheimer is a solution for those users in part and in another way stimulates another problem for them especially people with phobia problems, finally this project can trigger many problems in the user's self and mind aside of his mental problems.

Table 6: Parameters of analysis of case study III

Parameters	Patterns	Materials	Heights	Openings	Shape
Types of Phobias	Trypophobia	Eisoptrophobia	Acrophobia & Scopophobia	Agoraphobia	Aichmophobia
Contemporary Architecture Representation of Phobias	Clustering of windows with the material pattern of the elevation.	Use of stainless steel cladding that reflected a distorted images with concrete and steel structures	The looking up experience in the center hall reflects the height of the building.	Small repetitive openings are found in all over the façade and overlap the ceiling	The center have a main random elevation and unit with another regular unit shape

3.4 Comparison Between the Three Case Studies

The following table presents an analytical comparison between the case studies based on the parameters that were detected previously.

Table 7: Comparative analysis between the three case studies

		Case study I	Case study II	Case study III
Project Name		Messner Mountain Museum	Musée de Confluences	Lou Ruvo Center for Brain Health
Typology		Museum	Museum	Health Care
Plan of The Building
3d Perspective view
Completion Date		2014	2014	2010
The Location		South Tyrol, Italy	Lyon, France	Las Vegas
Parameters	Patterns	Clustering of sharp lines and angles.	Overlapping of patterns forming a crystal	Clustering of windows with the material pattern of the elevation
	Materials	Use of mirrored glass façade in the canopies.	Steel & glass provoking two phobias	stainless steel cladding reflects a distorted image with concrete and steel structures
	Heights	The museum is built on the edge of a high cliff.	Cantilevered block and high ceiling interior	Looking up experience in the center hall reflects the height of the building.
	Openings	Large Openings are found in south-west of the museum.	Large openings increasing the amount of daylighting	Small repetitive openings are found in all over the façade and overlap the ceiling
	Shape	The museum has sharp edges design	The museum has sharp edges design	The center have a main random elevation and unit with another regular unit shape
Types of Phobias Generated		Trypophobia Eisoptrophobia Acrophobia & Scopophobia Agoraphobia Aichmophobia	Crystallophobia Metallophobia - Nelophobia Acrophobia - Anablephobia Heliophobia Aichmophobia	Trypophobia Eisoptrophobia Acrophobia - Scopophobia Agoraphobia Aichmophobia

3.5 Questionnaire and Data Collection

In order to achieve the aim behind the paper, and tackle the parameters, an inclusive questionnaire has been developed and distributed on 18 individuals that has phobic reaction to certain architectural elements, especially in the recent years. In addition the questions were chosen to target the common psychological disorders found among these individuals. The questionnaire targets people who suffer from architecture-related phobias. The survey consisted of closed and open questions in order to reach a comprehensive conclusion and gain more understanding on the topic. The following points were tackled through the survey:

- The potential of working or occupying an architectural space with elements that trigger phobias
- The capability of bearing up against these features when obligated to be present in such spaces.
- Contemporary architecture elements and representations that generate the different types of phobias at the user.

4. FINDINGS

The answers of the fifty participants, that resulted from the survey through an online, platform provided statistics and have been transformed into the following charts.

4.1 Question 1: Would u avoid working, living or visiting a building where these features are employed?

Fig.28: Pie chart showing the answers of the first question of the survey.

4.2

Question 2: How long are you capable of bearing up against these spaces if you are obligated to use them?

Fig.29: Pie chart showing the answers of the second question of the survey.

4.3 Question 3: In your point of view what are the design elements that should be avoided to prevent phobia generation for users?

Fig.30: Pie chart showing the answers of the third question of the survey.

5. DISCUSSION

Based on the conducted survey, the contemporary elements in architecture have a massive effect on specific type of individuals that suffer from anxiety disorder generated from these elements. The levels of phobic reaction varies from a user to another in addition to their respond to the different types of contemporary elements that are used in spaces. The result of the research, previous readings and the analysis of the case studies help identify the main aim of the paper that identifies how the contemporary architecture within its characteristics, can provoke the phobias and affect the user's psychology and its experience in the building by different means such as the outline, patterns, scale, heights, or spaces.

The design approaches that should be taken into consideration in contemporary architecture are listed below with examples:

- Considering the materials used in contemporary architecture.

Fig.31: Example of Peter Pichler's Invisible houses Source: www.bestdesignideas.com

- Considering the shape of the building

Fig.32: Example of Pavilion 21 Mini Opera Source: www.designcurial.com

- Considering the height of the building

Fig.33: Example of Dubia's One Za'abeel Towers .Source: www.middleeastarchitect.com/

- Considering the patterns used on the façade.

Fig.34: Example of The Broad Museum / Diller Scofidio + Renfro. Source: www.archdaily.com

- Considering the openings in the building

Fig.35: Example of Atelier Vens Vanbelle. Source: www.trendir.com

6. CONCLUSION

Based on the preceding research, the study can reach to certain conclusion points presented as follows:

- Individuals with specific phobias and anxiety can be affected by contemporary architecture with its extreme design and unique yet triggering elements but the main point is to look at the normal individuals and users that are not affected by this phobias since a slight number of specific cases can be annoyed by contemporary architecture which means the contemporary architecture is not the problem behind this major affection of people with phobias.

- B. A different culture and environment can treat a specific building with one of the main elements of contemporary architecture in a normal way without having a negative affection on people with phobias since culture and knowledge can reflect its impact on the psychology of the individuals yet on their anxiety and phobias.
- C. Through the process of criticizing an architectural work especially related to psychology and human cultures, critics need to be more specific and understand the both aspects and effect of the project on architecture and psychology by going deep into project philosophy and human anxiety to find more in common and to understand the architect intentions.

According to the analysis conducted throughout the research, a set of recommendations targeting decision makers, architects, users, and students of architecture are deduced and pointed out as follows:

- D. To decision makers: designing a space has to be meant to affect the user by a new experience far from a triggering effect, designing a space and making decisions needs to start from the user and culture through their psychology, knowing that a human psychology is changeable by time and decades which can make a big question mark on the new triggering components that can a user get affected by in a contemporary building after covid-19 pandemic.

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