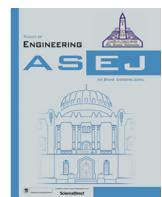




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Effect of memory on the contemporary architectural design concept

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ABSTRACT

The human memory is the mental storehouse that preserves the events, facts, and dreams that happen to him in his life or his mind creates them. According to psychologists and sociologists, the memory pursued by human beings is linked to the mine of creativity as it generates special human emotions. Architects embodied the Double Code Theory through the content of their personal memories. They presented architectural formations that carried two meanings: the first is visible to the audience, and the other is hidden and related to the memory of the architect, where the architect relied on recalling events related to his memory. Architects recall their memories and work to recall their own memories and are inspired by their designs, as the architectural buildings become of historical, civilization, and cultural value. Thus, the scope of this research belongs to the field of diaries of architecture, trying to unveil the secrets and intentions of architects who inspire their design concepts from the memory of civilizations and their own memories. This paper exposes the ideas of the most prominent designers who worked on buildings around the world, whereas the main aim of this paper is to re-read and interpret contemporary architectural languages that rely on memory in their design concepts to enable us to deconstruct and understand them from the perspective of memories of the past and to understand the intended message beyond, depending on methods of analysis by tracing particles, definitions, and theories through presenting a literature review to highlight what came in the precedent research in this topic. This research hypothesizes that the memory is the inspiration source for contemporary architecture. Throughout the paper, the analytical method investigates this hypothesis using certain parameters of analysis on three case studies, followed by a comparison to explore how each architect of these projects inspired his own memory to lead the design setting. One of the most prominent findings is the process of comprehending the design concept can't be easy for visitors unless they make an intellectual and physical effort to disclose the secret of architect and truly detect the inspirational memory. Another important finding is that the memory of architect, implemented in the design ideas, always touches whether religious or political events or personal experiences.

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1. Introduction

Different disciplines have studied and theorised the complicated interaction between people and places in conceptions of place. This

connection was portrayed as an entity originating from a continual interaction process between the body (the object) and its surroundings across time (things) [21]. As a result, the built environment impacts human impressions and senses inside it, resulting in a collection of sentiments about locations. Some settings create a sense of belonging, safety, comfort, reassurance, and tranquillity by providing a positive meaning based on gratifying experiences. Others produce negative and unpleasant connotations, causing users to become angry, fearful, nervous, and so on. However, it may be difficult to trace all of these sentiments to specific qualities of a location. Recognizing the prevalence of cultural plurality in architecture has resulted in a range of unconventional structures such as twisted, tapered, slanted, and parametric [2].

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The greatest architect of the twentieth century, Le Corbusier, maintains the undeniable relationship between design and conduct, viewing the former as the primary cause of the latter [7]. He asserts that design and architectural solutions have the ability to positively and predictably influence human behaviour. According to Le Corbusier and other Modernist architects such as Walter Gropius and Mies van der Rohe, the goal of architecture is not only to create buildings and spaces that are functional, aesthetic, and firm in accordance with the Vitruvian Triad 'utilitas, venustas, firmitas' but to be universally applicable, irrespective of place and culture, because humans are regarded as "passive" agents whose responses and attitudes towards the built environment. In the following excerpt from his book *Towards a New Architecture* (1923), Le Corbusier expresses his utopian thought:

"All men have the same organism, the same functions. All men have the same needs. I propose one single building for all nations and all climates . . ." (Le Corbusier, 1923).

Deconstructivism architecture emerged as an approach with no purpose of referring to any form of pattern, particularly memory. The defamiliarization is a prominent subject in Deconstruction style. It instils in consumers a sense of displacement and isolation. Patterns, on the other hand, were referred to as a cause of dispersion and confusion when they were utilised [25]. The point grid was utilised for decentralisation in Bernard Tschumi's largest Deconstructive edifice. Tschumi explains that the purpose of the disintegration and divergence of those points is his belief in the ideas of the French philosopher Jacques Derrida, a pioneer of the deconstructive movement for architecture, but the project is not in the concept of deconstructive architecture, which he considers a negative thing that works against the mass, the structural structure, and the design hierarchy, where the blocks are disjointed, but the project depends on the concept of The interrogation where he says that the visitors will see the red dots, but those disjointed points cannot exist without the spaces, which allows a dialogue between the blocks and the points between them. Surfaces and their impact on design (Fig. 1).

Memory is concerned with storing and remembering information, and the meaning of memory varies and varies according to the field in which it is used, so we find it in the field of neuroscience, which is defined as the ability to acquire, preserve, and restore information. In the field of history, memory restores histor-

ical events as an individual act, and by commemorating these facts and events as a collective act, we find that there are many terms related to memory, but what does "remember" mean? Psychologist William James says that remembering means thinking about something that was lived in the past. From the perspective of neuroscience and science, we did not try to think about it immediately before (James 1890) [15].

Looking at the history of architecture, we find that in the early twentieth century, the American architect Frank Lloyd Wright presented the idea of the central hall or atrium at the center of the Guggenheim Museum in New York, where this hall created a sense of belonging within a dynamic space that was inspired by the sources of his personal memory associated with organic formations of living organisms such as snails. His memory gave birth to a design idea that became an icon of modern architecture. Looking at the trends of postmodern architecture, we find (historical, revival, sculptural, allegorical, symbolic, out-of-the-ordinary, fantasy, and pop art) all of which dealt with this concept. As the architects embodied these trends through the Double Code Theory, the content of their personal memory, they presented architectural formations that carried two meanings: the first meaning is visible to the audience and the other is hidden and related to the memory of the architect alone, where the architect relied on recalling events related to his memory.

For this reason, the thesis is exposed to architectural experiences in which the design relied on the memory of the architect, specifically in the works of post-modern architecture and deconstructive architecture, which are the two trends that critics and theorists agreed that they were interested in history and in which the architects deliberately influenced the buildings and their formation on the memory of the user or the visitor, which required a unique architectural design. It is either inspired by history or an unfamiliar design in which new architectural formations and expressions appear. These buildings were architectural signs and means to express the customs and cultures of groups, individuals, and civilizations of peoples that remain firmly rooted in the viewer's memory and are emphasized by architectural design, and to confirm this content can be quoted the late Indian leader, Gandhi, said:

"I don't want my house to be surrounded by a wall on every side and my windows to be clogged. I want all the cultures of countries to be freely scattered around my house, so I refuse to blow up any of them."

The research problem is the declining interest in architectural memory, which was represented in museums, memorials, archives, antiquities, libraries, tombs, and historical places, and reducing them to visiting them in their places only, as if memory and reviving the past became linked only to these types of buildings, and we may see that the buildings that are erected around us Whether they are administrative, commercial, recreational, or even residential buildings, they are far away from the memories of the past and have become monstrosities bearing the features of a recurring international style without any historical dimension or any cultural weight, but rather like industrial products that confirm the idea of modelling architecture into mass production and transforming it into repeated products with the same features that lead to its functions only. Which leads to the question: what are the goals for which these buildings are built? Is it for the purpose of achieving the desired function and only?

To achieve this, this paper will follow this structure.



Fig. 1. Parc de LA Villette, Bernard Tschumi, 1987, Paris, France. Source: Author Analyse.

Effect of Memory on the Contemporary Architectural Design Concept

Introduction

First: Theoretical Study - (Memory and Architecture)

Second: Applied Study - (Reading Memory in Contemporary)

Third: Findings and Recommendations

2. The importance of memory

"I am sure that there is no such thing as complete forgetfulness. Once the effects are felt on the memory, they cannot be destroyed".

Thomas D. Connie

With the help of the biological foundations of memory, we conclude that the level of fixation of information depends mainly on the extent of its retention and the importance given to the expected outcome and the emotional experience that a person undergoes. For this to happen, it must pass through three stages: presentation, recording, and remembering. At the moment of presentation, the person decides to release the movement of the recording streams for a long or short period, and in this way, the presence of the recollection is determined in terms of its difficulty or ease.

The brain is the main organ for memory functions. The brain has developed at the beginning of life surprisingly fast, as the weight of the brain increases from approximately 300 grammes at birth to 600 grammes within six months, and during childhood, many forms of memory appear, which are visual memory and auditory memory, which are both developed at this age, and drawing and music occupy the first four or five years of the child's life are spent developing his memory, and up to the seventh year, the memory is sensory. At this stage, the memory grows rapidly until his thinking grows as well [1].

3. The elements that influence memory recall

Memory is one of the most important higher mental processes in human life, on which several other processes depend, such as perception, awareness, learning, thinking, and problem-solving. And keeping it, there can be no learning, and without learning, the flow of information through the various communication channels stops and the memory then turns into a (ruminative) memory, and this is a sign of serious pathology. If learning refers to the occurrence of modifications in behaviour as a result of the influence of previous experience, then memory is the process of fixing these modifications, preserving them and keeping them ready for use. Thus, a large number of contemporary scholars of memory and learning gather around Smirnov (1966 CE), Norman (1970 CE), and Klatzky (1978 CE). From the cognitive point of view, the factors that affect remembering, retention, and retrieval are the same as those that affect achievement and acquisition; the conditions that facilitate learning are the same as those that facilitate

retention; and the levels of remembering and retrieval are the same as the levels of learning.

From the foregoing, we conclude that learning and memory are two terms that are overlapping and, in many cases, identical; and that each is used to express the other term, but is measured by it and denotes it, and that is why they have become almost synonymous, especially at their advanced levels. Objects are in order while the synaptic technique can be used to remember things in order and in order. Sometimes the individual may feel that there is no need for the clamp system.

4. Memory recalling

A question arises as to what things are and what the nature of the topics that the memory may require during awakening or sleep, or even during work or while carrying out activities that require creativity or coincide with being affected by certain scenes, and the phenomenon of recovering memories is a process of gradual alignment of what has happened through a conscious mechanism in which it is possible that a distinct smell in the individual acts as an influencing factor (Fig. 2).

According to the American medical website Health Day, which conducted a study of 178 volunteers for memory tests, the study consisted of showing videos of various crimes, after which they were asked to remember the details, and their memory was better and more accurate when they closed their eyes while remembering and narrating events. The study showed that it revealed that remembering and recalling information from memory is better in the case of a good relationship between the person who takes the test during the interview and the person subject to the experiment.

Professor Robert Nash from the University of Surrey in Britain says that the study will help investigators question witnesses, as he confirms that building a good relationship with accident witnesses can make them more flexible in closing their eyes, which helps in making them remember the details better. The consensus of psychoanalysts and psychiatric experts is that these summonses are limited to the following:

4.1. Origins

Recalling memory for a person is represented in two types of remembrance. The first type is represented in remembering simple tasks such as writing and speaking. They cannot be performed by the individual if he did not learn them as a child, making it easier

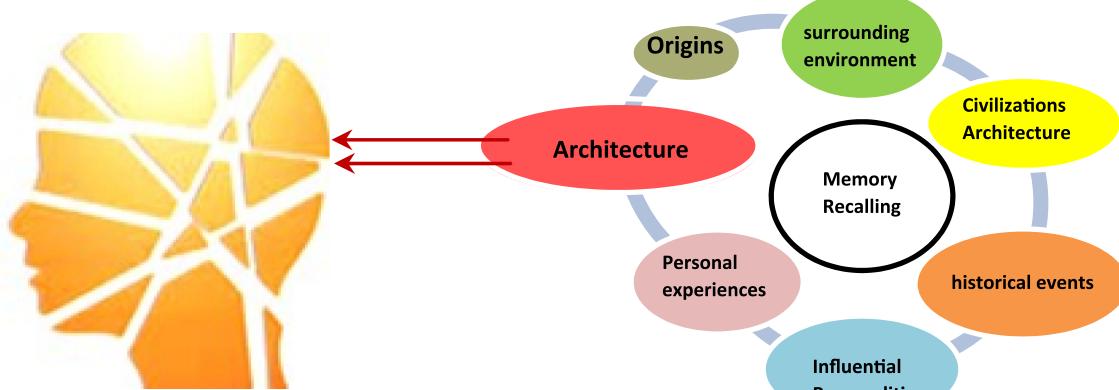


Fig. 2. The most important topics of memory recalling Source: Author Analyse.

for him to regain their remembrance, and the second type of remembrance is recalling current experiences due to experience, such as remembering where we travelled last year [5]. The first type of memory is known as regular memory, and it depends on the knowledge acquired through experience. It was generated from the experience of learning or acquisition. When an individual learns to play a piece of music, he can remember the experience of learning it because it has become a habit for him, and thus, he acquires it through repetition [13].

4.2. The surrounding environment

The brain contains an enormous group of neurons, where these neurons in turn work to organize, interpret, and conclude the information received by them, and through the five senses, the brain strives to be in constant contact with the surrounding environment around it in pursuit of learning how to perform its functions appropriately. Because the human brain is subject to change at the level of structure and functions during the stages of development, such change is subject to change for better or worse, and this depends on the ability of the individual to be affected, whether it is positive or negative from the surrounding environment around him.

Although many people struggle to create visual images that enable them to recall memories from their surroundings, they can easily evoke the melodies of music, the sound of bees, the flow of water, the whistling of the wind, and the sound of tree leaves. This is known as auditory memory, and it depends on recording events from the surrounding environment by listening. In his short story "Young Good Man Brown," Nathaniel Hawthorne describes his forest with the starting points of auditory memory. All of nature treats him with extreme contempt.

4.3. Architectural buildings left by civilizations

Architecture over the ages has been affected by various circumstances in terms of the customs and traditions of society; climate; the nature of the land; its natural wealth and religion. The architecture throughout the ages has been the mirror on which people's civilizations are reflected, with their religious, social, cultural, and political characteristics that change from time to time and place to place, up or down with the movement of history with its internal and external influences, and with the changing life movement, the civilizational characteristics of society evolve, as what is proven and changed from them. What changes, through the existence of a civilizational link that connects successive historical stages, what is rooted in a person's consciousness and his cultural

formation or appears in the environmental characteristics of the place [6].

4.4. Flash memory (Historical Events)

The first studies that were conducted on flash memories date back to the year 1899 CE when Colegrove found that most people could provide detailed information about the places they were in. Recent studies have started by scholars Brown and Kulik in 1977 CE, where they found that most people can preserve strong memories related to the events that surround them, such as important news or an accident that they had previously seen on television, and according to these two worlds, a distinction must be made between the event and the recollection and the regular news that affects the memorable and flash memories [10].

4.5. Influential personalities

*"Some people see things as they are and ask why . . . As for me, I imagine things that did not happen and I say, "Why not?"
George Bernard Shaw.*

The personalities are positively affected. He must constantly summon many of the people who influenced him to have this amount. For example, we find Walt Disney, who started doing animation in his home, and his project was initiated with a partner, and they established his company, but the company soon failed, but as a result of the strength and persistence of Walt Disney, he was able to establish the company that earned him billions of dollars while saying to himself, "what a dream with it, you can achieve it".

The researchers conducted a study on college students, where they were monitored in their different stages of sleep through certain devices. When students entered the "Reem" stage of sleep, which is the stage in which people dream, they were woken from their sleep, so they were only allowed to sleep. They were not allowed to dream, and after four nights the students became very irritable, anxious, and nervous, so the researchers stopped the experiment.

We conclude from this experience that dreams are very important for humans as they help us to stabilise and balance, and they are the most important factors in enabling memory to recall memories and influential personalities that we must know and know how those personalities have affected our memories, whether in childhood or the youth stage and as Willy Julie says in his book entitled "It Takes Only One Minute to Change Your Life," "If you can form a dream in your mind and implant it in your heart, do

not let your doubts dampen it, because your dream may become a reality." [8].

4.6. Personal experiences

Scientists have proven that remembering occurs in an instant, and this part of a thousand is the time required for it to take to remember all its elements (vision, sound, smell, emotion, and thinking) and transfer those elements to the nerve that ends in the brain, and all this takes place at a time not exceeding a thousandth of a second, which is a time that is infinitesimal in what the mind cannot imagine.

At this moment the memory, which is called at this stage the declarative memory, allows the individual's personal past to be recalled, meaning that the individual wants to recall events or personal experiences that he lived in a specific period, and these experiences are more like the autobiography of an individual because they preserve for a long-time event from history. The personal experience of the individual himself, which he lived during a stage of his life represented in childhood memories, which is represented by recalling a memory that happened to him since childhood or his personal experience of him and other personal experiences that happened to the person, so they are called flash memories, and Brewer has known this memory As "the memory of information related to the self", and interest in this type of memory began in the 1970s when the shift from the study of serial learning to the study of memories of the events of daily life took place (Table 1-1) [18].

We conclude that memory is the repository of experiences and impressions that a person has acquired in his life through the senses and the outside world, and they are impressions made in the form of mental images associated with pleasant or unpleasant feelings and feelings for a person that the person retains in his memory. The process of preservation is based on what the person learns and, based on that, the process of recall (RECALLING) takes place, and the process of recall is affected by many factors that affect it, such as the upbringing, the surrounding environment, events, facts, influential personalities, personal experiences, and many sources that contribute positively to stimulating memory, such as vitamins, sports, and many others.

5. Memory is a source of architectural thought

Architectural design is characterised by its containment of a specific artistic thought whose purpose is to satisfy the conscience, emotions, and feelings of the architectural designer.

In this, we find many architects affected by their childhood and upbringing and who took them with them in their design of buildings. Here we find the architect Frank Lloyd Wright,

who was affected by his upbringing in rural life. In addition to being influenced by the ideas of the architectural school of Louis Sullivan, which were reflected and influenced clearly by the curvature of the general organic lines of plants, flowers, and living and marine organisms, which led to the strengthening of the cultural stock of his resulting from his influence with Chinese buildings, which were characterised by simplicity and frankness in the construction, all of these factors were able to affect Frank in terms of harmony with nature, which he intended to apply in his work. An example of this is the waterfall villa, was built in perfect harmony with the nature around it in terms of water and trees.

Zaha Hadid says, "I grew up from a young age fond of my intense love for mathematics and exploration, as mathematics was an essential part of my daily life, in addition to my love for reading and listening to music. I remember the Cordoba Mosque, a mosque with large spaces and in which he left tremendous impressions in my memory through the unusual white marble used inside those mysterious and incomprehensible spaces, which is similar to the modern hybrid projects that I have created today" such as the football complex in Tokyo, the swimming complex in London, and other projects [12].

We conclude from the foregoing that many architects enjoyed a memory in their childhood that was able to influence and reflect the nature of the life that they were living, and that memory was taken out in a wonderful architectural formation that was able to express their lives in their way.

6. The architect's motivations for relying on memory

The memories of many architects led to their use and application to many of their designs, as each designer has an architectural concept that distinguishes it in one way or another from other architects and that stems from an influence that was present in his memory, whether that influence (religious, political, social, cultural, historical).

A semi-consensus has emerged from the community of architecture critics on the validity of this paper's hypothesis, in which the study assumes that memory is the one on which contemporary architectural designers rely. Architectural expressions are different formations from the above, and in the following, this chapter commits to a specific timeframe to discuss how memory enters and its direct impact on architecture.

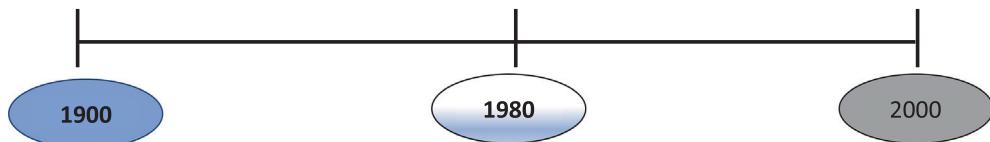
7. Timeframe for studying the effect of memory on architecture

The study in this chapter is committed to a specific time frame, as shown in the figure.

Table 1

The necessary stages for memory recalling and what affects them. Source: Julie, Mustafa, *Man Equals His Memory*, Contemporary Thought Publishing House, Damascus, Syria, 2009, p. 42.

Phases	Memory Recall and its Effects on it
The first phase	At this stage, we remember an event that was present in the brain with specific symbols at the level of the brain, and this event may be a group of consecutive information in one space, which leads to the emergence of interference with other events from the surrounding environment.
The second phase	The information received on each sensory process is directed to the designated area in the cerebral cortex, where a complex active process takes place between what is first in memory and what is shared in memory. This stage is like a process of sorting important tasks, and this stage depends on major events and facts.
Third phase	Then the memory recalls a special event so that it aims to retrieve the primitive information at the level of time and space in the brain structure itself, and what is found is integrated into the activated neural networks according to the state of meaning in the first place, and this stage depends on personal experiences.



This timeframe was chosen so that the period of the last four decades, from 1980 CE to 2000, is the main focus of the study in this paper, while the period from 1900 to 1980 CE will be considered as a historical background. This part of the paper shows how memory is transformed into a source of architectural thought. The study's influence was that the year 1980 CE was the interval and turning point in which, a radical change took place in architectural thought from merely using historical elements in the building to using new architectural expressions that conceal memory and memory by relying on new sources of memory.

8. The history of how memory entered architecture

As Schulz defined the architectural language's foundations on three dimensions, namely the spatial dimension, topology, morphology, and classification or personal dimension, twentieth-century architecture was concerned with the first two dimensions. And the third is where I tended to look at the past in a new way, one that was marked by the elimination of all that was superfluous in addition to purity and simplicity.

In a new challenge to architecture that emerged in the eighties of the twentieth century and twenty-first century, a new turn of architecture called postmodern architecture and deconstructive architecture, where architects relied in their concept on architectural designs inspired by memory, as architects tended to quote and transfer the ideas of the French philosopher Jacques Derrida, who was interested in the idea of deconstructing meaning and the possibility of reading the literary text in more than one style, as the architects were able to present strange buildings in their form, free from the classic patterns that prevailed in the late nineteenth century, buildings that relied in their design on disjointed blocks, the contradiction between the past and the present, the harmony of the blocks between shadow and light among themselves.

Consequently, a group of architectural projects that appeared from the beginning of the twentieth century until the twenty-first century will be presented as historical background, and the research paper analyses a group of projects according to the above **Table 2**. Projects for architects whose designers relied on memory recall like Daniel Libeskind and Peter Eisenman, so that the analysis of each building will be followed by a conclusion of the memory topic on which the architect relied in design.

Based on the previous literature review, the paper suggests using the following model, shown in **Table 2**. This model includes

certain parameters of analysis to be used in analysing the following three case studies:

In the following case studies, the research investigates each parameter and then concludes which type of memory was used by the architect.

8.1. First case study: Felix Nussbaum Museum, Osnabrück, Germany, 1998

In 1994, a competition was called for the establishment of the Felix Nussbaum Museum (**Fig. 3**), which is an extension of the Museum of Cultural History in Osnabrück. The architect Daniel Libeskind designed the museum, where he placed three main elements in the design of the museum, namely the Nussbaum corridor with long narrow roads and the main corridor, in addition to the bridge that serves as a means of communication from the old museum to the new museum, and the design of the museum reflects This begins the cycle of many narrow corridors and surprising separations, intersections, and dead ends, which all reflect the life of Felix Nussbaum [3].

Based on the three components of the museum, which adopted the cruciform distribution in its design, Libeskind designed the museum gate to make it in a parallel manner, which was called "the house," as this place suggests the importance of public space, martyrdom, and the absolute nature of the crime, and when entering through the gate, the visitor feels that the place is almost It is in a narrow place, although it is the main corridor of the museum [9]. In addition, the visitor upon entering finds the dim lighting that comes from the ceiling openings, suggesting the extent of displacement that the Jews suffered during the war, and this is an application of the concept of Libeskind's "Museum without Exit" (**Fig. 4**).

The second part of the museum, which is a long corridor with no openings at all, is called "the road," and its lighting depends on the dim lighting emanating from the ceiling. Thus, Libeskind was able to apply his design concept known as claustrophobia, a term that expresses the mental illness caused by feeling trapped. Anxiety and suffocation in closed rooms. After passing through that narrow corridor, the visitor finds two overlapping corridors, which were repeated on the first floor as well [23]. This corridor was designed with a slope for two reasons: the first to suggest the extent of the obstacles that were in the life of Felix Nussbaum; and the second reason is due to Daniel Libeskind's being affected by the story of the birth of the Prophet Moses, as he tilted The corridor suggests the extent of the distance and displacement of the

Table 2

The Most Important Topic of The Recall of Memory, which is Closely Related to Human History.

The Most Important Topic of The Recall of Memory, which is Closely Related to Human History					
Origins	Environment Surrounding	Architecture of Civilizations	Historical Events	Influential Personalities	Personal Experiences



Fig. 3. Museum of Felix Nussbaum. Source: www.archdaily.com.

Jews from their homeland and their families, similar to the movement of the infant Moses in a box or container, with which the waves cascade away from his family (Figs. 5, 6) [11].

In the third part, it is the bridge that connects the old museum with the new, and it was designed on two levels in an attempt to find alternative engineering spaces that at first glance suggested loss, which was represented by the spaces spaced between them. The building was constructed of concrete without using any kind of paint. In the bridge, zinc was used in the exterior coating (Fig. 7).

In the facade, it was designed in the form of glass slides through which lighting enters. Critics point to Libeskind's use of all those

previously mentioned religious details in simulating the implementation of his architectural concept "Dynamic Dialogue between Past and Future."

The following analysis of the building concludes that the architect Daniel Libeskind relied in the design on the personal experiences of the artist Osnabrück, as he was able to employ his suffering and the life of Osnabrück in his design for the museum (Table 3).

It is clear from the above the extent of the influence of the personal experiences of the artist Osnabrück on the design of the museum, where many of the special vocabulary in his life were able to crystallise many of the architectural elements that were inspired by Daniel Libeskind in his design, which helped him to make the building in a state of a dynamic dialogue between the past, the present, and the future in terms of the museum. In a unique architectural and symbolic way, the old and its juxtaposition with the new museum.

8.2. Second Case-Study: Wexner Center for Visual Arts, Columbus, Ohio, USA, 1983–1989

"The Museum That Built Theory"

Critic Paul Goldberger

With these words that were published in the New York Times Magazine, critic Paul Goldberger describes the Wexner Art Center in Columbus, USA, which was designed by architect Peter Eisenman (Fig. 8).

In designing the center, Eisenman relied on the architectural concept of "symbolic digging in the site", where Eisenman recognised the prevailing faith of the users of the project, and it became clear to him that it was the Catholic Christian faith., where the character of Christ and the sufferings he suffered from his crucifixion and torture influenced the project, which was made clear to him in the paintings he was fond of, as he saw his Crucifixion by Mathis Gothart (Fig. 9) [14].

Eisenman was able to present a wonderful design idea in the center, influenced by the sufferings of Christ. It happened to be divided into two parts, but Eisenman deliberately did that to indicate the extent of the wounds and pains of Christ and painted it in red, an expression of the blood of Christ on the cross, and he clearly shows the belief in the incarnation that he believes in the Christian faith (Fig. 10).

Eisenman was also influenced by the Catholic belief in their view of the creation of the universe, as they believe that God cre-



Fig. 4. A Museum without an Exit. Source: <https://en.wikiarquitectura.com>.

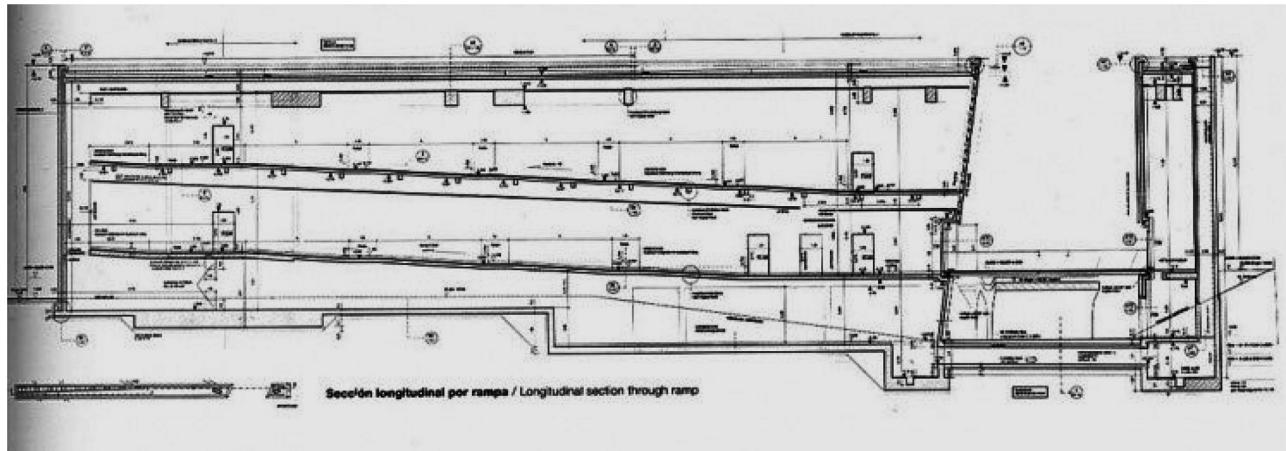


Fig. 5. A section of the museum showing the slope of the floors. Sourced: <https://en.wikiarquitectura.com>.

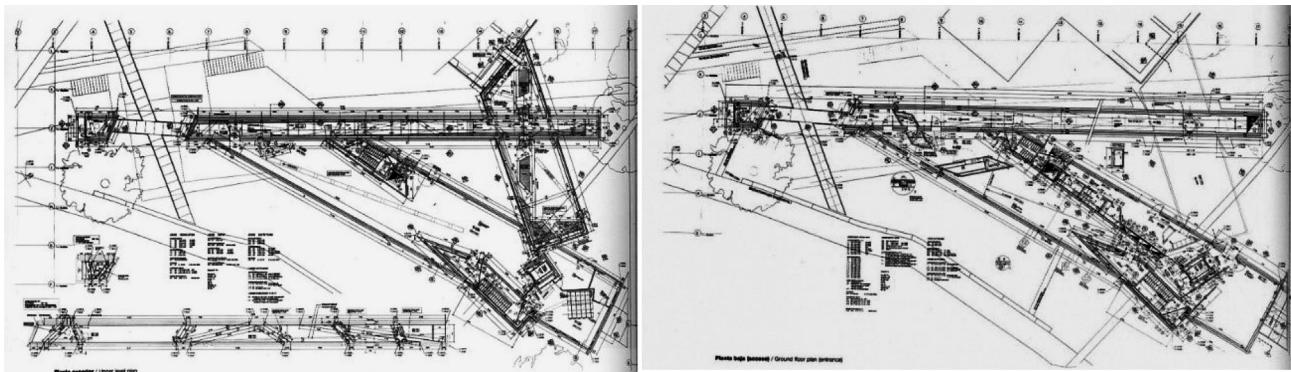


Fig. 6. Horizontal projections of the museum, which show the cruciform distribution. Source: <https://en.wikiarquitectura.com>.



Fig. 7. The bridge that connects the old museum to the new. Source: <https://en.wikiarquitectura.com>.

ated the universe and then created Adam from dust and endowed him with the soul with a breath of it, and he became alive. This is in addition to his assertion that he was influenced by the paintings of the famous artist Michelangelo in the Sistine Chapel, especially the nine paintings that depict the early travels contained in the Bible, which describes the stages of the creation of the universe (Fig. 11).

He applied that idea to the main structure of the building, affecting the interior spaces of the building by giving the model grid a divinity row, as it took control of the building, which appeared in all the interior and exterior spaces, in a glimpse of the grid's control over the design, in addition to giving it a white colour that suggests a transparent, luminous divine entity and presence connected to the sky [16].

Eisenman did not use any kind of modular network coverage, but he purposefully left it open to suggest God's transparency, in addition to making the centre blocks as mortal creatures that God controls (networks) in the form of their lives and who determines their fate.

Table 3

Daniel Libeskind Relied in the Design on the Personal Experiences of the Artist Osnabrück.

The Most Important Topic of The Recall of Memory, which is Closely Related to Human History					
Origins	Environment Surrounding	Architecture of Civilizations	Historical Events	Influential Personalities	Personal Experiences (The Artist Osnabrück)

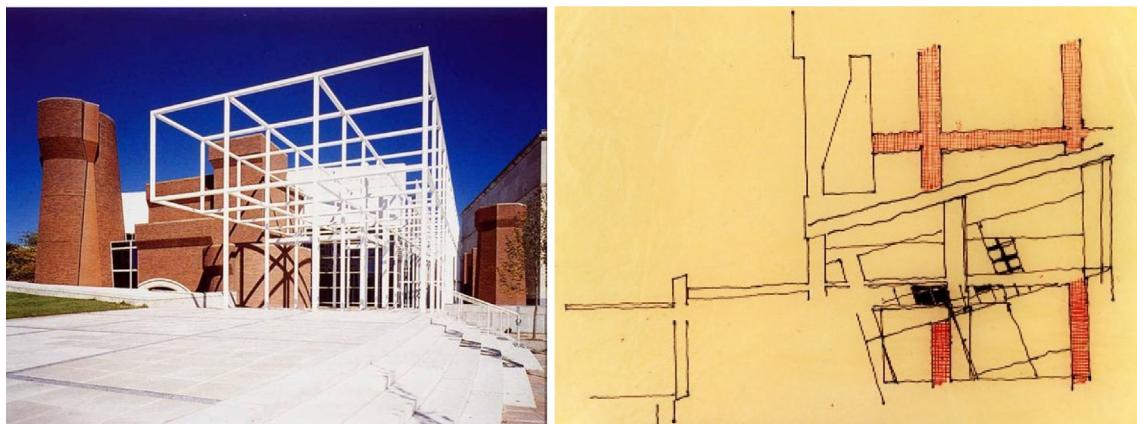


Fig. 8. Wexner Center for Visual Arts. Source: www.eisenmanarchitects.com.



Fig. 9. Crucifixion painting, Mathis Gothart. Source: Hattstein markus "The Story of World Religions" · Published by Konemann, Bonn, Germany, 2005, p.73.

Eisenman was influenced in his design of the interior spaces of the building by Michelangelo's Creation of Adam, where the painting embodies the image of God in the form of a bearded man who gives life to the creation of man. The image of God and the image of Adam emphasise the greatness of the divine entity and the weakness of the created human being where he quoted the idea of God and man not touching and the presence of a distance between them in his design of the interior spaces of the building [24]. He designed the structural elements bearing the building to come into contact with the rest of the components of the interior space, and thus he would have conveyed the reality of the separation of God from humans, as the two cannot converge until after the resurrection and the reckoning in the afterlife. In light of this, Eisenman aimed to transfer those influences associated with the idea of the existence of the Creator God into architecture (Fig. 12).

The following analysis of the building concludes that the architect, Eisenman, relied in the design on influential personalities (Christ), which were represented in the suffering of Christ, and this was reflected in the building in terms of torture and crucifixion,

which helped him to provide a model for a group of discontinuous and broken geometric shapes in a distinct geometric form (Table 4).

We conclude from the above the impact of the Christian Catholic faith on the design, where the white modular networks are the ruling system in the design (the creator), which wraps around the blocks and spaces (humans). Eisenman studied the site well, which helped him to apply his design concept to the symbolic excavation of the site.

8.3. Third Case-Study: Imperial War museum North, Manchester, United Kingdom, 2001

"I want to create a museum in which people will find pleasure to visit; a museum that reflects the nature of war now, and for that, I have imagined the breaking of the globe into three parts, and I took the three broken pieces to represent the struggle that exists on land, air, and water."

Daniel Libeskind



Fig. 10. Main building of Wexner Center for Visual Arts. Source: www.eisenmanarchitects.com.

The Imperial War Museum tells us many memories and events that affected the British people in World War II. The museum is located on a site that is not a coincidence; it is located in the place of the building that Britain used as a storehouse for ammunition, tanks, and weapons during World War II in Trafford Park overlooking the Canal Manchester Navigational, which was destroyed as a result of being exposed to the Manchester raid in 1940 [19], which destroyed it and many surrounding buildings around it. The design of the museum was signed by the Polish-American architect Daniel Libeskind and is considered Libeskind's first work in Britain (Fig. 13).

Libeskind wanted the museum's design to be a symbol of the events of the war, and for that, Libeskind came up with the idea of dividing the globe into three crustaceans, which are land, water,

and air, so that if these crustaceans were installed again, they would not return to what they were (Figs. 14 and 15).

While imagining the concept for the museum, Libeskind, in his studio in Berlin, fetched an old teapot, put it in a plastic bag, and dropped it from the window of his studio in Berlin (the teapot is the closest thing to a spherical hand). The broken parts of the jug were in his hand and he imagined them in his mind, but he was inspired by the idea of dividing the globe into three parts (crustaceans), and those crustaceans are earth, water, and air (Figs. 16 and 17) [22].

Applying this to the museum, we find that it contains in its structure three blocks, which represent the struggle on land, sea, and air, while the crust of the earth (the corrugated block) indicates the area of the museum and the open world full of conflicts and wars. The globe, in addition to creating a feeling of turmoil and anxiety and not allowing natural light to enter the void, simulates the darkness of caves, which almost makes the feeling of anxiety and turmoil worse (Fig. 18).

Libeskind has deliberately made the main exhibition hall dark, with the lights switching off every fifteen minutes per hour, to work in the vacuum, where nearly 60 five-meter-high projection screens are showing the events of World War II and its impact on soldiers and the extent of suffering. People were exposed to it in the war, in addition to the loud sounds, which children could hardly bear to hear, and he placed many distinctive sharp angles in the void and oblique lines in the ceiling to create a feeling of confusion and anxiety within the space, in addition to using the red colour in various spaces to indicate the blood that flowed from the soldiers during the war (Figs. 19 and 20), [4].

As for the air crust (the raised block), we find it at the entrance to the small museum. Fig. 21, which is interesting in shape, is represented by the curved high block of the three blocks of the museum, and its height is 55 m (Fig. 22). In the "Museum without Exit", where the visitor enters the museum through a corridor of air (the entrance and the hollow mass), which in turn leads to a sense of bewilderment, in addition to the concrete tower (Fig. 23) was designed by Libeskind to deceive the visitors, as it appears to them that it is curved, but next its function is that it is the elevator leading to the platform located at a height of 29 m (Fig. 24) and when looking at it, the visitor sees a wonderful view of the Manchester Navigational Canal with the displayed pictures, observatories, and cultural spaces.

And in the water crust (Fig. 25), which gives a reference to the maritime transport area in the past and is represented in



Fig. 11. Ceiling of the Sistine Chapel, the Pope's residence, Italy. Source: www.eisenmanarchitects.com.



Fig. 12. Eisenman was influenced by the Christian belief in the idea of the separation of the divine entity from man. Source: www.eisenmanarchitects.com.

Table 4

Eisenman Relied in the Design on Influential Personalities (Christ).

The Most Important Topic of The Recall of Memory, which is Closely Related to Human History					
Origins	Environment Surrounding	Architecture of Civilizations	Historical Events	Influential Personalities (Christ)	Personal Experiences



Fig. 13. The building caught fire in Trafford Park after the 1940 German air raid. Source: <http://www.iwm.org.uk/>.

(the corrugated part behind the air mass of the three blocks), where the wonderful views that the visitor notices when looking from that block towards the Manchester Navigational Canal (**Fig. 26**), which constitutes an integrated viewing platform with the existing restaurants and cafes, suggest to the visitor that he is inside the ship through the windows of the museum, and this indicates the cargo ships that were passing through this road (**Fig. 27**).

The following analysis of the building concludes that the architect Daniel Libeskind relied in his design on the memory of the historical events that Britain was exposed to during the Second World War (**Table 5**).

We can conclude from the foregoing the magnitude of the impact of historical events on the British United Kingdom during World War II and their application to architecture via the Imperial Northern War Museum.

9. Comparison between the three case-studies

Analyzing this table reveals that the three architects plan to let the three architects discover that the world around them is terrible, corrupted, dangerous, cruel, and shallow. As a result, people seek to recollect their memories to uncover more and more experiences (**Table 6**).

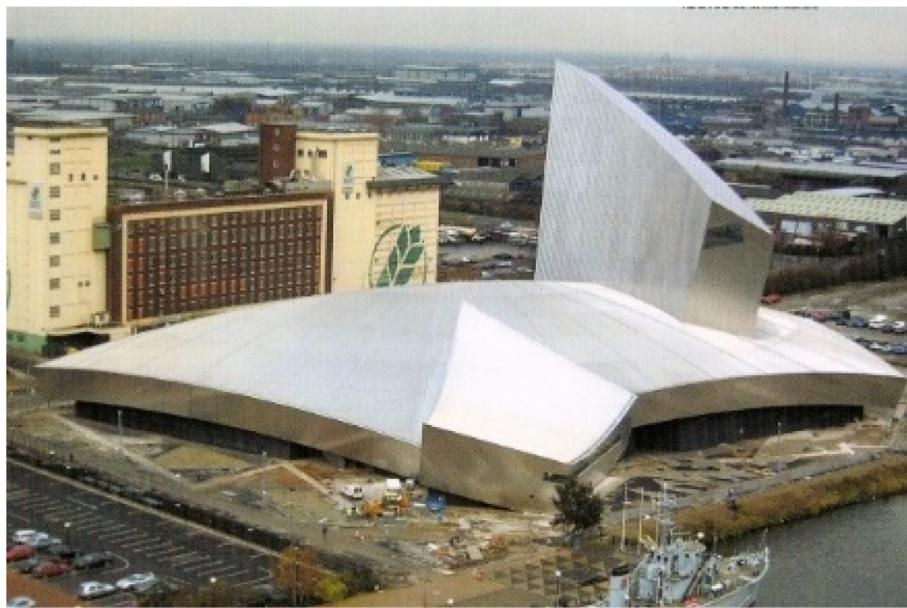


Fig. 14. Three Blocks, Imperial War Museum Source: www.pinterest.com. Source: www.pinterest.com.

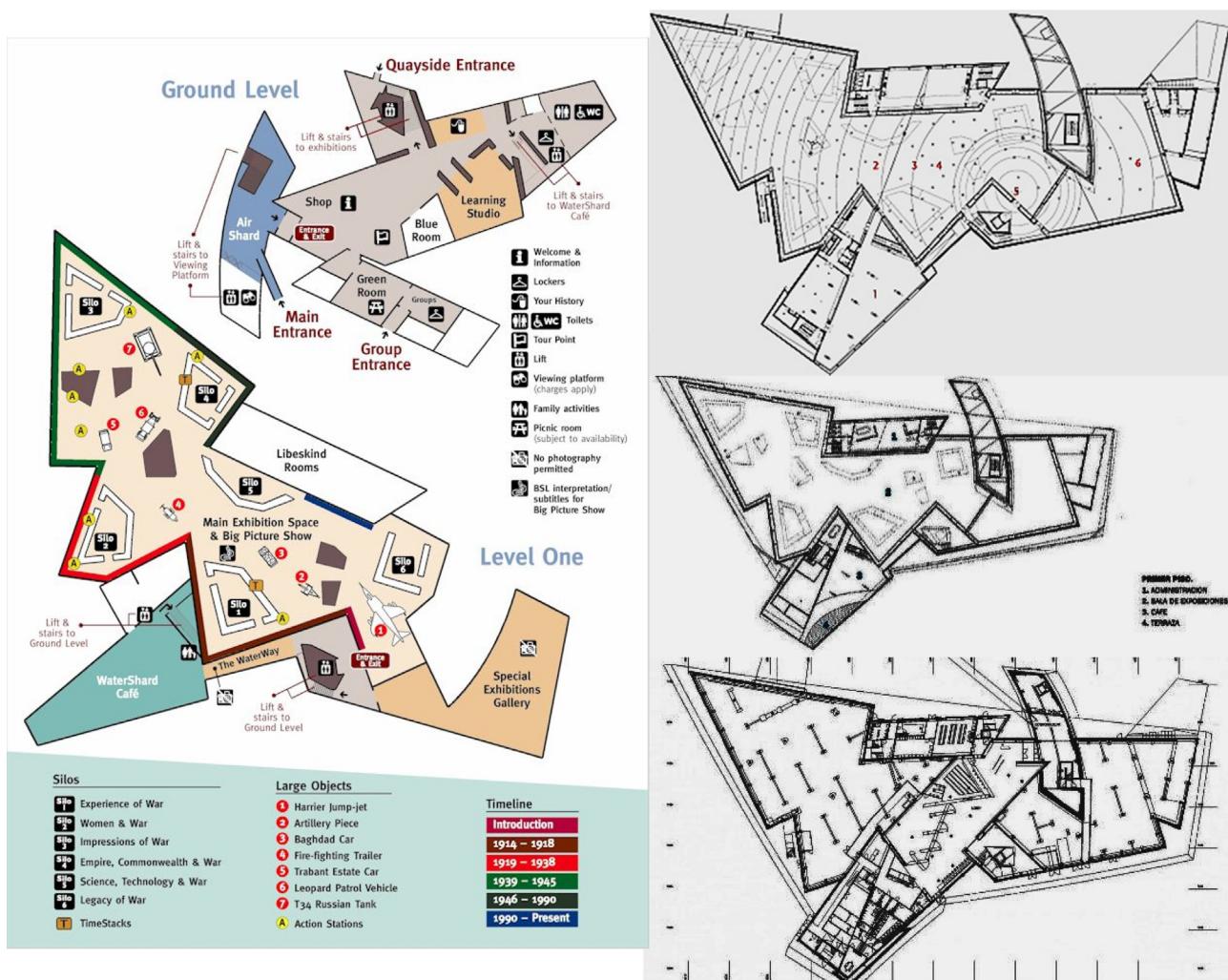


Fig. 15. Museum Plans. Source: www.pinterest.com.

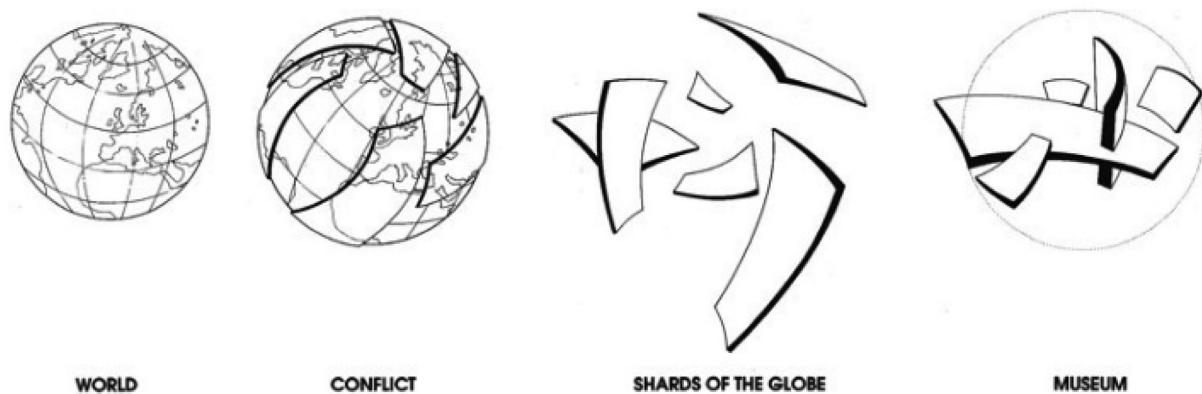


Fig. 16. Libeskind's use of the concept of a shattered globe to create a symbol of war on land, air and sea. Source: <http://www.iwm.org.uk>.



Fig. 17. Libeskind's use of the teapot concept as one of the sources for design inspiration. Source: <http://www.iwm.org.uk>.



Fig. 18. The museum block, which represents the earth's crust. Source: <http://www.iwm.org.uk>.



Fig. 19. The main exhibition hall with the display screens shown. Source: www.pinterest.com.

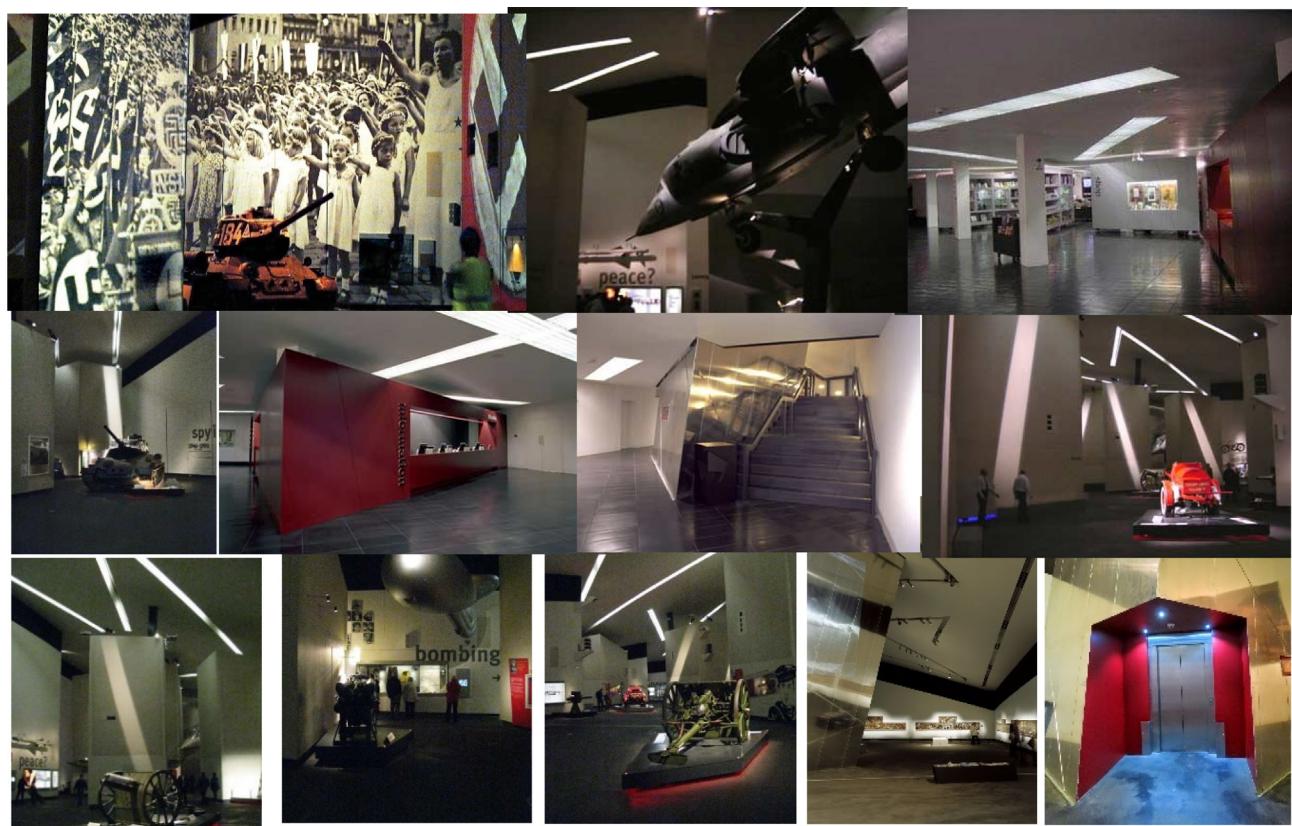


Fig. 20. The interior spaces of the museum, where the tanks and planes used in the war appear in pictures, in addition to the red color used in the various spaces. Source: www.pinterest.com. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)



Fig. 21. Museum entrance. Source: www.pinterest.com.



Fig. 23. The concrete tower. Source: <http://a-place-called-space.blogspot.com.eg/>.



Fig. 22. Entrance mass, which represents air. Source: www.pinterest.com.

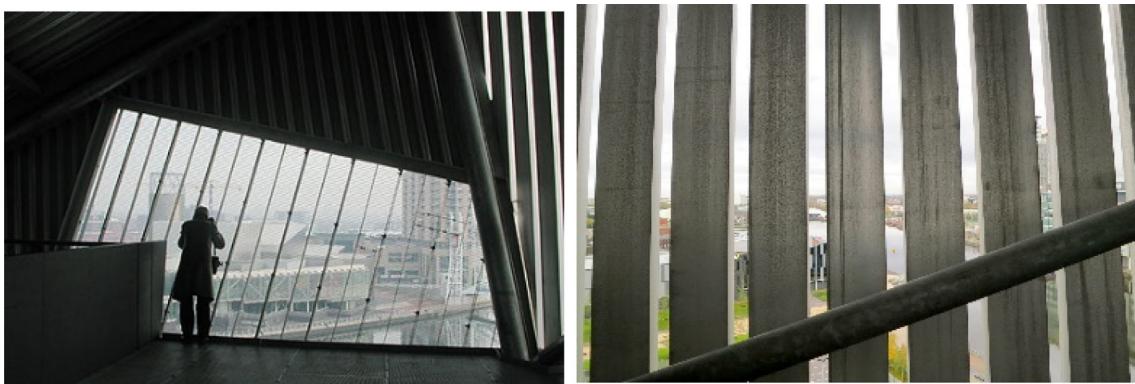


Fig. 24. The platform. Source: <http://a-place-called-space.blogspot.com.eg/>.



Fig. 25. The water crusts. Source: <http://www.iwm.org.uk>.

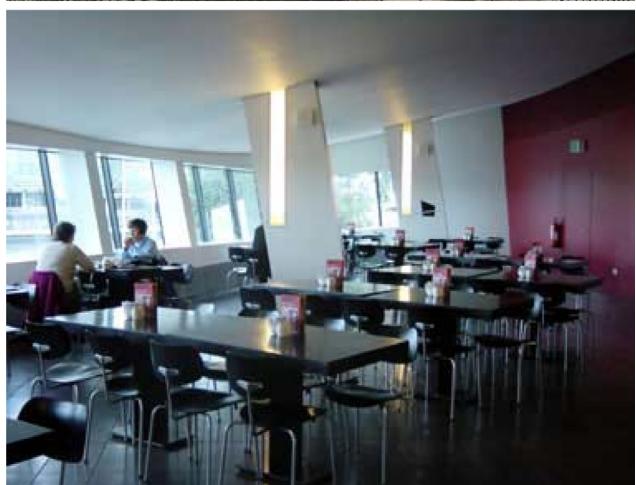


Fig. 27. Restaurant area in the water block. Source: <http://www.iwm.org.uk>.

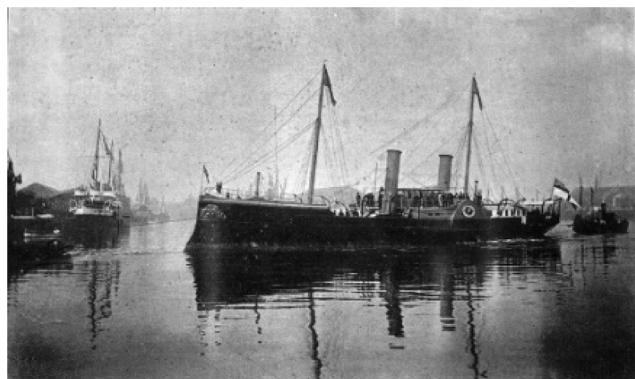


Fig. 26. One of the cargo ships that used to cross the Manchester Canal in the past. Source: <http://www.iwm.org.uk>.

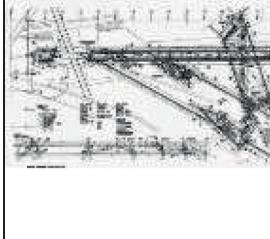
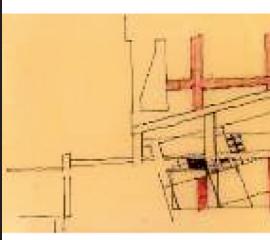
Table 5

Daniel Libeskind has Relied in his Design on the Memory of the Historical Events.

The Most Important Topic of The Recall of Memory, which is Closely Related to Human History					
Origins	Environment Surrounding	Architecture of Civilizations	Historical Events (World War II)	Influential Personalities	Personal Experiences

Table 6

A detailed Comparison between the three case-studies.

Building name	Felix Nussbaum Museum	Wexner Center for Visual Arts	Imperial War Museum North,
Architect	Daniel Libeskind	Peter Eisenman	Daniel Libeskind
Location	Osnabrück, Germany	Columbus, Ohio, USA	Manchester, United Kingdom,
Date	1998	1989	2001
Building Picture			
Plan	broken lines	The simplicity of information and clarity of blocks and formations	broken lines
			
Building Function	Museum	Center for Visual Arts	Museum
Memory recall associated with the design	personal experiences (the artist Osnabrück)	Influential personalities Christ)	historical events (World War II)

10. Conclusion

Those projects were characterised by many design ideas that depended on the relationship between architecture and memory. We find that Daniel Libeskind and Peter Eisenman both relied on memory in their designs. Daniel Libeskind was able to combine in his design both the memory of historical events represented by the events of the Holocaust and the personal experiences of the artist Osnabrück. Critics described his architecture as the architecture of memories because it relies on memories of past events, which in turn affect the current society, while others called his architecture the architecture of silence because the spaces and elements of his project silently express many of the meanings, experiences, and historical stories that affect the memory of the recipient and work to recall a specific event in his memory.

Peter Eisenman relied on the memory of historical events. Eisenman considers that history, with its events, is a mine of ideas, as he sees that to dig inside the ground, you are looking for history, while the site itself is the present, so he quotes his ideas from history and what he carries from events, whether religious, historical, political, or social.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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